



**Gallery**  
**Clean Energy**  
**Inventions**

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<sup>1</sup> Revised October 5, 2023

# Disclaimers

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Prospective investors should also ensure thorough compliance with regulations of the federal Securities and Exchange Commission and appropriate state securities divisions. For more information, see <http://www.zpenergy.com/modules.php?name=News&file=article&sid=1655>.

Some of the devices depicted in the Gallery of Clean Energy Inventions may involve dangerous mechanical conditions, chemicals, radioactive materials, and/or high voltages. Their construction and/or operation may warrant extreme caution. Gary C. Vesperman, Boulder City, Nevada does not takes any responsibility for injuries, fatalities, nor property damage that may result from construction and/or operation of such devices.

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# Gary Vesperman

For over two decades Gary Vesperman has been accumulating an extensive database of some of the world's most advanced technologies and inventions. Retired Lockheed physicist Patrick Bailey's [padrak.com/vesperman](http://padrak.com/vesperman) links to approximately one thousand pages of Gary's invention descriptions that have resulted from Gary's research and collaboration with numerous scientists and inventors – a few of whom are arguably among the world's most creative.

Gary Vesperman was a technical writer with 17 Silicon Valley computer companies including Control Data, Amdahl, Verbatim, Ford Aerospace, Ampex, and H-P, and with EG&G Special Projects in Las Vegas.

Gary Vesperman earned his B.S. Electrical Engineering degree from University of Wisconsin-Madison in 1968. Ken Rasmussen photographed Gary at the 2011 PowerGen convention in Las Vegas. Ken maintains [commutefaster.com/vesperman.html](http://commutefaster.com/vesperman.html).





# Clean Energy Inventions

A portfolio of disruptive inventions has been accumulated after more than two decades of research and collaboration with numerous inventors, a few of whom are among the world's most productive. These inventions are so radical that some may require tens of millions of dollars each to fully exploit. \$1 billion would establish a comprehensive proactive clean energy inventions evaluation and development organization headquartered in Nevada. Divisions would include Board of Directors, Corporate Library, Consultants, Teaching Institute, Technical Evaluation and Advisory Board, and Incubator of Russian and Ukrainian Inventions.

**Larger Generators** – hydro-magnetic dynamo, focus fusion, hydrino generator, thorium power pack, global wireless transmission of electrical power, I.N. Frantsevich Institute of Problems of Materials Sciences thorium-232 energy accumulator, cosmic induction generator, colliding plasma toroid fusion reactor, wind turbine conversion, electrino fusion power reactor, induction coil coating increases generator output by one-third, Magnatron – light-activated cold fusion magnetic motor, Spintronic generator, WIN zero point electrical energy converter, plasma biomass gasification, nano-membrane pyro-gasification process, high-temperature incinerator, gas-phase catalytic fusion, phase-conjugate-resonator Tesla coil, protein nanowires, ball lightning fusion reactor, Nano-Boxx thermionic converter, direct energy conversion, solar radiant energy, and geothermal atmospheric liquefied thorium reactor.

**Smaller Generators** – Casimir-layered electrodynamic generator, thin-film power generating disks, Testatika free energy machine, high-density charge clusters technology, energy catalyzer, cold fusion reactor with electric-to-thermal energy conversion, hybrid cold fusion hydrogen reactor, fiber-based cold fusion power cell, buried contact multijunction thin film solar cell, thermoelectric generator, converter of zero-point electromagnetic radiation to electrical energy, neutrino voltaic generator, LANR, pulsed abnormal glow discharge reactor, self-recharging energy generating gel cells, electronically shaded photo-voltaic glass, MulTask Dome multiple-output omni-directional solar power generator, high-expansion magnetohydrodynamic liquid metal generator, Power Chip thermo-ionic generator, liquid Hy-Fuel, gravity force generator, multifactorial hydrogen reactor, laser-induced fusion, protium H<sup>+</sup> stoichiometric hydrogen gas generator, advanced solar photo-voltaic crystal lattice cells, closed-loop phase-change gas system, geoexchange heat pump, self-recharging capacitive discharge thermal generator, ceramic electrodynamic wafer, solid-oxide fuel cell, splitter of water molecules, motionless electromagnetic generator, Richardson fuel-less electrical generator, radiant energy pump/electricity generator, controlled electron capture reaction, Hendershot magnetic motor, N-1 homopolar generator, atomic isotope generator, closed-path homopolar generator, switched energy resonant power system, high-voltage injection of rain water into cold fog, magnetic propulsion engine, Nova phase change engine, LUMELOID™ light-polarizing photovoltaic film, LEPCON™ femto diode photovoltaic glass sheet, Spiteri water pump, magnetic drive generator, OASIS electric power unit, maximum velocity wind turbine, laser-induced fusion in ultra-dense deuterium, Bedini SG charger, Nova-Neal compression engine, cold fusion thermionic generator, portable electromagnetic generator, and reactionless synchronous generator.

**Miscellaneous** – super-conductive manganite substrates, amplified ionization filtration technologies, Sola-Q self-focusing omni-directional solar cooker, Aaftaab furnace, domestic lens, hydrosonic pump, IPMS-Chernovitsky super ceramics, IPMS micro-channels and filters, IPMS-Kiev and Arzamas-16 super magnets, capacitive step-down transformer, super steam technology, and new propulsion devices for space including electrino fusion power reactor, gravito magnetic device, space drive engine, Moe-Joe orgone energy cell, Walden inertial propulsion, magnetic vortex drive engine, double magnetic fields plasma reactor, magneto-gravitational converter (Searl effect generator), microwave engine, electron spiral toroid Spheromak micro-fusion reactor, internal rotating plasma rings, nuclear electric rocket, David Burns' anti-gravity spacecraft, inertia-less craft and anti-gravity, atomic powered plasma rocket engine, tubular shaped interstellar space craft, gravity control, and meta-stable helium.

**Advanced Self-Powered Electric Transportation Vehicles** – switched reluctance motor, fuel saver that nearly doubles miles per gallon of gasoline, Stanley A. Meyer's water fuel cell-powered car, water-fueled internal combustion engine with Garrett electrolytic carburetor, Brown's gas carburetor, water-to-energy electrolysis process, Richardson blade-less Tesla-type steam turbine, water engine, noble gas plasma engine, Clem over-unity vegetable oil engine, motive power generating device, multi-chambered rotary compression engine, closed-cycle Freon/rotary turbine, 90+ mpg carburetor, conical vortex heat exchange engine, four environmental heat engines, liquid electricity engine. Volcheck: engine powered by gas with unusual expansion properties, Muller motor/generator, conversion of aluminum internal combustion engine to magnetic motor, perm-mag motor, Walden amplified magnetic motor, other over-unity magnetic motors, orgone energy motor, torsion field radio, advanced computer-controlled suspension systems, monocoque (unibody) basalt/carbon fiber foam body/frame made with IPMS high-temperature gas plasma detonator, low-temperature diamond or titanium nitride coating of vehicle parts, Cool Chips thermo-ionic refrigerator, IPMS thermal electric cooling devices, Sky Train, compressed air-driven air conditioner/heater, salt water flow cell, Sirius ultra-capacitor battery, melanin battery/generator, electrostatic motor, Manelas battery charger, high rotor pole switched reluctance motor, axial-flux electric motor, Casimir self-propulsion and one of possibly more than a dozen candidate on-board fuel-less battery chargers.

**Batteries/Energy Accumulators** – diamond nuclear voltaic battery, QUENSOR™, Casimir effect self-charging energy cell, Bedini battery charger, catalyst induced hydrino transition cell, Maxwell Technologies ultra-capacitor, IPMS crystal lattice energy storage/battery device, nickel-iron battery, Baldwin's super-capacitor, nickel metal hydride batteries, solid-state lithium-ion batteries, liquid metal battery, John Hutchison's self-charged battery, endless electric field generator, Brown nuclear battery, Moe-Joe orgone energy cell, Yasunori Takahashi's ultra-capacitor, thin-film electrolytic cells, organic quinine-based redox flow battery, Fisker flexible solid-state battery, graphene polymer battery, graphene magnesium battery, thermal energy battery, solid-state lithium-metal battery, and torsion field energy storage applications.

**Radioactive Waste Treatment Methods** – refresher-regenerator, Purdue University patent, Hawkings' generator makes yard-long white spark of cold electricity several inches in diameter - substances inserted in spark sometimes transmute to heavier elements, Gillembarado's method, collective ion accelerator treats both solid and liquid nuclear waste, Radha Roy's transmutation process, dematerialization devices A, B, C and D using highest powered positive ions ever, Russian process uses liquid lead bismuth to trigger transforming in the form of neutrons, Barker invented easiest, most effective, and least messy method for remediation of radioactive waste, implosion machine is electric arc welder modified to duplicate nature's ball lightning, photo-deactivation using gamma rays, transmutation of low-level nuclear waste into glassy substance with super high voltage, 96% reduction of radioactivity by welding with Brown's gas – further reduction is possible by utilizing liquefied Brown's gas, combining Brown's gas with bucking magnetic fields inside a plasma ball, Thomas Bearden's electromagnetic conditioning method, accelerator-driven transmutation of waste, Brown's gas-metal matrix process, photoremediation, ZIPP fusion process, RIPPLE fission process, low-energy nuclear transmutation electrolytic cells, plasma induced/injected transmutation, Kervran reactions, recovery of uranium from incinerated low-level radioactive waste using super-critical CO<sub>2</sub>, AmoTerra process, geomelting can encase nuclear waste in glass that is harder than concrete and lasts 200,000 years, higher group symmetry electrostatics, plasma gasification melting, e.coli – Birmingham University, flame-free incineration in a catalyzer, John Hutchison's raygun, fusion-fission hybrid reactor, 'oranur effect' method, graphene oxide, thorium reactor, bacteria neutralizes liquid nuclear waste, and low-energy nuclear remediation with ultra-low momentum neutron generator.

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"Gallery of Clean Energy Inventions" pdf file is at <https://app.box.com/v/CLEANENERGYEXHIBIT>.

# Metaphor for the Emergence Of Clean Energy Inventions

Hydraulic engineer and artist Carlos Aliaga Uria lives in Cochabamba, Bolivia with his wife Anna Hosbein. See their company's website [www.ahabolivia.com](http://www.ahabolivia.com). They contract with native Bolivians to ethically manufacture exquisitely artistic handicrafts and wholesale them in Europe and the USA. Carlos has suggested this photograph as a metaphor for the emergence of clean energy inventions from humankind's black hole of ignorance, violence and greed.

The U. S. Patent Office has classified secret 5,520 inventions. Inventors violating a secrecy order may be jailed for 20 years.



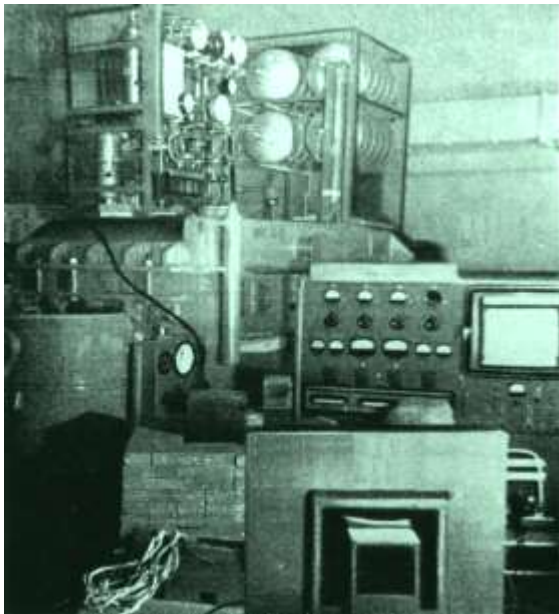


# **LARGER GENERATORS**

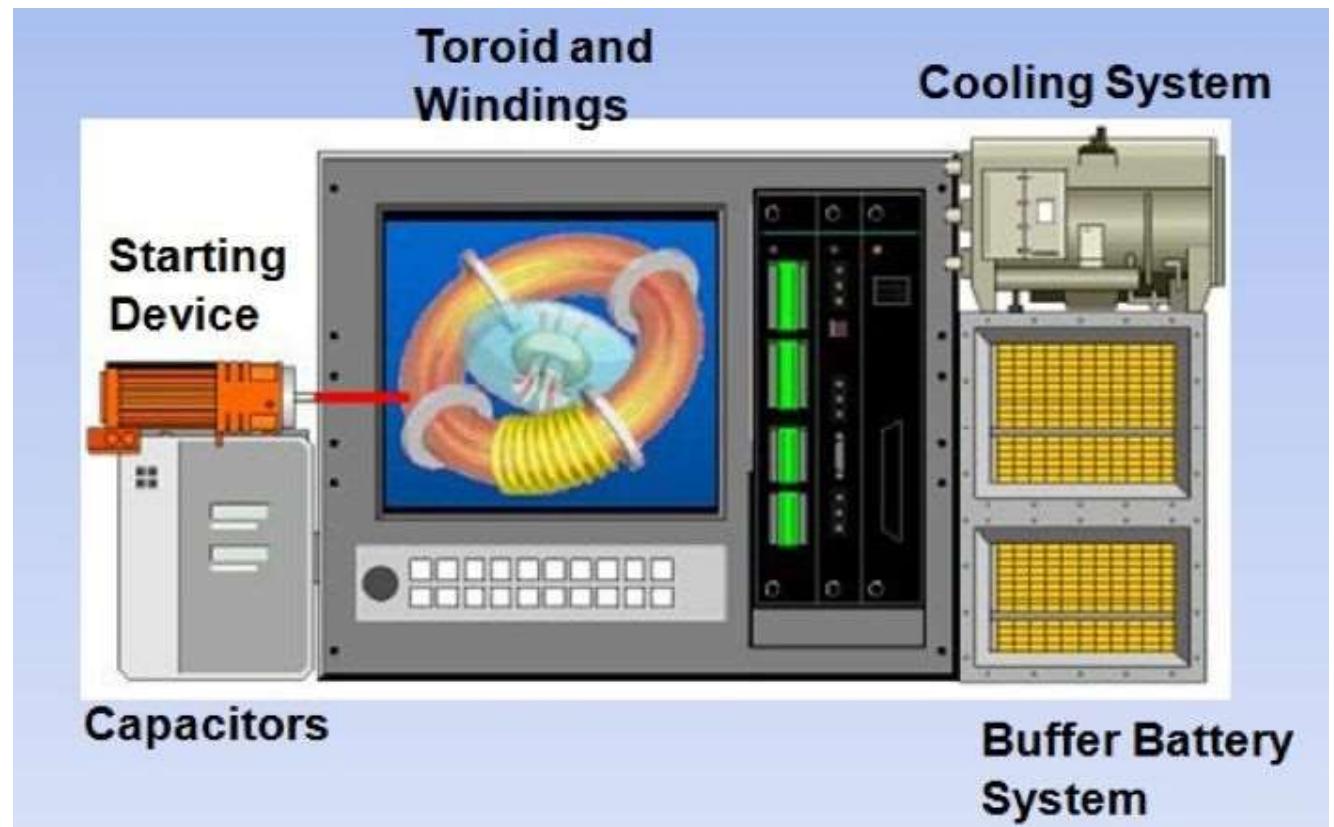


# Hydro-Magnetic Dynamo

Hydro-magnetic dynamos are scalable from 100 kilowatts to 1,000 megawatts. Hoover Dam's 17 turbines have a total nameplate capacity of 2,080 megawatts. One doughnut-shaped, fuel-less 1000-megawatt hydro-magnetic dynamo would be about the size of a two-car garage and could reliably run continuously for 25 years with no external fuel source, little maintenance, and no pollution. Russian patent 2,183,899. Needs \$10 million and two years to research and build a 1 – 5 megawatts fourth prototype.



**900 kilograms 2 meters dia.  
HMD inside plastic 'jacket'.  
1992-1997 the Armenian  
prototype's output averaged  
6,800 amperes at 220 volts DC.  
Input power was 1% of output.**



**Two Megawatts System Layout**

# Tesla's Global Wireless Transmission of Electrical Power

Nikola Tesla developed wireless transmission of electrical power. Tesla's ultimate goal was to power global civilization with a single wireless power transmission system. Tesla built in Colorado Springs, Colorado in 1899 an experimental wireless electrical power transmission system. It had a tower 80 feet high which was topped by a 122-foot mast with a large copper ball at its top end. The system was based on a 12-million-volt 'magnifying transmitter' – a giant high-frequency air core induction coil. Tesla demonstrated it by wirelessly lighting up 200 250-watt electric bulbs at the distance of 25 miles. The colossal partially constructed global wireless power transmission tower shown was at Wardenclyffe, New York in 1901. Electrical power was transmitted to Los Angeles with less than 4% loss in 1904. Wireless transmission of electrical power is being replicated in Russia with modern equipment and materials based on Tesla's design.



The flame-like discharge of an electrical oscillator giving twelve million volts which measure sixty-five feet across, Colorado Springs Laboratory.

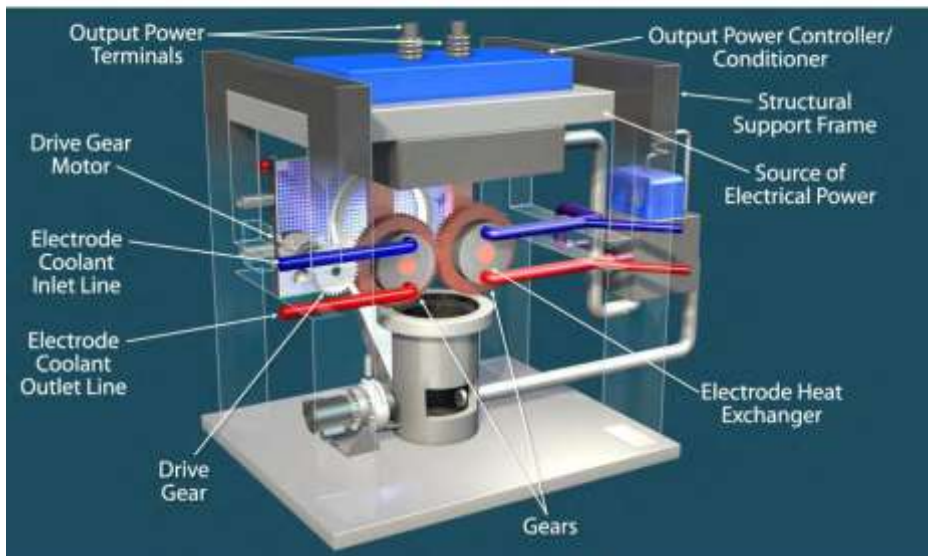




# Hydrino Generator

BlackLight Power's safe, non-polluting power-producing system catalytically converts the hydrogen of the H<sub>2</sub>O-based solid fuel into a non-polluting product, lower-energy state hydrogen called 'hydrino' wherein the energy release of H<sub>2</sub>O fuel is 100 times that of an equivalent amount of high-octane gasoline. Energy is released which in magnitude is between chemical and nuclear energy.

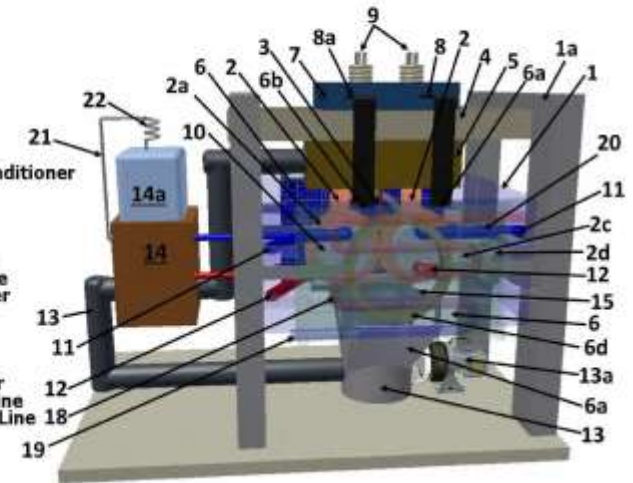
SunCell Power System



SunCell Power System



1. SunCell
- 1a. Structural Support Frame
2. Electrode
- 2a. Gears
- 2c. Drive Gear
- 2d. Drive Gear Motor
3. Solid Fuel Stream
4. Source of Electrical Power
5. Hopper
6. Photovoltaic Converter
- 6a. Chute
- 6b. Anode
- 6c. Cathode
- 6d. Helmholtz Coil
7. Output Power Controller/Conditioner
8. Anode Power Connector
- 8a. Cathode Power Connector
9. Output Power Connector
10. Electrode Heat Exchanger
11. Electrode Coolant Inlet Line
12. Electrode Coolant Outlet Line
13. Product remover/Fuel Loader
- 13a. Vacuum Pump
14. Regeneration System
- 14a. Water Source
15. Vapor Condenser
18. Photovoltaic Heat Exchanger
19. Photovoltaic Coolant Inlet Line
20. Photovoltaic Coolant Outlet Line
21. Water Condenser Line
22. Water Condenser



# IPMS Thorium Energy Accumulator

The I.N. Frantsevich Institute for Problems of Materials Science (IPMS), Kiev, Ukraine, from 1951 through 1991 secretly employed 6600 of the most brilliant theoretical physicists in the entire Soviet Union to work for nearly 50 years with complete freedom. They were able to develop whole new sciences, technologies and materials unknown in the West.

Their models of non-linear quantum mechanics, plasma physics, atomic engineering, nuclear physics and related mathematical and theoretical constructs, which made their development possible, are so unique that they challenge the validity of the most fundamental assumptions embodied in the Copenhagen Interpretation model currently held in general acceptance in the West.

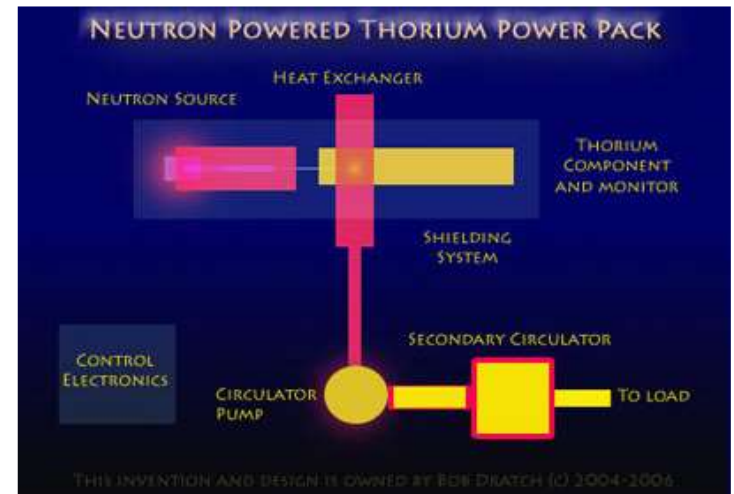
For example, Western-developed particle/wave quantum mechanics is described by Einstein's  $E = MC^2$ . The Soviet nonlinear model of quantum mechanics is described by the formula  $E = M_{KV}$  [Energy = Mass @ rest as a function of a mathematical constant where the velocity of C approaches zero]. Consequently, the more correct Soviet model has enabled numerous technical advances not yet dreamed of by Western science.

Among several energy inventions developed by the IPMS are free-standing thorium-232 isotope electric power generating plants. They can be scaled to power a single home and large enough to power whole communities. They also can operate for up to 300 years with no refueling and minimal maintenance. They pose absolutely no risk for critical melt-down since Th-232 cannot achieve criticality on its own in a nuclear pile.

# Thorium Power Pack

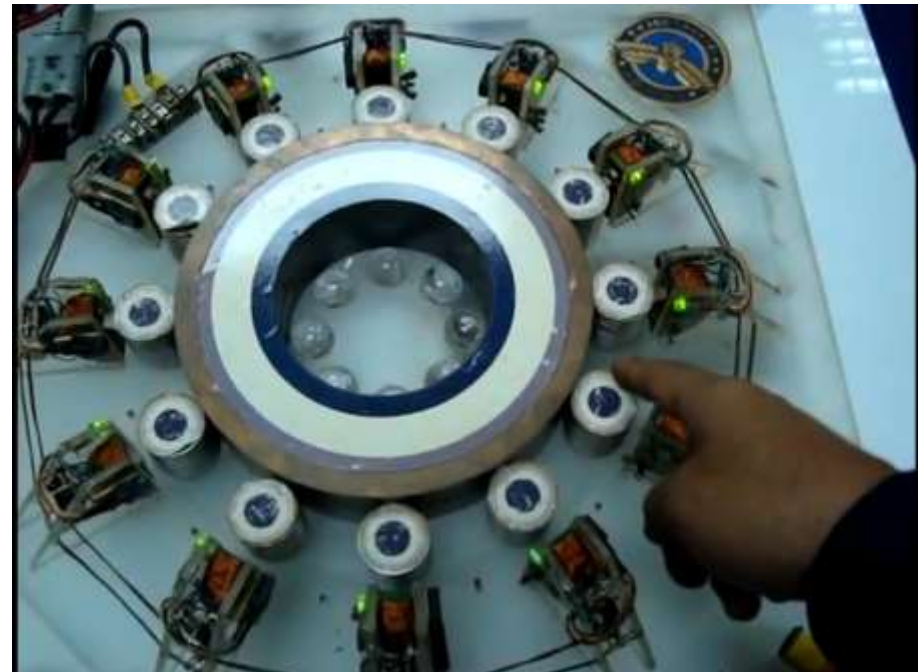
The thorium power pack could generate 50 to 1000 kilowatts of electricity at one-tenth of current electricity prices. Thorium is sufficiently abundant that the entire planet can be powered for millennia. After ten years of continuous operation, a trace amount of U-233 is produced. U-233 recovery to re-purify the thorium is easily accomplished. A thorium-powered reactor is inherently safe. It doesn't run the risk of 'meltdown' or explosion nor can even a dirty bomb be created. Its nuclear reaction simply stops when its neutron exciter is turned off. The simplest and smallest 'table top-sized' neutron exciter design is close to the size of a 4-D cell flashlight, and starts at about 500-kilovolt neutron output.

A thorium power pack's neutron exciter does not use radioactive flux components as conventionally done for portable systems. Instead it relies on a novel method of resonant phonon pair cleavage using specifically designed nuclear lattice holo-forms (holographic waveforms) to induce neutron imbalance in a host atom where the host atom then attempts to establish 'balance' through the liberation of neutrons. The first model of this novel design was demonstrated in 1966. Commercial thorium power packs can be developed with 50 or 100 kilowatts of output for home use, and up to 1 megawatts for industrial use. They actually are 'power amplifiers' with estimated power outputs of 60 times over input power. Maintenance would be minimal.



# Searl Effect Generator

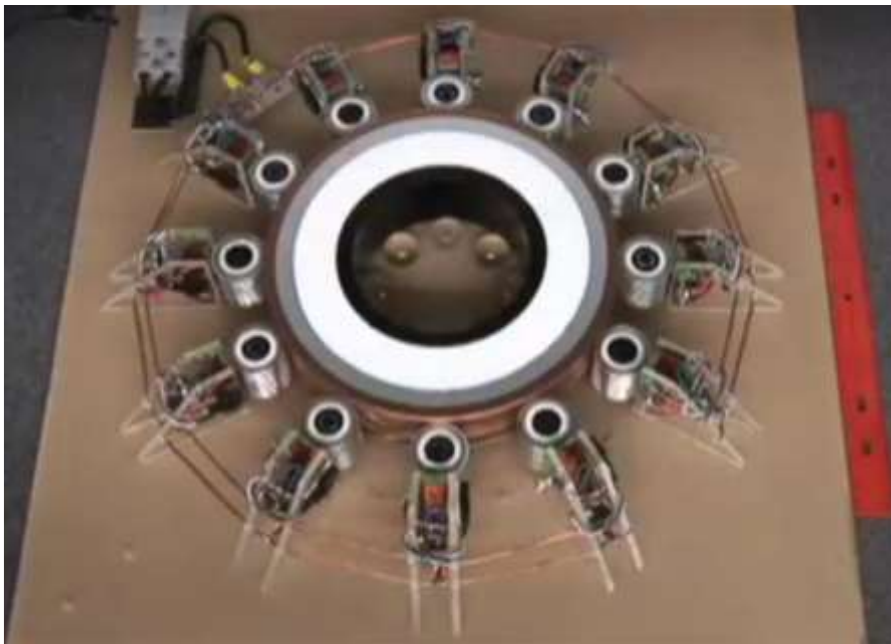
The Searl effect generator comprises of three concentric magnetic rings with magnetic rollers rolling around the rings. Both the rollers and rings are comprised of four layers of titanium, iron, nylon, and neodymium. The magnetic fields impressed on the rollers have both AC and DC components. The AC component is for floating the rollers so they don't touch the rings. The DC component is to prevent them from flying off. The innermost set contains a minimum of 12 rollers for the reason that a linear motor will not operate with less than 12 phases. Brushes positioned around the outside set of rollers pick up electrical energy.





# Spintronic Generator

A Spintronic Generator operates as both a motor and generator. It consists of 3 large ring-type stators (generators, about which, or in which a rotor rotates) that are specially magnetized with patterns designed to generate continual motion of similarly magnetized cylindrical rotors. The rotors are free to rotate around the stator rings with mutually interactive eddy currents of induction that form frictionless magnetic bearings between moving parts. In the process, electrons are paired (bosons), accelerated outward and harnessed for their kinetic energy before they eject out to the ionized air. Spintronic generators can be wired up in tandem to generate unlimited megawatts of electricity. Fuel-less spintronic generators are pollution free and safe. US Patent 9,871,431.



STG product enclosure for a home unit.

# Induction Coil Coating Increases Generator Output by One-Third

Coating the induction coils of generators with a proprietary material increases their output by one-third using the same amount of fuel. It has been demonstrated in a lab that when the induction coil of a common automobile alternator is coated with (deleted) impregnated in an epoxy resin the amount of watts output at the generator is increased by 35%-38%.

The practical implications of this finding are profound – it means, for example, that if all generators used to produce power were (deleted) impregnated using this simple application, the amount of fuel required to generate electrical power to the grid could be reduced by 1/3. One application is to increase the output of wind turbine generators by about a third.

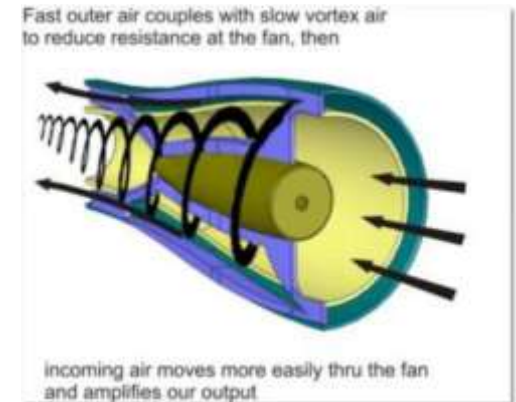
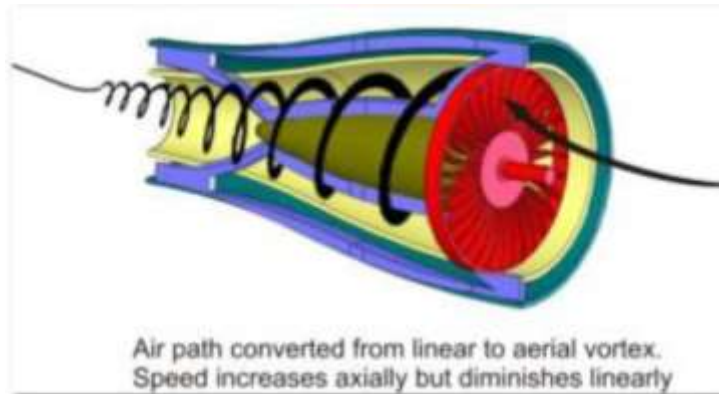
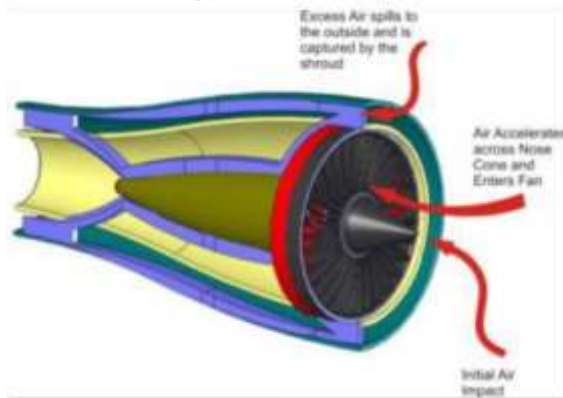




# Wind Turbine Conversion

When a single 1.5-megawatts wind turbine is converted, the gearbox is removed and so is the brake mechanism. The propeller blades are redesigned to operate at wind speeds in excess of 60 mph, which is four times faster than the average horizontal axis wind turbine is designed for. Because the integrated system is able to deliver on demand during peak hours and during the night time when the wind is NOT blowing, this system would qualify for long-term power production contracts on a par with coal and gas-fired systems. The installed cost is reduced by more than 60%, and the maintenance costs are reduced by as much as 90%. An adaptation of the (deleted) tied to 10 such turbines will provide 5 megawatts of continuous output power when the wind is not blowing and during the night time. The entire system will deliver up to 15 megawatts in optimum wind conditions.

The installed cost for such a system is estimated at about \$1,100 per kilowatt of installed capacity. When no offset reserve has to be created to support the five-year replacement cost of the gearbox and brake system, the numbers related to power output vs. cost input become extremely attractive. Perhaps more importantly, the real efficiency of the system is much higher than a conventional system because it becomes in effect a highly efficient heat exchange engine rather than simply a wind energy conversion unit.



# Ball Lightning and Self-Confined Thermonuclear Reactions

The long lifetime of ball lightning in an otherwise explosive situation suggests that perhaps the confinement mechanism represents processes that could be exploited to confine sustained thermonuclear reactions. A mathematical model of ball lightning treating it as a quasi-superconducting sphere is presented.

A simple ball lightning fusion reactor is designed that has hundreds of kilo-amperes discharged through two electrodes. The electric field between the electrodes will polarize the discharge plasma into an upper half with negative space charge and a lower half with positive space charge. Magnetic fields turn the plasma sphere into a hydro-magnetic capacitor. A gas jet is initiated which blows the discharge plasma from between the electrodes to the more spacious reaction chamber. Another gas jet then supports and stabilizes the plasma sphere in the reaction chamber. Once the plasma ball is in the reaction chamber thermonuclear fuel is added to the ambient atmosphere. The fuel enters the plasma ball through diffusion, and the meridional circulation carries it to the hot thermonuclear center where release of nuclear energy sustains the reaction.

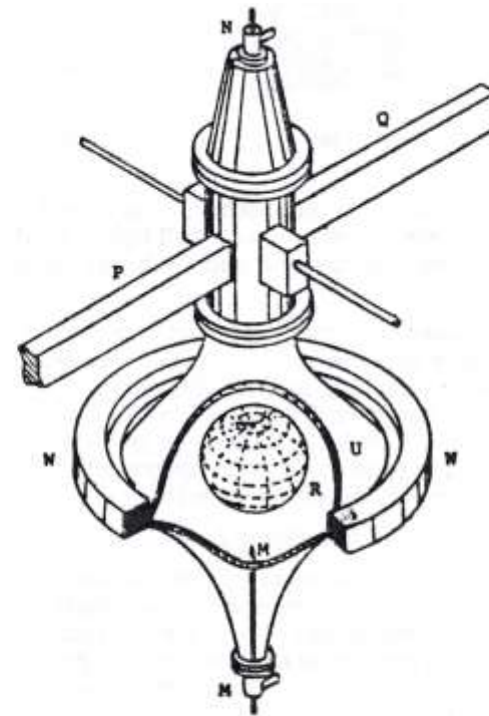


Figure 3. Cut-away view of reaction chamber "U" showing central plasma sphere R in equilibrium position.

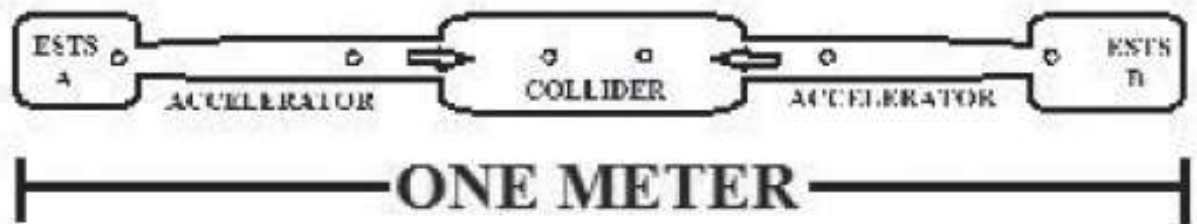
# High-Density Ions May Make Clean Fusion Energy a Reality

Electron Power Systems, Inc., (EPS) has discovered the explanation for ball lightning. EPS then discovered a new plasma toroid, or ring, that remains stable in atmosphere **with no external magnetic field coils for containment**. Its ion density is 10,000 times greater than magnetically confined fusion processes such as Tokamaks. From that EPS has invented and patented a method of making clean fusion energy a reality by creating high-density ions.

Safe, pollution-free colliding plasma toroid fusion generators could reliably generate 10 kilowatts through 1000 megawatts of electricity at the cost of 10% of today's electricity. All transportation vehicles could be reliably and safely powered with colliding plasma toroid fusion generators with substantially lower manufacturing, operating and maintenance costs. EPS expects to reduce the mass and cost of aircraft by 70% and space launch costs by more than 95%.

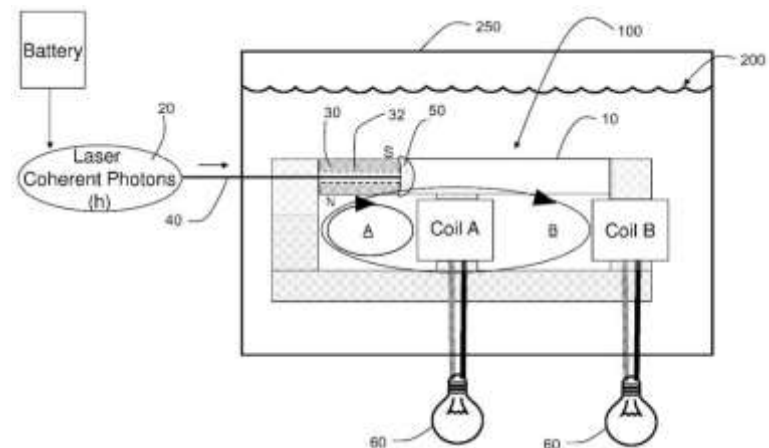
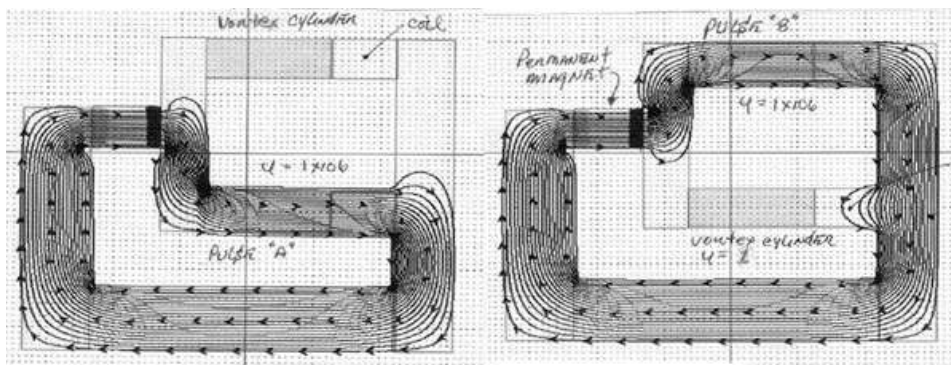
EPS is developing a 1-meter clean electricity generator for powering buildings, cars and vehicles with an 80% fuel cost

savings while producing no pollution. It would be the size and cost of a 10-kilowatt backup generator. The potential is for clean electricity generators to run 24/7 for a year on one gallon of fuel, vs. 100,000 gallons of gasoline needed for today's fossil-fueled generators.



# Direct Energy Conversion

Power generation has remained largely unchanged over the past 100 years and the bulk of our electrical energy still requires a rotating armature to make electrical power. 'Direct Energy Conversion' is a new high-performance, low-cost method of generating electrical energy using existing quantum physics principles and new materials. The device is solid-state and harnesses Type II superconductor technology to perform the same work function as a rotating armature. DEC requires liquid nitrogen as a cryogenic 'fuel'. This cost is small compared to the fossil fuels. DEC does not use combustion to convert potential energy into kinetic energy. The only byproduct is a small amount of waste heat and nitrogen gas which is released back into the atmosphere where it originated, closing the loop without the production of CO<sub>2</sub>. US Patent 8,736085 Method and Apparatus for Direct Energy Conversion.



The left figure is a simple computer simulation of the vortex cylinders in operation, as well as how the static flux could flow in a conventional magnetic circuit. Note how the modulation of the vortex cylinders causes the static flux to modulate between channel "A" and channel "B" coil. The coils are shown in series with the vortex cylinders.

# Electrino Fusion Power Reactor

'Electrinos' are sub-particles of electrons. Supernovas and  $\eta'(938)$  decay confirm electrino fusion theory. The Electrino Fusion Power (EFP) reactor is a safe pollution-free generator of 1880 megawatts, net, of DC electricity. Two linear accelerators collide two beams of electrons with like orientations of axial spins in the center of mass frame at 940 million electron volts. The EFP reactor size is not known yet until we do its micro design for \$100,000. One hundred and fifty pounds of copper would be consumed over 100 years before shutdown for accelerator rebuilding.

The power released in annihilation photons would be 3760 megawatts. 'Annihilation photons' are the 940 MeV X-rays produced when a negatron annihilates a proton. These X-rays are converted to electricity by order-to-disorder arrow-reversed photo-voltaic cells with nearly 100% efficiency. To sustain the electrino fusion reaction, 1880 megawatts would be taken from the 3760 megawatts output to power the linear accelerators, magnets, controls, etc.

The first 1880-megawatt EFP reactor may cost as little as \$5 million through laser acceleration, plus siting costs. The price of its electricity would be three cents per kilowatt hour until the reactors are all paid for; then free ever after. Other applications include anti-matter rockets and miniature EFP reactors for permanent power supplies in buildings and vehicles of all types.

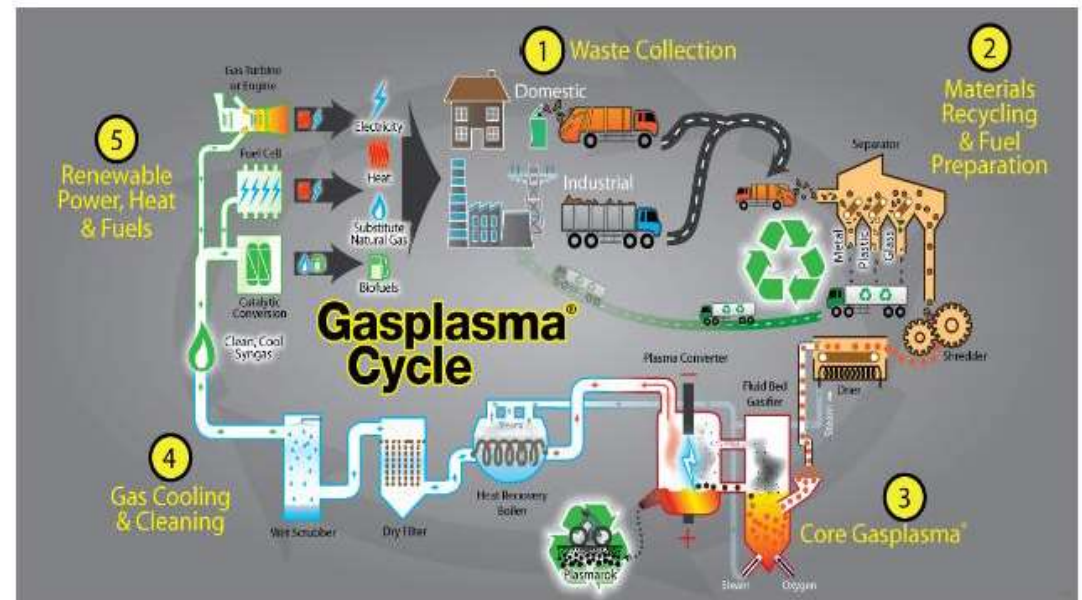




# Plasma Biomass Gasification

Plasma biomass gasification systems produce a variety of combustible gases from a wide variety of municipal waste, biomass waste, sewage and other materials containing high concentrations of hydrocarbons with an over-unity energy efficiency of between 125%-150%. South Africa produces 100% of its diesel fuel and gasoline with two plants which operate on these principles. Plasma, also called the 4th state of matter, can exceed temperatures of 7,000 degrees centigrade – that's three times hotter than petrochemical fuels burn, and hotter than the surface of the sun. Inside the chamber, two electrodes create an electric arc so hot, that it breaks down materials into their atomic elements. Plasma biomass gasification systems produce substantially more energy content in the collected gases than is required to drive the carbon-arc filaments.

Advanced Plasma Power is a leading technology provider for advanced waste-to-energy/fuel plants employing its globally patented Gasplasma® technology. After the removal of valuable recyclables, the Gasplasma® process treats a wide range of feed stocks including residual municipal solid waste and commercial/industrial waste – converting it all into two high-value outputs – a clean, high quality, energy-rich synthesis gas, and a solid, vitrified product – each with multiple applications.



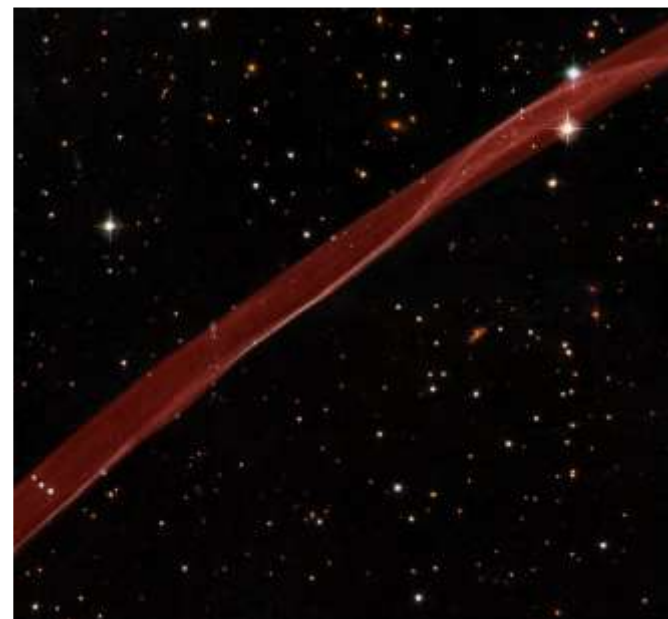
Advanced Plasma Power's advanced Gasplasma® technology today delivers 50% electrical conversion efficiency – twice that of conventional steam cycle technologies.



# Gas-Phase Catalytic Fusion

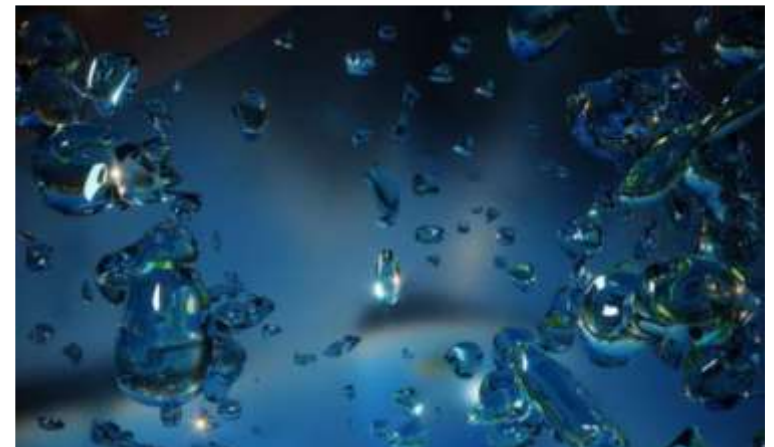
Dr. Les Case's gas-phase catalytic fusion process was confirmed by Stanford Research International. Activated carbon catalysts are loaded with various precious metals (by weight, in the range of 0.1% to 0.5%). Palladium works best so far. When these catalysts are heated, considerable excess heat is produced reliably when such catalysts are exposed to several atmospheres of heavy hydrogen gas (deuterium gas). Pairs of deuterium atoms are fused to produce waste helium-4 atoms plus abundant clean heat. No lethal radiation is released. One cubic kilometer of ocean water contains enough deuterium that when catalytically fused, the energy released equals the chemical combustion energy in all of the earth's known oil reserves.

With suitable insulation, the process, once started, is self-heating. Temperatures can rise well above the boiling temperature of water. Engineered with efficient heat exchangers, thermal/electrical energy generators can be built in sizes for applications ranging from mobile homes to large centralized generating stations. No electrolysis is involved nor are finicky electrodes required as with some other types of low-energy nuclear transmutation devices.



# Protein Nanowires Generate Electricity from Water Vapor in Air

The Air-gen's protein nanowires are produced by Geobacter or E-coli microbes. The Air-gen requires only a thin film of protein nanowires less than 10 microns thick. The bottom of the film rests on an electrode, while a smaller electrode that covers only part of the nanowire film sits on top. The film adsorbs water vapor from the atmosphere. A combination of the electrical conductivity and surface chemistry of the protein nanowires, coupled with the fine pores between the nanowires within the film, establishes the conditions that generate an electrical current between the two electrodes. Air-gens are non-polluting, renewable and low-cost. They can generate power even in areas with extremely low humidity such as the Sahara Desert. The Air-gen does not require sunlight nor wind, and even works indoors. Air-gens are scalable from cell phones to large base-load generators. The image is of a thin film of protein nanowires generating electricity from atmospheric water vapor.

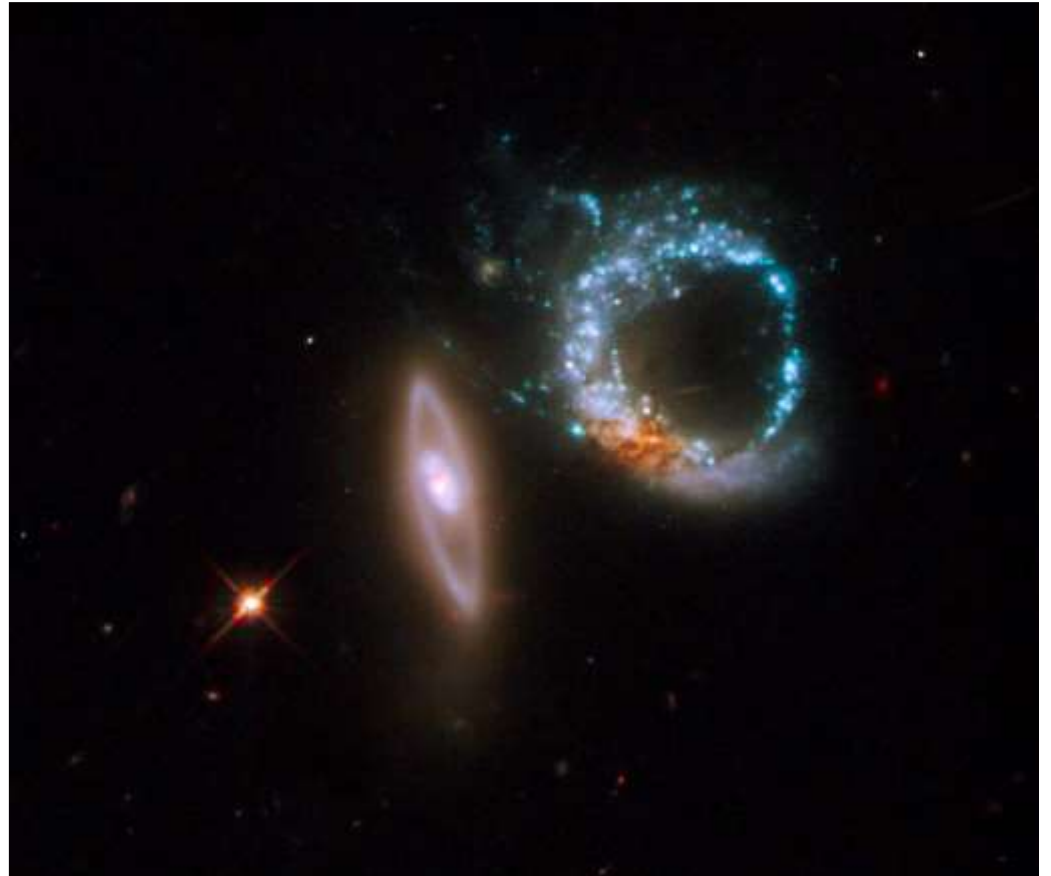


# Super Steam Technology

The 'super steam' machine combines compressed air, untreated or even polluted water, and almost any combustible fuel to produce steam at any pressure or temperature. The response is instant compared with a conventional boiler taking hours to reach operating pressure and temperature. The efficiency is over 90%, which compares favorably with a conventional boiler's efficiency of 40%. Nitrogen rich, it can put out gasoline fires and treat many waste problems.

Maintenance costs, fuel consumption, and air pollution all go way down. Electricity can be generated for 1 cent per kilowatt-hour. Super steam technology can be scaled from the size of a one-pound coffee can to a house. The super steam system has no moving parts to wear out.

3500 applications have been found for super steam technology.



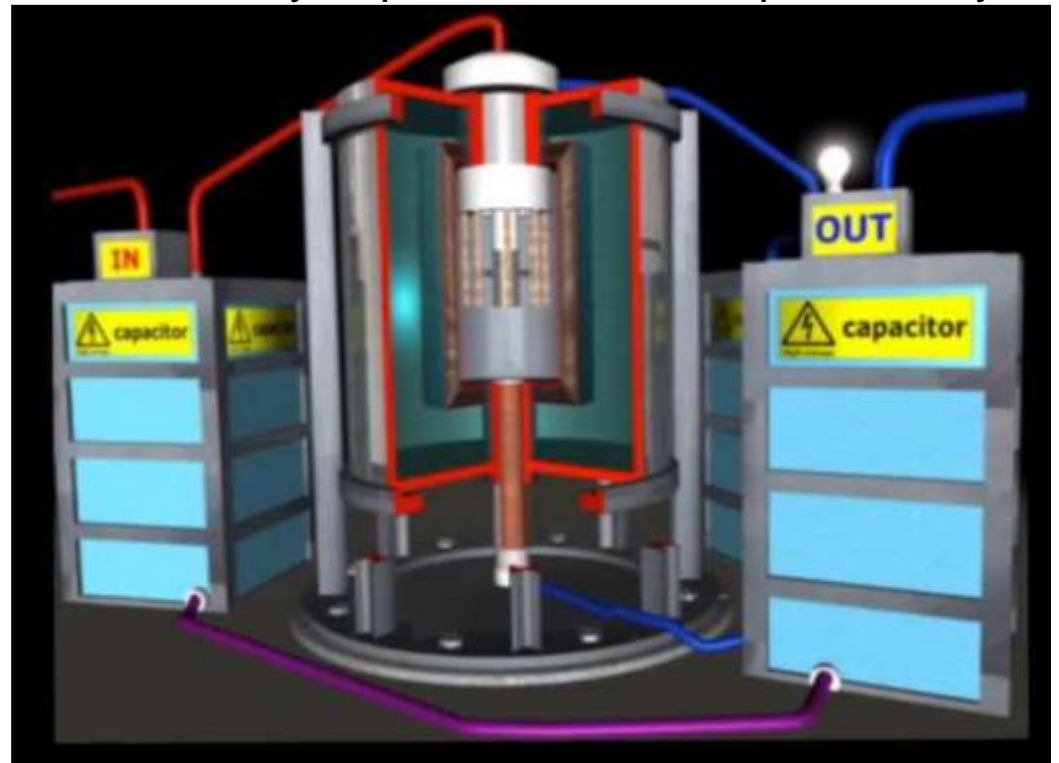
# Focus Fusion

Focus fusion uses a pulse of electricity that generates a plasma in a shape that makes it kink itself into a tiny little ball of lightning hot enough to fuse the atoms of hydrogen and boron. Over a million amperes of current is driven across a pair of cylindrical electrodes, creating a dense plasma where fusion reactions occur. US Patent 7,482,607.

A powerful beam of electrically charged helium nuclei is released that is directly converted into electricity with over 80% efficiency. The second part of the energy comes out in the form of X-rays which are captured in an onion-like array of photoelectric receptors. They collect the X-ray energy and again convert that to electricity.

Focus fusion produces no radioactive waste. The waste product of focus fusion is harmless, useful helium gas.

Focus fusion generators will be only 5 million watts – enough for 3500 homes. A 5 megawatts focus fusion generator may cost around \$300,000 and produce electricity for only one-third of a cent per kilowatt-hour.





# Geothermal Atmospheric Liquefied Thorium Chemical Reactor

The Geothermal Atmospheric Liquefied Thorium Chemical Reactor (GALT) is 200 times more efficient than uranium-fueled light-water reactors. In 1953 the first 150 kilowatts GALT reactor is successfully operated for 100 hours in Oak Ridge National Laboratory for the Air Force. Small GALT reactors could power vehicles, planes, trains and ships as well as factories and neighborhood electricity generators. GALT power plants are far less complicated and ten times less expensive to build than highly pressurized uranium reactors because GALT reactors operate at atmospheric pressure. GALT reactors are not susceptible to meltdowns and can consume dangerous fuel from the uranium reactors. Had the US Government allowed commercialization of GALT reactors by the early 1970's humanity could have unlimited clean safe inexpensive energy for millennia. To remove the threat to the oil monopoly GALT reactor technology was classified secret. After a half-century the Trump administration has declassified GALT reactor technology.

Geothermal Atmospheric Liquefied Thorium Chemical Reactor (GALT-CR). Phase II: Sized at 7,500 kWh. Congratulations given between team members at 6,000 hours of continuous operation (1969).



This  
Thorium ball  
hold enough  
energy to  
supply you  
for your  
entire life!

Based on today's average use per person in USA

# Heat and Cool Buildings with Vortex Tubes

The compressed air-driven air conditioner/heater (US Patent 4,407,134 “Air Conditioning System”) relies on the principle of a vortex tube. For the specifications of a small prototype vortex tube see Compressed Air-Driven Air Conditioner/Heater in the Advanced Self-Powered Electric Vehicle Innovations. A vortex tube can be switched between expelling 90% cold air and 10% warm air, or 90% warm air and 10% cold air. The prototype has been certified at nearly 30% efficiency. Tests of various sizes of vortex tubes would determine the largest practical vortex tube before its efficiency begins to decrease. After finding the size of the largest practical vortex tube, the number of vortex tubes can be matched with the compressed air capacity of available quiet air compressors.

Several vortex tubes could be racked together into for example five rows of five vortex tubes for a total of 25 vortex tubes. A Las Vegas Strip hotel may need hundreds or maybe even thousands of vortex tubes to replace their huge chillers and heaters. When a specific air compressor is selected, at least one generator would be selected with which to power the air compressor at no energy cost. A scan of the Gallery of Clean Energy Inventions has found three dozen candidate generators that seem to merit closer examination.

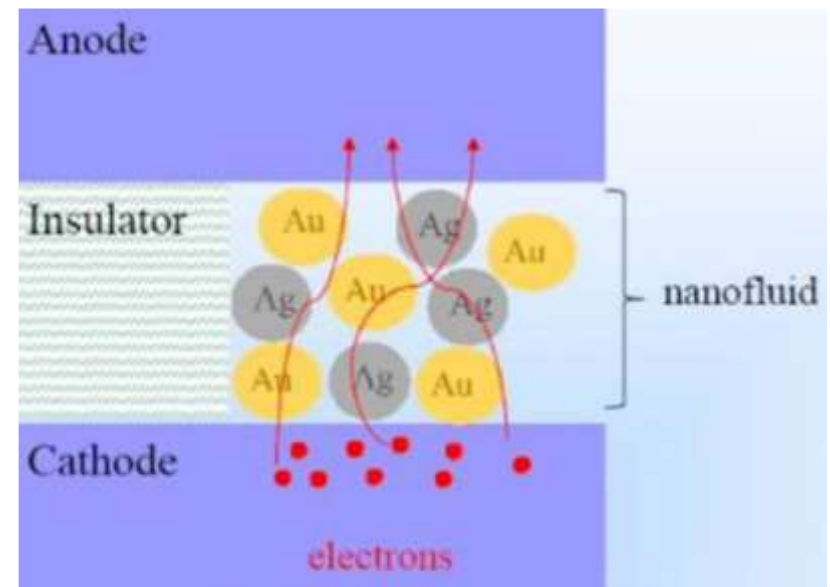
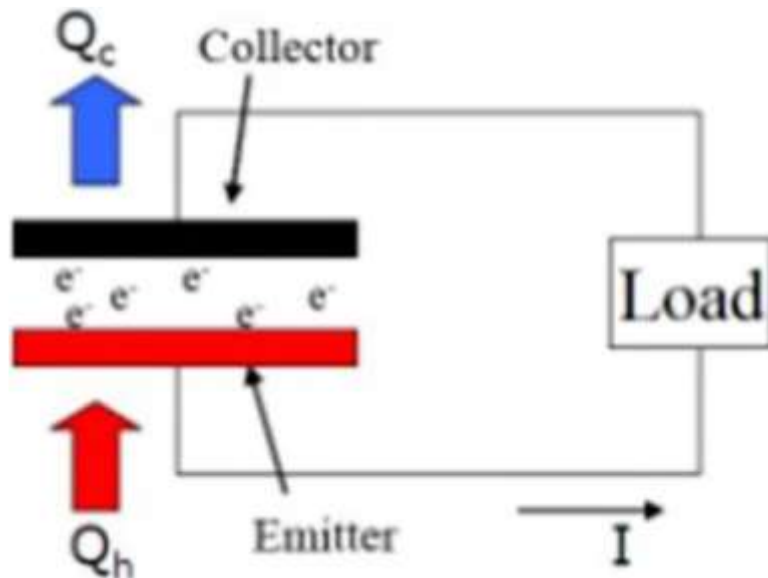
The energy and environmental savings from heating and air conditioning one billion buildings worldwide AT NO ENERGY COST would be of immense political, economic, social and environmental consequence.





# Nano-Boxx™ Thermionic Converter

The Nano-Boxx™ converts ambient heat to electrical power – thermionic energy conversion. Two metal plates composed of different metals are placed less than 10 nanometers apart with a nanofluid in between. An electric current is generated when electrons from one plate vaporize and collect on the other plate. Stacking enables scaling the Nano-Boxx™ from milliwatts to megawatts. 8 to 9 of these will power a cell phone; a 1 cubic meter stack 1 megawatts. It has powered an LG Nexus cell phone for the past few years. It is cheaper to produce than a lithium ion battery, has 40% more energy density, completely safe and recyclable, and has no emissions.

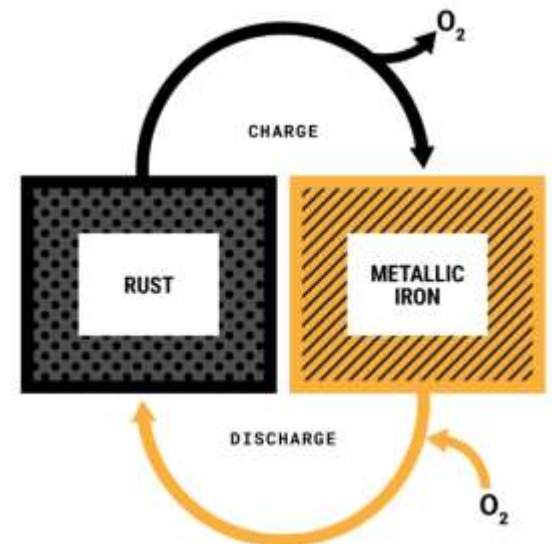


# Iron-Air Battery

The iron-air battery is optimized to store electrical energy for 100 hours at less than 1/10th the cost of lithium-ion batteries. The basic principle of operation is reversible rusting. While discharging, the battery breathes in oxygen from the air and converts iron metal to rust. While charging, the application of an electrical current converts the rust back to iron, and the battery breathes out oxygen.

Each module is filled with a water-based, non-flammable electrolyte, similar to the electrolyte used in AA batteries. Inside of the liquid electrolyte are stacks of between 10 and 20 meter-scale cells, which include iron electrodes and air electrodes. These battery modules are grouped together in modular megawatt-scale power blocks.

Iron-air batteries complement the function of lithium-ion batteries, allowing for an optimal balance of iron-air and lithium-ion batteries to deliver the lowest-cost renewable and reliable electric system year-round. Iron-air batteries offer no risk of thermal runaway, no heavy metals and high recyclability.



# Solar Radiant Energy

Due to the solar wind from our sun, energy is constantly hitting the earth and surrounding ionosphere with ions and electrons. These solar electrons wrap around the earth 24 hours/day. This energy envelops us constantly and is always present. The secret is tapping into this constant solar energy. Photovoltaic solar panels use light frequencies from the sun to create variable electricity. ZPower's solar radiant energy panels use non-light frequencies from solar winds to create constant electricity by collecting solar-activated electrons 24/7.

A 1-square-foot solar radiant energy panel produces over 300 watts. A 1-cubic foot prototype (not shown) puts out over 5 kilowatts of constant DC power. A 1-megawatt generator is the size of a 20-foot shipping container and can power 500 homes 24/7.



# Portable Electromagnetic Generator

An off-grid non-polluting affordable lightweight Portable Electromagnetic Generator can make electric power available to everyone in the world. Based on Faraday's law of electromagnetic induction a patented motionless rotor supplies up to 15,000 watts of electric power depending on the model (3,000, 6000, 12,000 and 15,000 watts). An electronic controller meter monitors, in real-time, Power IN, Power OUT, Voltage IN, Voltage OUT, Current IN, and Current OUT using a Wi-Fi feature.





# Diamond Nuclear Voltaic Battery

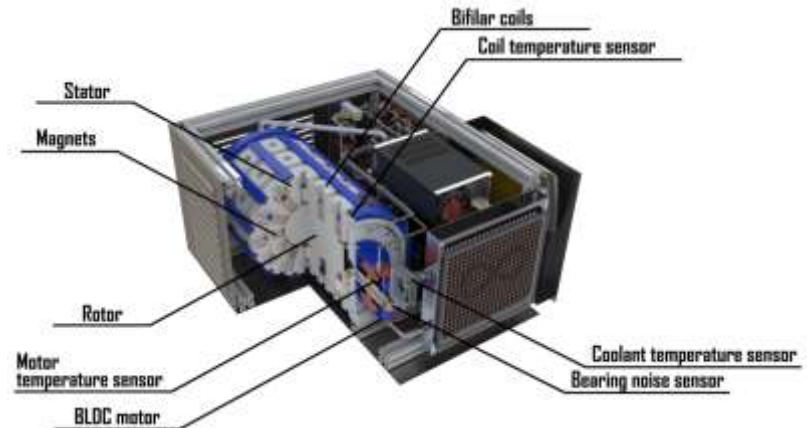
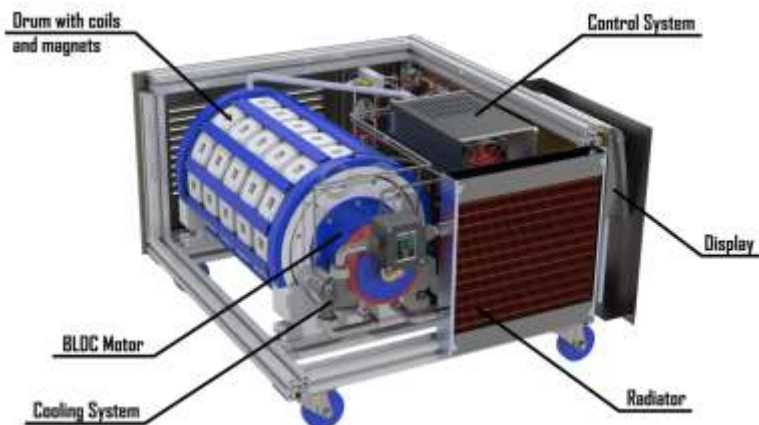
Carbon-14 emits electrons as it decays for thousands of years. Nano-Diamond Battery (NDB) has fabricated recycled carbon graphite from nuclear waste into radioactive single crystalline diamond. To contain the nuclear radiation from the diamond, it is encased in another layer made from non-radioactive, lab-created carbon-12 fabricated into polycrystalline diamond, which is the hardest material and twelve times tougher than stainless steel. The non-radioactive polycrystalline diamond is an exceptionally thermally conductive material useful for conducting heat away from the radioactive diamond.

A diamond nuclear voltaic device is a combination of a semiconductor, metal and ceramic which has two contact surfaces functioning as the usual battery anode and cathode to facilitate charge collection. A multi-layer stack arrangement maximizes efficiency for high energy output. While the diamond itself stores the charge, a supercapacitor is constantly charged for occasional high electric power output. The battery's advanced flexible structural design enables the battery to take any shape based on its application.



# Fuel Free Magnetic Energy Generator

The 10-kilowatts Model MG10 magnetic energy generator consists of 40 neodymium magnets and 40 bifilar coils. Electricity generation is enabled by the precise angular alignment of the coils and magnets inside the drum and the switching regulations to suppress back EMF and effectively collect accumulated energy inside the electromagnets (coils). As a magnet starts approaching a coil, at a certain point the voltage of the coil increases along with the amount of charge it can transfer. Once the switching regulator detects the maximum voltage of the coil, it switches off the coil. The magnetic field of the coil that has been formed after excitation of the coil will tend to collapse generating a back EMF in the coil windings. The generator's software suppresses the parasitic current and transforms it into usable electrical energy. When larger power output is required, the generator can be connected to and synchronized with another device to produce total net power of up to 1 megawatts. Generator output power is constant 24/7. If the load exceeds a generator's power capacity, the excess demand can either be met by batteries or the generator's control unit signals another generator to start up and then synchronized.



# Self-Confined Low-Energy Fusion

A way has been found around the problem of fusion confinement. The answer lies in that plasma itself, in the right environment, will generate its own magnetic field. Naturally, a plasma will self-organize within its own magnetic field, which can keep a plasma confined and stable for long durations of time. This observation has been a crucial piece in the process of experimenting with a simplified approach to fusion energy. This simplified approach to fusion has successfully sustained a low-energy nuclear fusion reaction for over an hour straight, without the use of an external confinement system.

Utilizing discoveries in material science and electrochemistry, an aqueous solution was developed in which a low-energy nuclear fusion reaction will naturally occur, after the introduction of a small amount of input power via a special submerged electrode. The proprietary 'fusion fuel' used in the long-duration demonstration, is a derivative of water combined with a precise ratio of benign chemicals. Together the water-based formula and simplified approach are capable of generating hyper-efficient power, by quickly boiling the water and producing steam that can turn a turbine to generate continuous carbon-free electricity.





# Recirculating Heat Pump Turbine

The Recirculating Heat Pump Turbine (U.S. Patent 10,480,343 B1) utilizes the dynamic properties of a heated, compressed working fluid, typically humid air, to produce a constant energy output. The turbine implements a Carnot cycle with an efficiency of approximately 90%, using the surrounding air as its low-temperature reservoir. Power is initially supplied by a lithium-ion battery, which runs an electric motor to compress the working fluid. Once the device has achieved the targeted rotational speed, the clean exhaust from the core turbine is salvaged to run the compressor, allowing the motor to shut off until required. At the same time, the angular momentum of the drive shaft is used to power attached DC generators. A second battery is kept fully charged by the generators to create a continuous energy supply to the electric motor, which slowly drains the first battery as it supplements exhaust input to the compressor. Control circuits monitor pressure, heat, humidity and other parameters, tweaking the operation of the components to maintain a constant output. Maintenance is simple, consisting mostly of ensuring the batteries are functional and that the working fluid has enough moisture to power the device. The recirculating heat pump turbine can be scaled from powering vehicles to very large base load generators. Compressed air optionally mixed with deuterium and helium-3 may produce a fusion reaction.





# Urangara Cold Fusion Reactor

Urangara is a word from one of Australia's aboriginal tribes which means 'The Sun'. The system is inexpensive, emits no greenhouse gases and there is no radioactivity. Its energy density is 2000 times the energy density of diesel oil. Uses include heating, desalination, transportation and generating electricity.

Nano-sized particles of nickel, pressurized hydrogen and a catalyst are heated in a small reactor to the point at which weak interactions between the reactants cause transmutation (i.e. some of the nickel is converted to copper).

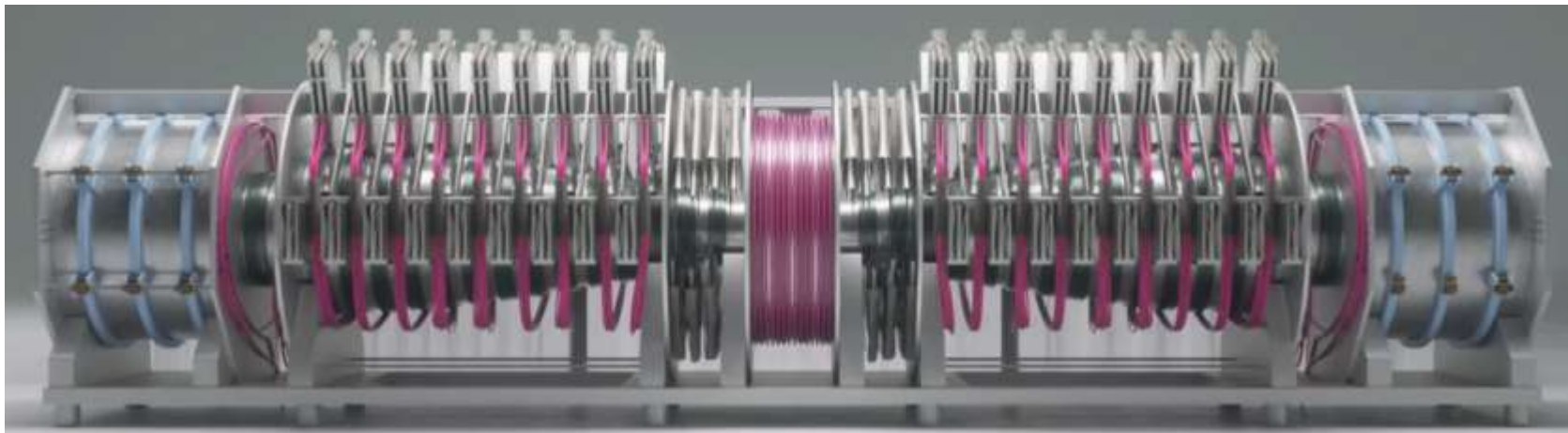
Considerable excess heat is emitted during this process. Once the reaction becomes self-sustaining, the input power can be reduced significantly and excess heat (up to 700 degrees C) is generated.

The various isotopes of nickel (Ni) undergo a cascade involving the nuclear fusion of individual nickel atoms with multiple hydrogen atoms to form several stable isotopes of copper (Cu) and zinc (Zn), as well as two unstable, radioactive isotopes of copper – one of which is responsible for excess heat production.

Less than one gram of nickel with this reaction is equivalent to one barrel of oil, or one barrel of nickel creates the same energy as a super tanker of oil!

# Magneto-Inertial Fusion of Deuterium and Helium-3

A plasma accelerator utilizes a patented high-efficiency closed-fuel cycle to fuse pairs of deuterium isotopes into helium-3, the ideal fuel for fusion electricity. Deuterium and helium-3 fuel is heated to plasma conditions. Magnets confine this plasma into Field Reversed Configuration (FRC) plasmoids. Magnets accelerate two FRCs to 1 million mph from opposite ends of the 40-foot accelerator. They collide in the center. When the FRCs collide in the center of the system, they are further compressed by a powerful magnetic field until they reach fusion temperatures of 100 million degrees Celsius. At this temperature, the deuterium and helium-3 ions are moving fast enough to overcome the forces that would otherwise keep them apart and they fuse. This releases more energy than is consumed by the fusion process. As new fusion energy is created, the plasma expands. As the plasma expands, it pushes back on the magnetic field. The change in the magnetic field induces current, which is directly recaptured as clean electricity, projected to cost \$.01 per kilowatt-hour. Steelmaker Nucor has ordered from Helion Energy a 500-megawatt fusion generator.



# Global Wireless Power Transmission Via Zenneck Surface Waves

A 'Zenneck surface wave' is an electromagnetic wave that uses the surface of the earth as a waveguide enabling it to carry electrical power efficiently over long distances. This wireless power system will employ a 'transmitter probe', located near a power generation plant, to launch a Zenneck carrier wave. Receiver antennae will be positioned appropriately around the world to receive the 18-kilohertz signal and download the power into a local grid with 85% efficiency. Viziv Technologies' 200-foot high global electric power transmission tower is near Milford, Texas and is the world's largest entirely fiberglass structure. The 30,000 pounds aluminum dome is charged to 200 million volts.



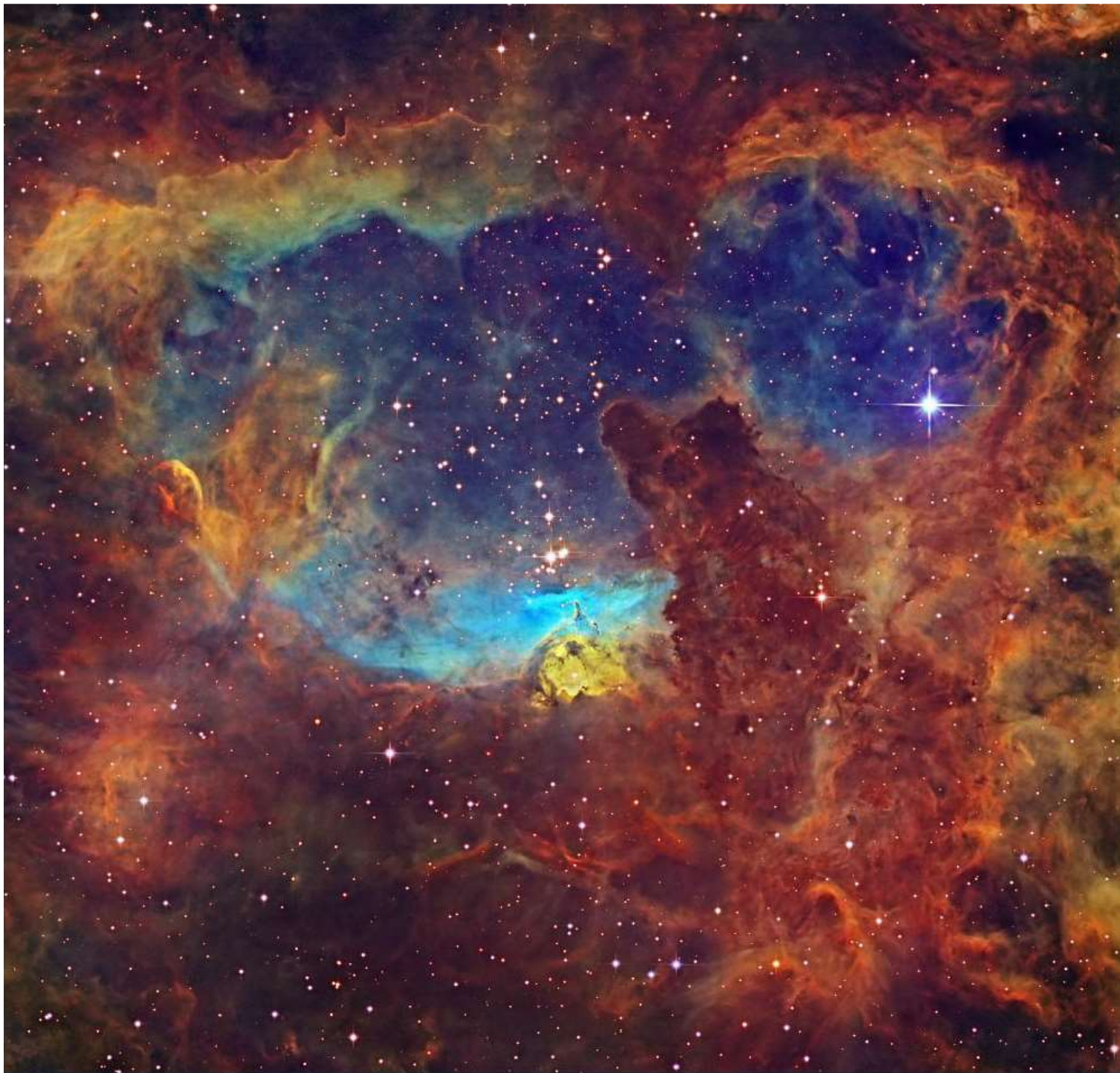
# References:

Four files – 153 pages of “102 Electrical Energy Innovations”, 42 pages of “Ball Lightning Fusion Reactors”, 46 pages of “Representations of Electric Induction”, and 25 pages of “A Technical Analysis of the Extra Coil as a Slow Wave Helical Resonator” – are available for free downloading at [padrak.com/vesperman](http://padrak.com/vesperman) and [commutefaster.com/vesperman.html](http://commutefaster.com/vesperman.html).









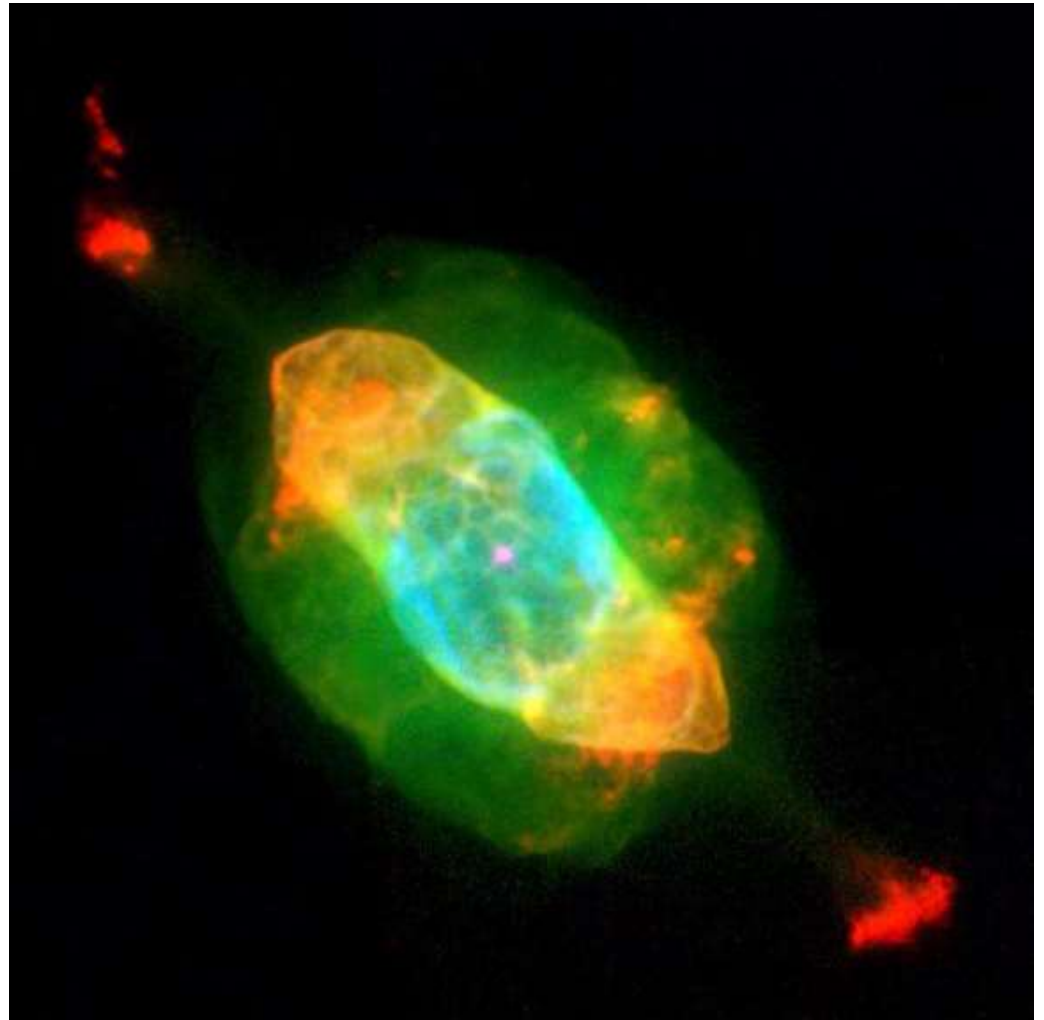




# Smaller Generators

# Magnetic Drive Generator

The magnetic drive generator is currently designed to produce 5 kilowatts. It is a small unit, about 3 feet cubed. The power source is magnetic with no other power source. It produces power through magnetic induction only. The coil used in this generator is a special toroidal coil generating 10 amperes per volt. These coils have only negligible voltage drop with applied load. As load increases the voltage remains the same and amperage rises. As amperage rises the magnetic field increases thereby decreasing the resistance of the conductor. These coils and magnetic drive generators are to be commercially available by 2018.



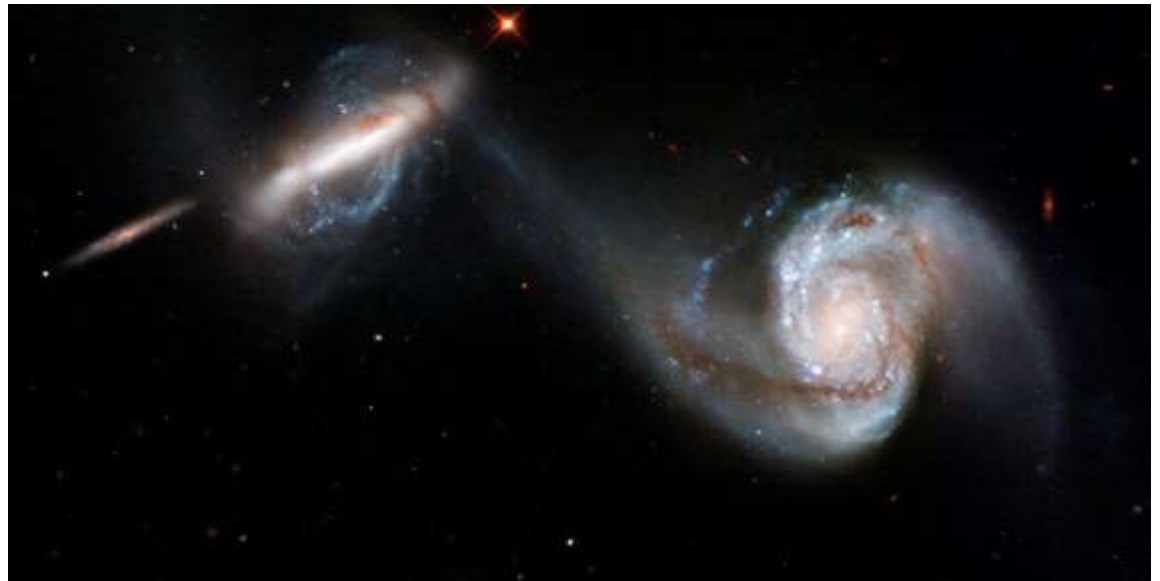


# Self-Recharging Energy Generating Gel Cells

Nano-particulated alpha-emitter isotope materials are intercalated with conventional electrolytic materials in the presence of advanced anodic materials in a gel cell environment to produce self-recharging energy generating gel cells.

In tests conducted with the I.N. Frantsevich Institute for Problems of Materials Science (IPMS), Kiev, Ukraine, energy densities in excess of 1140 watt-hours/kilogram were measured using conventional materials and the proprietary IPMS mono-molecular carbon crystalline lattice. These measurements were corroborated by the Idaho National Engineering and Environmental Laboratory and the Advanced Materials and Technologies Laboratory of the Department of Defense in 1993.

When an alpha-emitter such as thorium-232 is used to replace cobalt-lithium in a polymer base, the addition of  $10^{17}$  electrons per square centimeter increases energy densities to more than 1500 watt-hours/kilogram, which is more than double the energy density of gasoline.

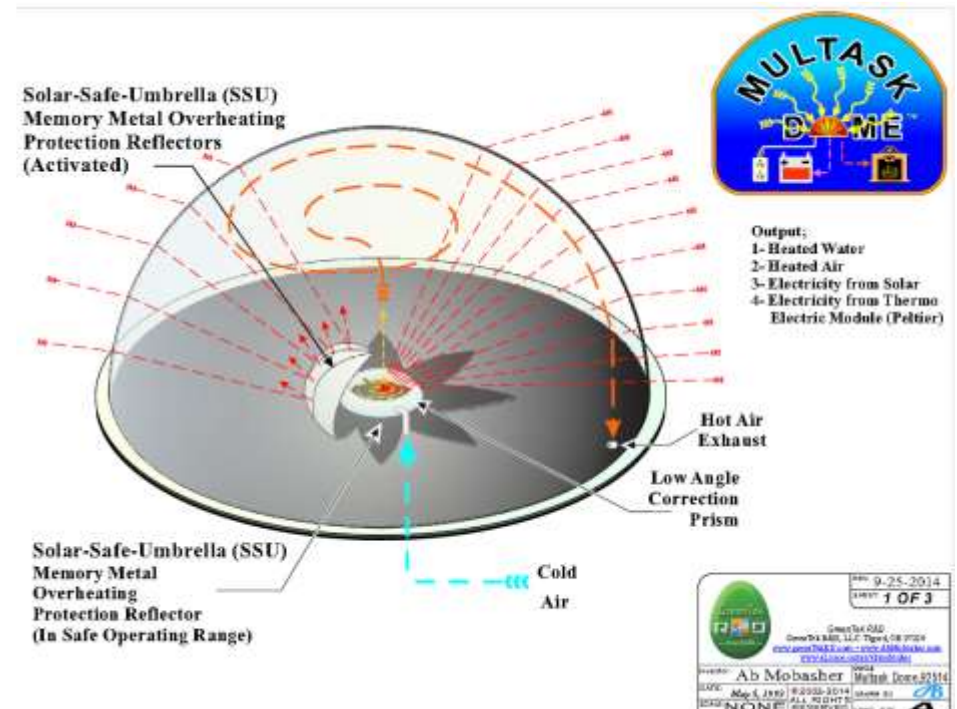


# Multitask Dome Multiple Output Omni-Directional Solar Power Generator

The Multitask Dome generator is a simple cheap hemispherical lens made from proprietary special high impact-resistant glass. Without the need for tracking systems the lens self-focus the sun's rays from any direction at the center of the area covered by the lens – creating temperatures as high as 1600 F with minimal heat loss. It can be used singly or arranged in a battery, to heat air and liquids and to concentrate sunlight on solar cells.

The MultiTask Dome's multiple outputs include electricity (from photovoltaic cells, thermionic "Power Chip" modules, magneto-hydrodynamic devices, and the Stirling heat engine) plus heated liquid/air. A circular prism around the central photovoltaic cell converts low-angle light rays to useable angles over the center. Its efficiency is 36-45% – more efficient than traditional photovoltaic or other concentrators.

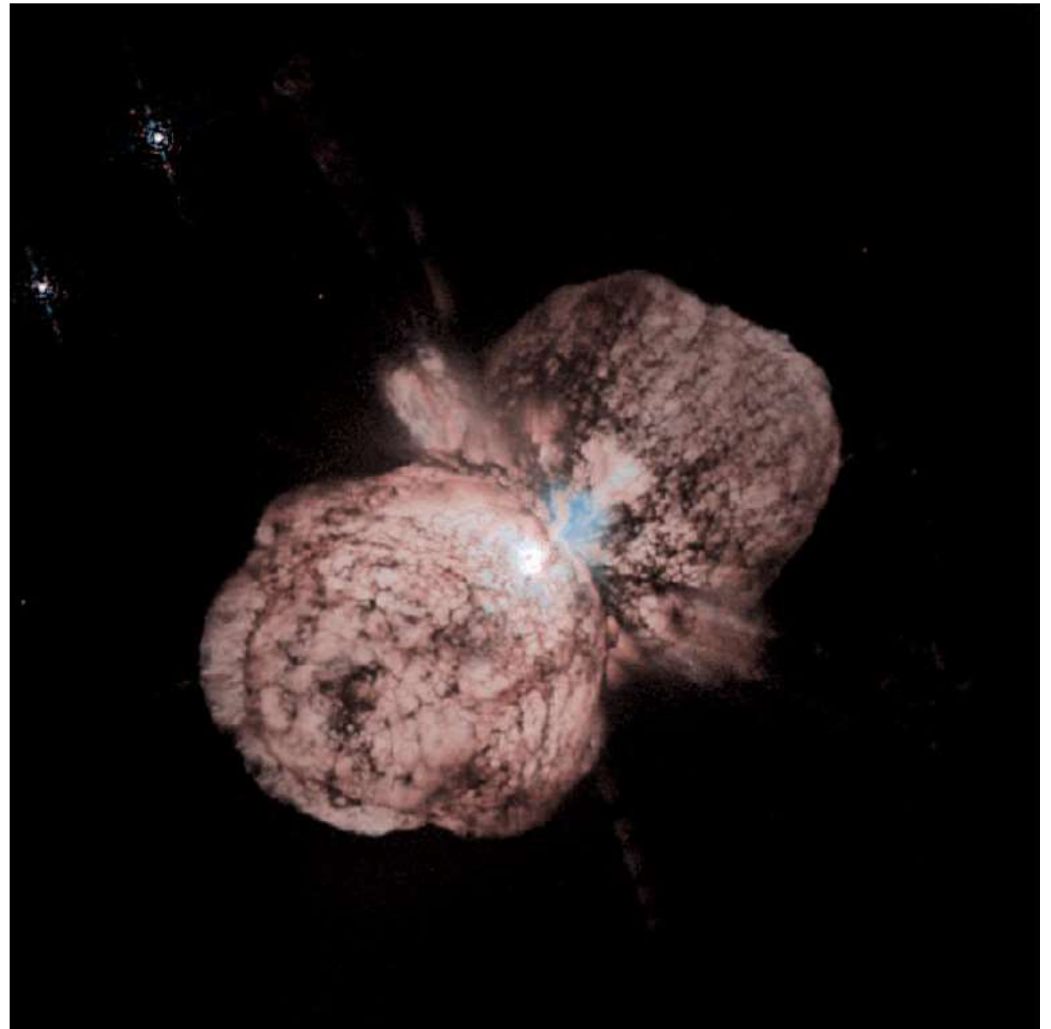
Its proprietary, non-electrical Solar Safe Umbrella reflects the sun's rays if its temperature reaches an unsafe level.



# Ceramic Electrodynamic Wafer

The ceramic electrodynamic wafer is an alpha-emitter isotope which is combined with a proprietary thin film to produce a homogeneous crystalline material on an inert substrate. When subjected to a continuous magnetic field flux, the ions emitted by the isotopic material can be collected and rectified to perform work functions. Its output is 2.25 volts DC @ 10 - 20 micro-amperes/cm<sup>2</sup>.

This concept has already been in testing and demonstration for five years. Optimization of this technique is the objective of this project. The physics of this device is based on the model of fine scale interactions described in the Y-bias and angularity model of physics.



# Advanced Solar Photo-Voltaic Crystal Lattice Cells

The I.N. Frantsevich Institute for Problems of Materials Science, Kiev, Ukraine, has invented advanced solar photo-voltaic crystal lattice cells which can simultaneously convert almost all wavelengths into ionic flow or electrical current from extra-low frequency long wavelengths all the way up through the visible light spectrum, X-rays and beyond. At night efficiencies, regardless of weather, greatly exceed Western solar cells operating in sunlight. The cost of electricity could be reduced to less than \$.002 per kilowatt hour.

The cells utilize a new feature of quantum mechanics – instantaneous simultaneity of crystalline oscillation regardless of the distance of separation. The oscillation characteristics demonstrated by these structures operate outside the normal context of space-time.

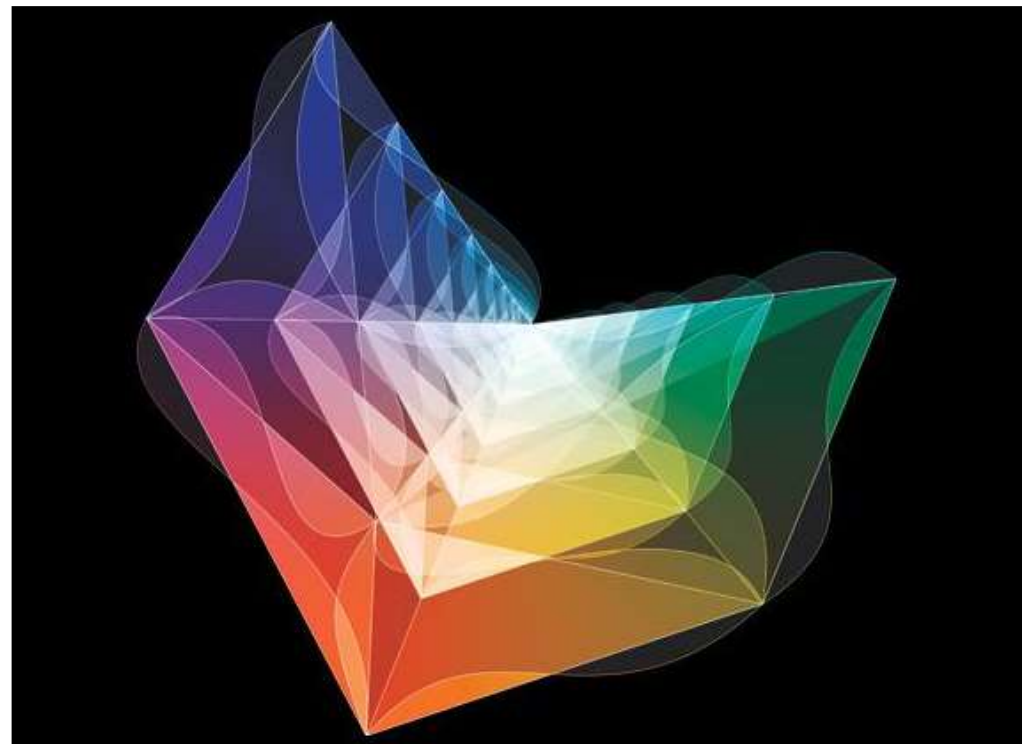




# Self-Recharging Capacitive Discharge Thermal Generator

Optimized ceramet devices are integrated with other highly capacitive elements in the presence of deuterium oxide to produce self-recharging high-density charge cluster emissions as a means to thermally charge high-density anodic targets. The heat is used to support several types of thermal exchange-based apparatus. The physics is based on the model of fine scale interactions described in the Y-bias and angularity model of physics. The topological map shown represents the ultimate third-party validation of the Y-bias and angularity model of physics.

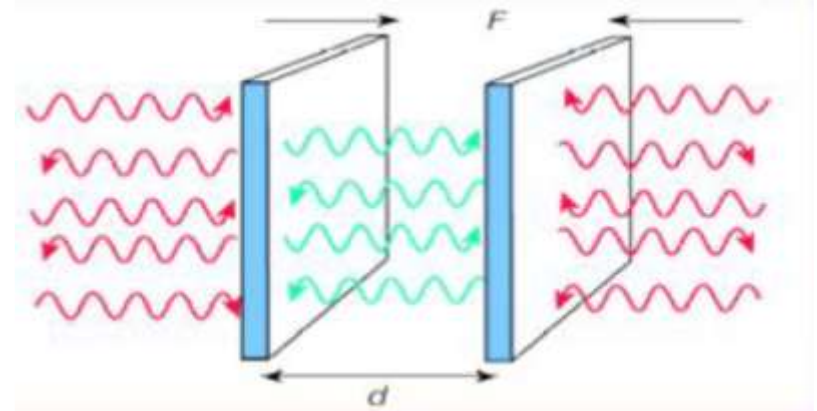
The amplituhedron is a newly discovered mathematical object resembling a multifaceted jewel in higher dimensions. Encoded in its volume are the most basic features of reality that can be calculated — the probabilities of outcomes of particle interactions. It describes in mathematical terms how information and potential become organized by certain geometric dynamics (self-organizing criticality) to create all things found in the material and non-material world, including non-local/ non-linear field effects, spin polarized gravitation effects, mass, light, energy and all the otherwise unexplained behaviors of pre-mass aggregations (hadrons, fermions, bosons, leptons, quarks, sub-quarks, q-bits, etc.).



# Casimer-Layered Electrodynamic Generator

The Casimer-layered electrodynamic generator is a Casimir array consisting of stacked CD-ROM type disks coated with alpha-emitter isotopic thin film, which have been super-compressed to provide room temperature super-conductivity. Controlled oscillation of the stack will produce ion flow which can be rectified and used.

The electrical function is the same as thin-film power generating disks with the added concept that when plates comprised of materials with highly divergent dielectric coefficients are finely polished and placed in immediate juxtaposition to each other, after having been coated on one side with the appropriate alpha-emitter materials, the stack of such panels can then be oscillated in the X-axis at a rate and magnitude that will alter the Lagrangian address transitional electrons are positioned in.



With the alteration of its address the electron is forced to find a path to match up with other quantum ensembles possessing spin, charge, and polarity vectors that will give the electron a zero sum balance. As soon as the electron's transitional trajectory is altered in a way that allows it to come into contact with the Meissner Field of an adjoining superconductive layer, the electron will be captured, rectified and converted to a set of attributes that enable it to be harnessed to perform work functions. The physics is based on the model of fine scale interactions described in the Y-bias and angularity model of physics.

# Thin Film Power Generating Disks

An alpha-emitter isotope is combined with a proprietary thin film applied to a disk [same form factor and size as a conventional CD-ROM disk] which has been treated to produce a substrate with room-temperature super-conductive properties. This technology would make it possible for the system to pick up  $10^{17}$  electrons per square centimeter that are emitted by the alpha emitter materials.

The super-conductive surface features of the substrate materials would amplify rather than attenuate the amperage – providing the ability on a scalable basis to drive 2.25 volts DC at amperage that is totally dependent on the amount of surface area provided by the plates. This is tantamount to a self-recharging capacitor device with a half-life of more than 1 billion years that emits no waste materials and consumes no fuel.





# Hybrid Cold Fusion Hydrogen Reactor

The hybrid cold fusion hydrogen reactor can be an economical super-efficient heater for buildings and greenhouses and as a hot water heater. The electrodes are made of nickel.

The electricity-to-thermal energy efficiency is 1700%. The reactor also generates hydrogen usable like natural gas and can be piped into a fuel cell for generating a direct current of electricity.





# Electronically Shaded Photo-Voltaic Glass

Electronically shaded photo-voltaic glass is a special layer of material between clear glass panes allows electronically controlled darkening, fully blocks infrared transmission, and generates electricity in daylight. By laminating a specially designed layer of liquid crystal material between panes of either clear glass or clear polycarbonate materials, which have been coated with either an indium-tin oxide or transparent metallic conductive film, a window transparency control system has been created which enables the viewer to darken the window pane [or other application] electronically, without the aid of shutters, blinds or curtains.

The panel also rotates polarity up to 90 degrees from the vertical and substantially reduces infrared transmissivity. Buildings with windows made of electronically shaded photo-voltaic glass should have significantly lower air conditioning loads because they offer full blockage of infrared radiation. Buildings should additionally have lower net electrical power consumption because windows facing the sun will be able to generate usable photo-voltaic electricity.



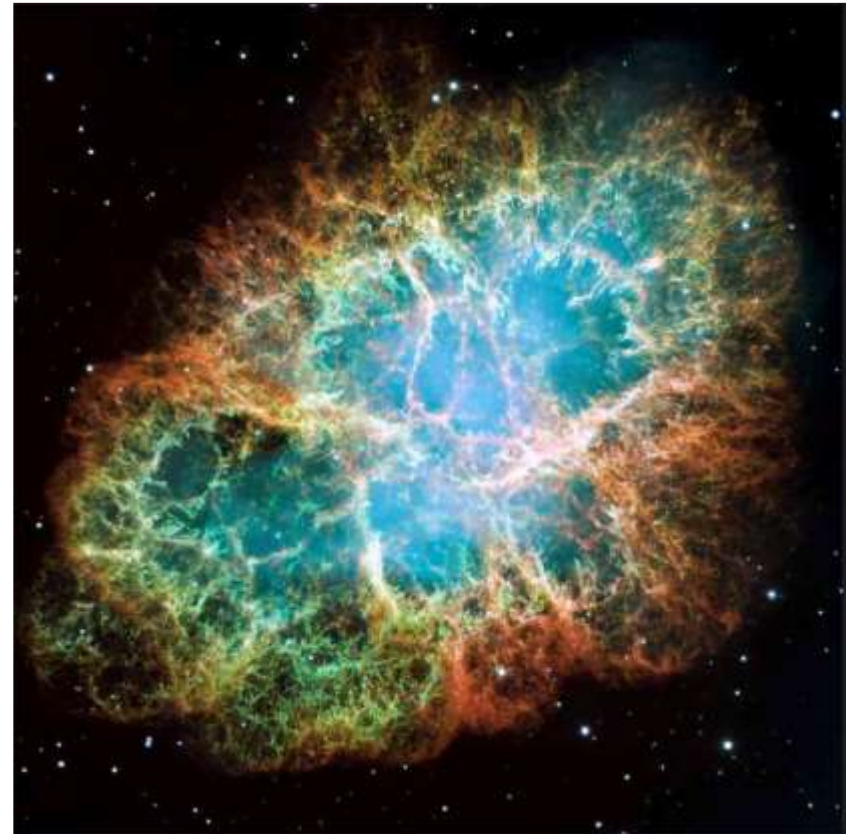
US Patent 7,356,969 “Electronically shaded thin film transparent monochromatic liquid crystal display laminated window shading system”

# LUMELOID™ Light-Polarizing Photovoltaic Film

The light-polarizing photovoltaic film known as LUMELOID™ is a stretch-oriented polymer film about 0.3 microns thick which mimics photosynthesis. Light energy is absorbed in a molecular antenna which converts it to electron energy. The electron energy is then rectified by a molecular tunnel diode comprising an electron donor, an insulating space and an electron acceptor. Voltage and current is generated in the plane of the film parallel to the stretch axis. LUMELOID™ has a theoretical efficiency of 72%.

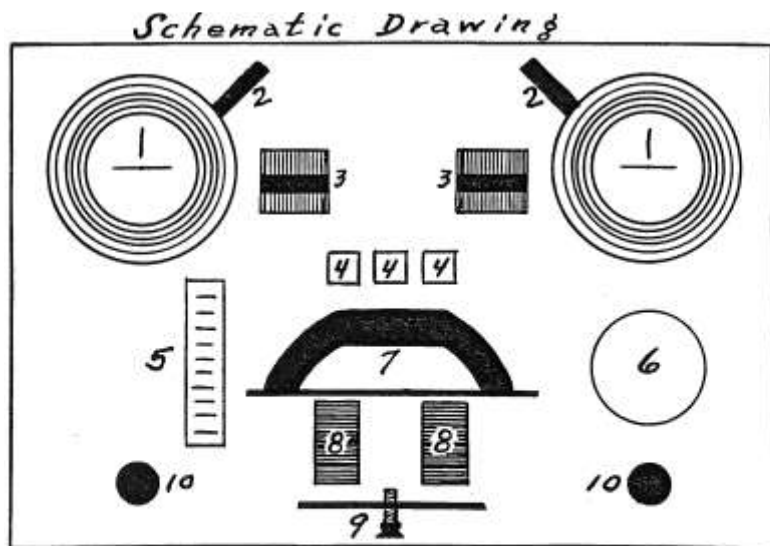
The projected cost of LUMELOID™ thin film is \$1.00 per square meter, and the assembly which comprises a LUMELOID™ film on a substrate with microelectronics circuitry, is about \$5.00 per square meter. Its capital investment cost is about 30¢ per watt. This is a fraction of all conventional electric energy producing technologies.

LUMELOID™ will be available in rolls at low cost, affording easy transportation, and any amount of power during sunlight hours by just rolling it out flat on any surface. Eventually with the development of QUENSOR™, which is like a very thin battery, a combined LUMELOID™/QUENSOR™ sheet may be spread out on a roof or on the ground, and will provide electric power day and night – available on demand.



# Hendershot Magnetic Motor

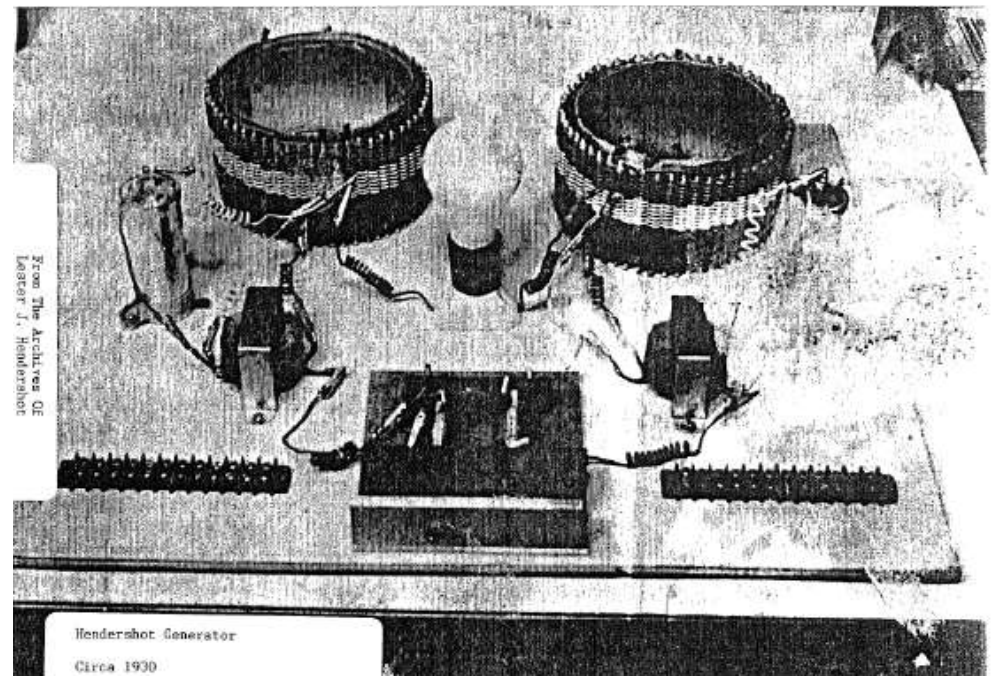
Lester J. Hendershot had discovered that the Earth's rotating magnetic field could be used to provide power to motors and generators, much like Nikola Tesla's discovery that the Earth was a huge capacitor, capable of providing significant amounts of electrical power. The Hendershot magnetic motor cuts the Earth's magnetic field to develop a rotary motion. A prototype motor self-rotated at a constant speed of 1800 RPM while producing 45 horsepower. Hendershot changed directions and decided to build a generator on the same principle, after deducing that a magnetically powered motor was not as practical as a magnetically powered generator. In 1961 Dr. Ed Skilling, from Columbia University, successfully replicated and tested a Hendershot free energy device, out of which he got 300 watts. Skilling had been associated with Hendershot and learned of the device through him. The generator was self-resonant at 500 kHz.



1. Hendershot Coil
2. Resonance Tuner
3. Stop-up Transformer
4. Load Connector
5. Wiring Bank

6. Voltage Meter
  7. Horseshoe Magnet
  8. Electro Magnet
  9. Adjustment Key
  10. Capacitor
- From The Archives  
Lester J. Hendershot

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# N-1 Homopolar Generator

Bruce DePalma invented the homopolar electricity generator, also called the “N-Machine”, that could provide cheap, inexhaustible, self-sustaining and non-polluting energy. The N-Machine uses principles that flout conventional physics and are still not fully understood.

A 100-kilowatt N-1 homopolar generator prototype sat in his garage. It could power his whole house.





# Closed-Path Homopolar Generator

The closed-path homopolar generator has an output power exceeding its power input by a factor of 4.92.

Coal-fueled power generators can be retrofitted to run without fuel. In 1989 it was proposed that the Four Corners coal-fired power plant be retrofitted with an advanced closed path

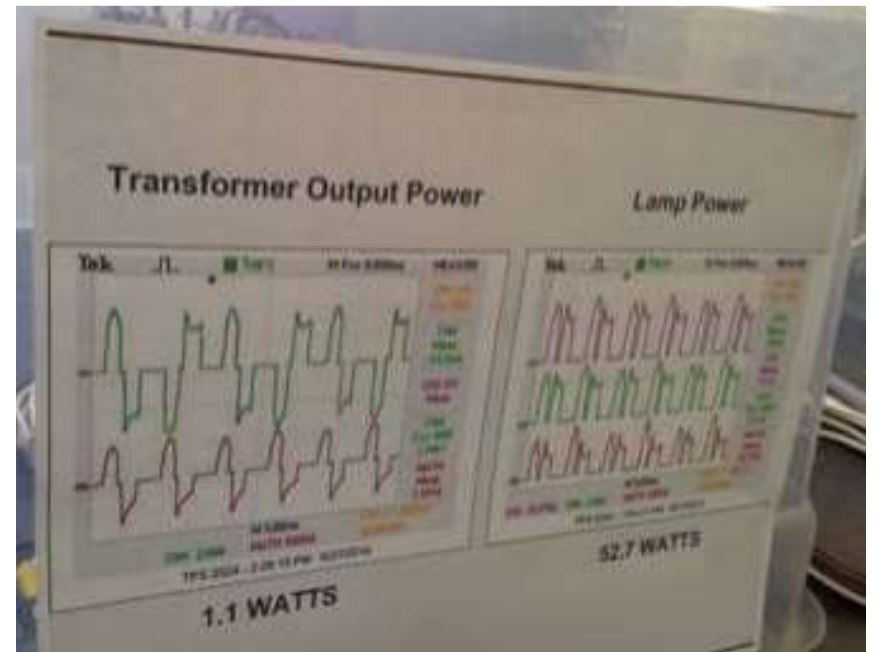


homopolar motor-generator. It was estimated that the cost of such an advanced electrical generator to be approximately the cost of installing smoke scrubbers on one coal-fired generating unit.

# Switched Energy Resonant Power Supply

The Switched Energy Resonant Power Supply (SERPS) operates on the same power magnification principles that Nikola Tesla used to amplify the power in his generators. In layman's terms, energy is supplied by a power transformer to run the lights and then is stored in a capacitor. The capacitor is then discharged back through the lights again to the power supply in a way that neutralizes the load seen by the power supply. The consequence of this energy oscillation is that the load (bulbs) can be powered twice while the net energy supplied by the power supply is reduced to a very small value. The implications of this technology for energy use in the future are absolutely astonishing!

This is all done without violating any laws of physics or electrical engineering principles and uses all standard electronic components. As measured by a Tektronix scope the SERPS draws 1.1 watts net from the power supply, but the light bulbs are actually burning 52.7 watts. 52.7 watts divided by 1.1 watts, which is 4790% more energy than is required to run the machine.

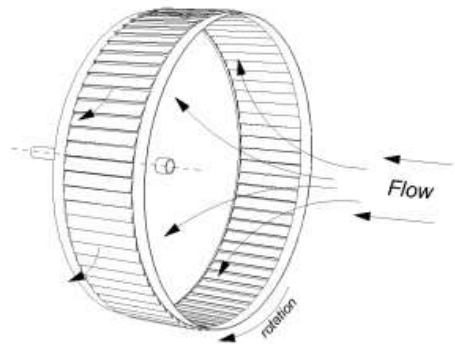






# Maximum Velocity Turbine

Wind turbines with thin blades use only about 5% of the wind's potential. The Maximum Velocity (MV) turbine uses 100% of the wind – producing more electricity. All the air flow impacts the back plate causing it to accelerate and divert through the turbine blades. These blades are mounted around the perimeter at both the maximum point of leverage and highest flow velocity. All the air flow is then utilized for maximum energy conversion. Conventional wind turbines typically cut-in at around 8 mph. MV turbines can operate in wind speeds of around 1 kph even when under load. Conventional turbines kill birds by blade impact. Birds see an MV turbine as a solid object and therefore fly around it, not attempt to fly through it. The MV turbine can also be used as a water turbine in rivers.





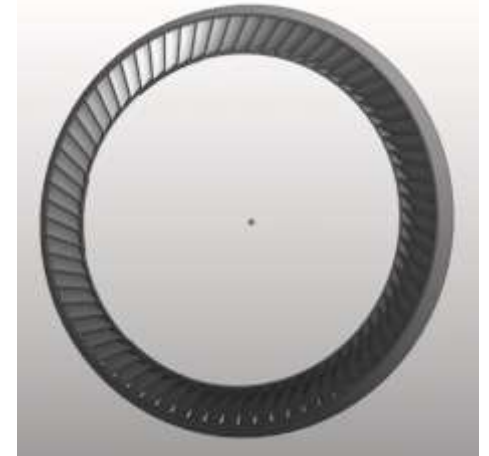
# PowerPod Circular Wind Turbine Generator

The PowerPod collects incoming air from 360 degrees and focuses it on an internal circular blade. This makes it much safer around children, pets, and wildlife, as well as more efficient and powerful than bladed wind turbines.

Because of the housing's Venturi design intake, wind is accelerated into a full-360-degree turbine blade, increasing wind speed by 40 percent. The circular blade is coupled to an alternator which generates clean electricity as it spins. Due to leverage much of a bladed wind turbine's power is generated at its tips, which is where the circular blade is located. The PowerPod generates three times more power than an equivalent bladed wind turbine.



The 1-kilowatt PowerPod can store the excess energy in a battery or feed it back to the grid. A portable PowerPod can be placed on roofs, fences, tops of buildings, campervans, sailing boats, or any other secure surface. In areas where average speeds can be low, bladed wind turbines get just enough wind to start moving, but generate hardly any electricity. What a PowerPod does is accelerates the wind speed itself, so that more power is generated, more often.

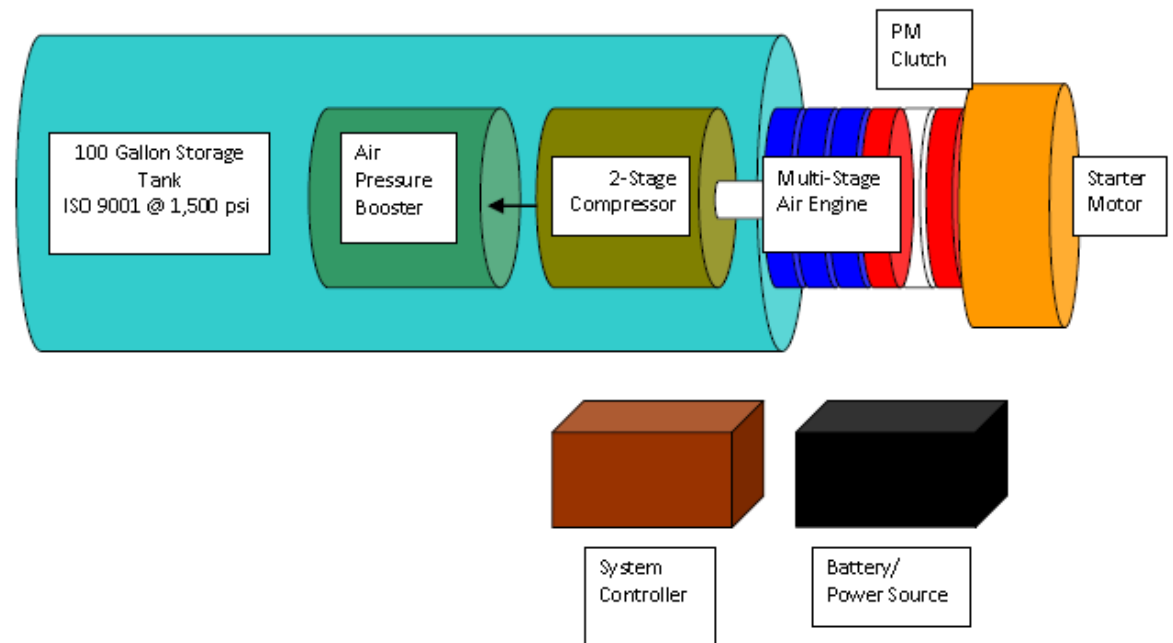


# Nova-Neal Compression Engine

Nova-Neal compression engines would cost \$10,000 to build and produce a net 45,000 watts of rotary power. Generators and pumps could be linked to the shaft and operated with no consumption of fuel. These engines operate as self-sustaining heat exchange, air-compressor engines. A multi-stage valve feeds low-pressure (100 psi) air into a high-pressure 100-gallon tank at 20 ft<sup>3</sup>/minute. The first air that went in is re-compressed to a self-amplified pressure that is 8-12 times higher than the original input pressure. The tank accumulates the pressure and then retains the heat of recompression. A compressor on the outside of the larger tank is driven by a starter motor, and connected by a slip-clutch.

Once the engine becomes operational from the [internal] tank, the [external] compressor is disconnected from the starter motor and then driven by an air-powered engine, which takes the air off the [internal] tank.

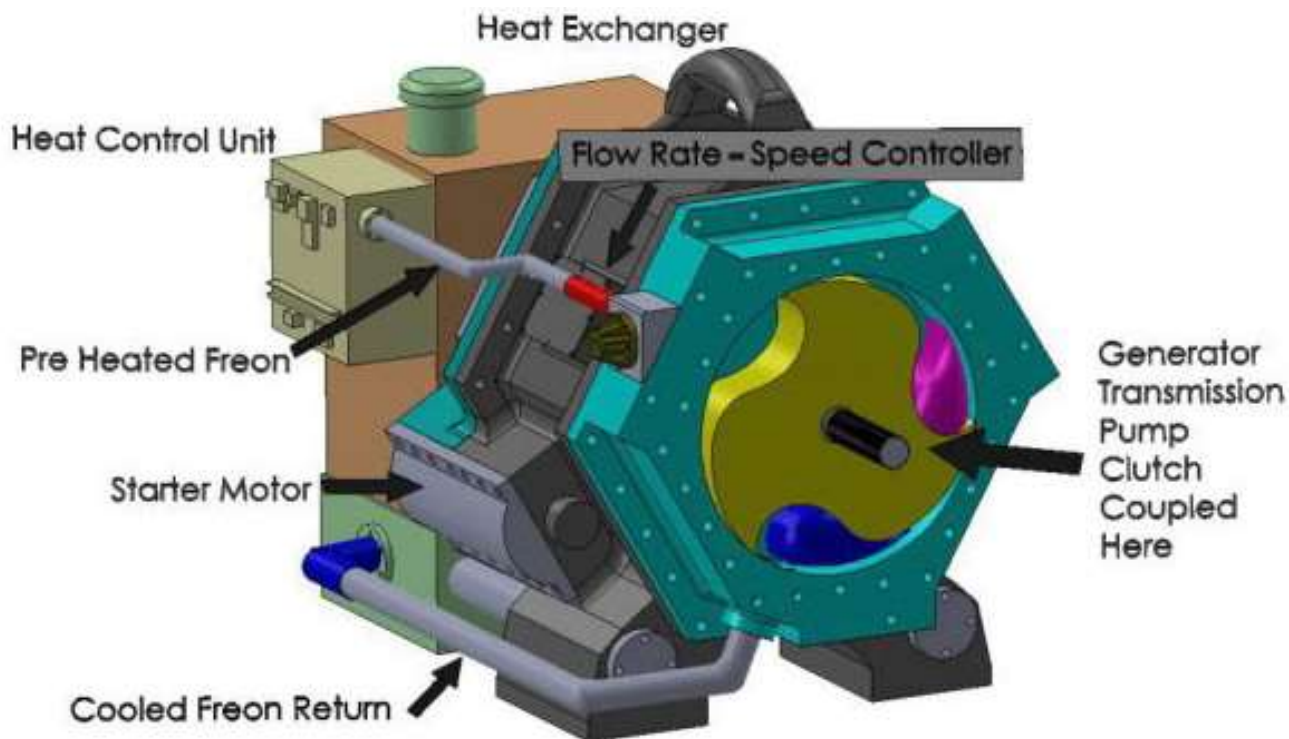
Painting the tank black and setting it in sunshine results in an incremental amplification of a few percent in addition to the thermal value that is retained from the compression. US Patent 2,030,759 “Compressor Unit”.



# Nova Phase Change Engine

The Nova phase change engine operates in reverse of a refrigerator. Heat from a low-temperature ( $120^{\circ}\text{F}$  –  $180^{\circ}\text{F}$ ) source expands environmentally safe Freon 502(a) into a gas. The expanding Freon is injected into the rotor section of the engine to turn the drive shaft. The gas loses its heat as it turns the rotor and returns to its liquid form as it escapes through the exhaust port. The rotor pushes the re-liquefied Freon out of the engine, past a back-pressure valve, and back into the reservoir, where it is recycled to be used over and over again. No fuel is burned, and there are no exhaust emissions. At the control panel, the starter motor is engaged to take the rotor up to the desired rotational rate.

The drive shaft can be coupled to generators, pumps, etc. The Nova phase change engine is scalable from 5 KW to 250 KW at a cost of \$.025 per kilowatt-hour. Small modules can be married together to provide incremental increases in horsepower as needed.



# Multifactorial Hydrogen Reactor

The multifactorial hydrogen reactor enables elevated hydrogen production due to a set of 16 physical and chemical processes – acting simultaneously on the hydrogen bonds. The technology is non-volatile and produces free flowing hydrogen which can be compressed or used to convert to another form of energy. The reactor can be used as a free standing electrically powered device that will produce unlimited amounts of hydrogen at the world's cheapest rates, or as a simple 'bolt-on' solution that provides savings when coupled with other energy producing technologies.

The mini hydrogen reactor model, made by Solar Hydrogen Trends, Inc., measures length 32" x width 14" x height 20.5" and weighs 250 lbs. Its only fuel is water. On input of 415 watts, the mini reactor produces 7,369 cubic feet of hydrogen per hour (electricity equivalent of 626,000 watt-hours). The estimated cost of inputs is \$1.68 per hour.



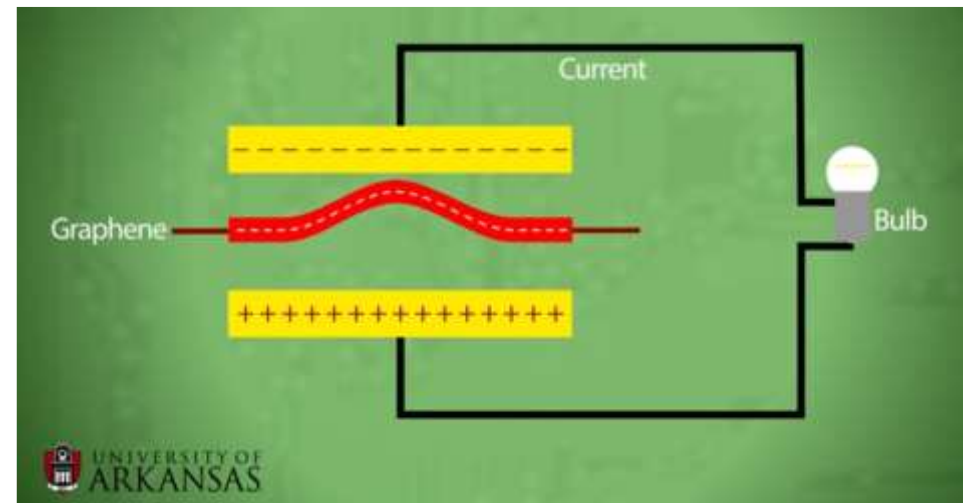
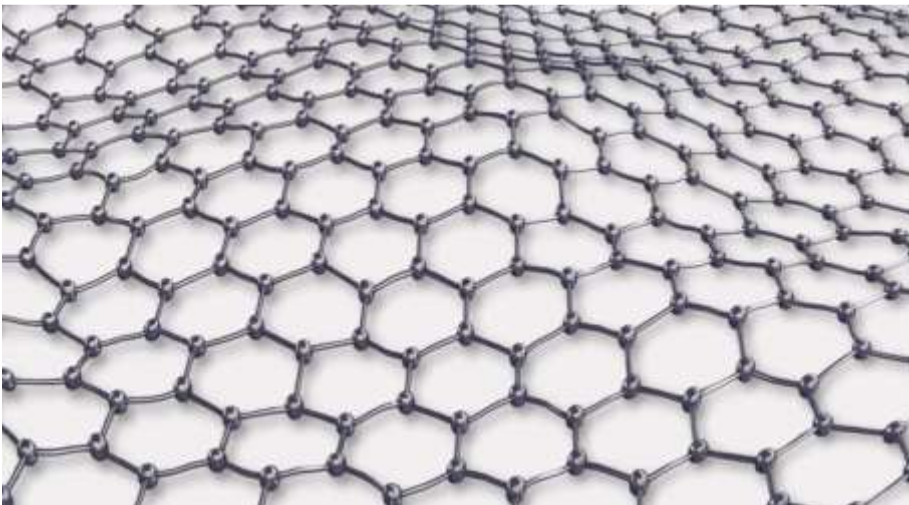
Demonstration of the reactor, May 16, 2014

The reactor offers energy savings of up to 95% when coupled with coal, natural gas, gasoline, biofuels, diesel power plants or incinerators. In addition, the reactor can be coupled for production of amplified energy output with hydropower, solar or wind farms in peak hours. A hydrogen plant producing 150 million cubic feet per day would provide enough hydrogen to power 200 thousand homes.



# Neutrinovoltaic Generator

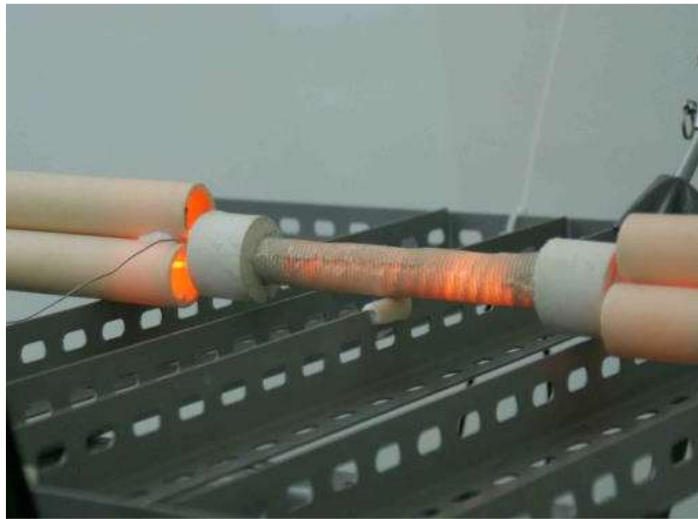
Each second 60 billion invisible neutrinos of different energy levels pass unimpeded through a square centimeter of the earth's surface. The left diagram is of a single layer, graphene, of interlocking carbon atoms. A microscopically small percentage of neutrinos transfer their kinetic energies to the carbon atoms. Some of the neutrino kinetic energies self-amplifying resonate with the carbon atoms to vibrate. The vertically vibrating carbon atoms in the diagram are shown as ripples in the graphene. The other diagram shows a layer of vibrating graphene sandwiched between two layers of conductive electrodes. The two electrodes capture the energy of the graphene's alternating concave-convex vertical motions to cause an electrical current to flow. A vibrating sheet of graphene 10 microns by 10 microns in area can produce 10 microwatts of power. 20,000 of these sheets can fit on a pinhead. Photovoltaics can only operate as a single layer exposed to direct sunlight. When stacked bottom layers of neutrinovoltaics equally operate as top layers, even when underground. Neutrinovoltaic generators can power appliances, vehicles, and buildings.



# Energy Catalyzer

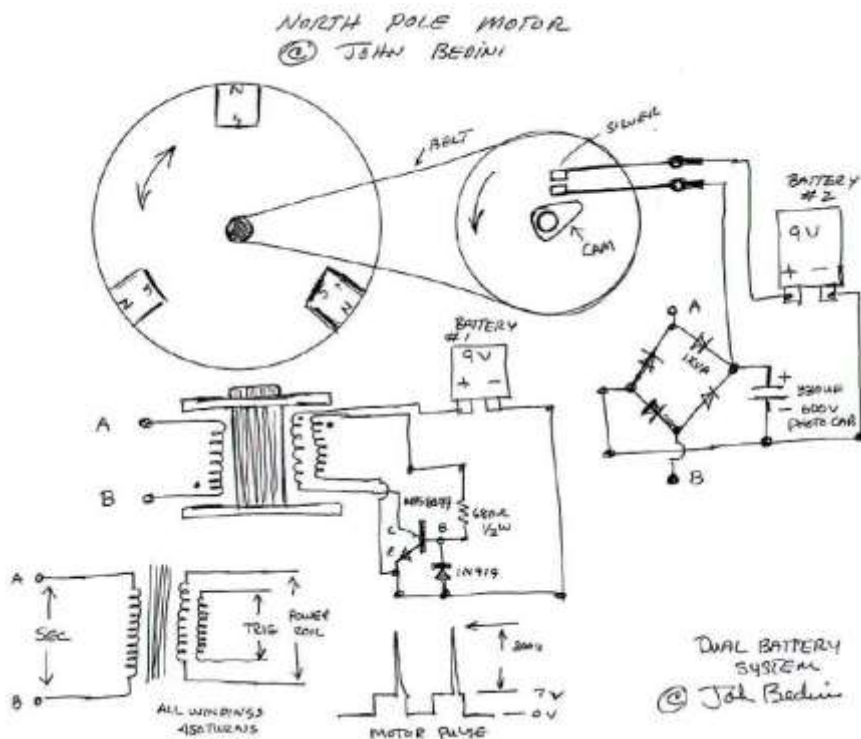
Both uranium fission and hot thermonuclear fusion reactors generate fast moving (and dangerous) neutrons which enter nuclei – producing abundant energy. Low-energy nuclear reactors (aka cold fusion) generate slow-moving (and safe) neutrons which also enter nuclei – again producing abundant energy.

Andrea Rossi's energy catalyzer aka 'E-Cat' uses low-energy nuclear reactions to fuse nickel and hydrogen atoms into copper. After a 32-day experiment, a prototype E-Cat's initial load of nickel-58/nickel-60 isotopes converted to almost entirely nickel-62. The 452-gram E-Cat generated a net of 1.5 megawatt-hours of energy – demonstrating an energy density of apparently as much as 1 million times gasoline's energy density.



# Bedini SG Battery Charger

In 1977, Ilya Prigogine received a Nobel Prize for what is basically an extension to conventional thermodynamics, which only describe 'closed systems'. Those are systems that are cut off from any external form of energy. Prigogine's work helped to extend thermodynamics to include 'open systems' that are open to external sources of energy, which slows entropy down allowing more total work to be done than what we have to supply. That is exactly what the Bedini SG battery charger demonstrates in the most elegant way. The Bedini SG battery charger takes high voltage spikes from the electromagnetic coil and charges a capacitor with them. This capacitor is then discharged into a load such as a lead acid battery. 80% of 'dead' lead acid batteries are rejuvenated.



# Thermoelectric Generator

With over 60 patents issued and filed, Alphabet Energy leverages breakthrough thermoelectric materials advances to deliver turnkey generators for waste-heat recovery. Thermoelectric power generation requires thermoelectric materials, thermoelectric modules, and systems that interface with the heat source. Thermoelectric materials are semiconductors that generate electricity while in a temperature gradient. In order for a thermoelectric to establish a large voltage while in a temperature gradient, its thermal conductivity must be low. This ensures that when one side is made hot, the other side stays cold.

Alphabet Energy's 'PowerBlocks' are the first thermoelectrics to use cheap, highly efficient non-toxic abundant silicon or tetrahedrite – either as low-thermal conductivity alloys or in incorporating bulk nanowires into macroscopic materials.

Power plants waste huge amounts of energy as heat—about 40 to 80 percent of the total in the fuel they burn. Alphabet Energy's first product, called the E1, attaches to an exhaust stack and uses Alphabet Energy's patented solid-state thermoelectric materials to convert waste heat into electricity. The E1 generates up to 25 kilowatt-electric per 1,000 kilowatt-electric engine – saving 52,500 liters of diesel fuel per year, per engine.

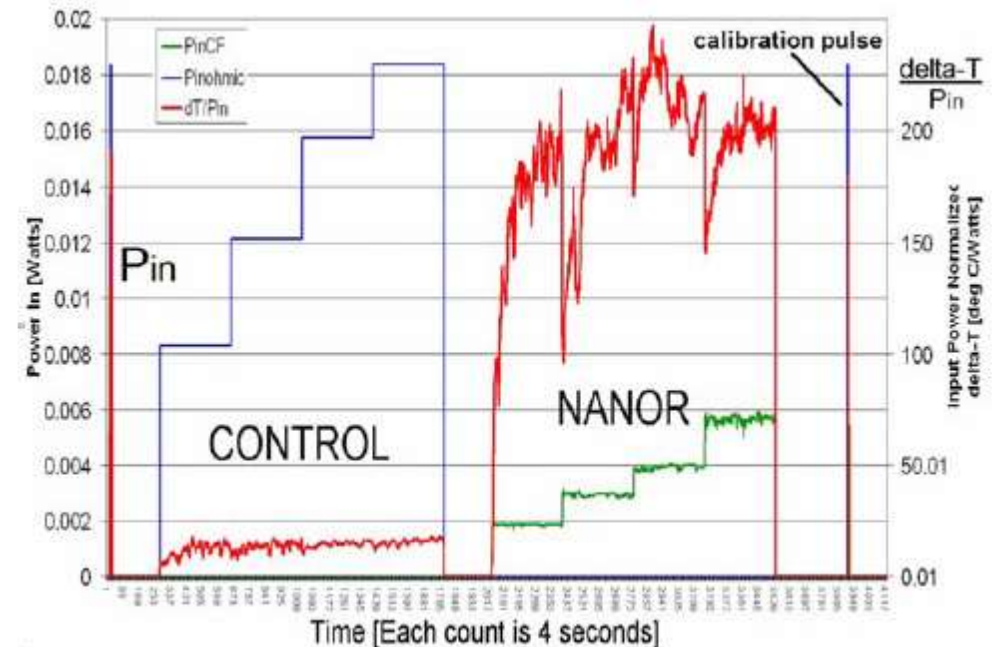
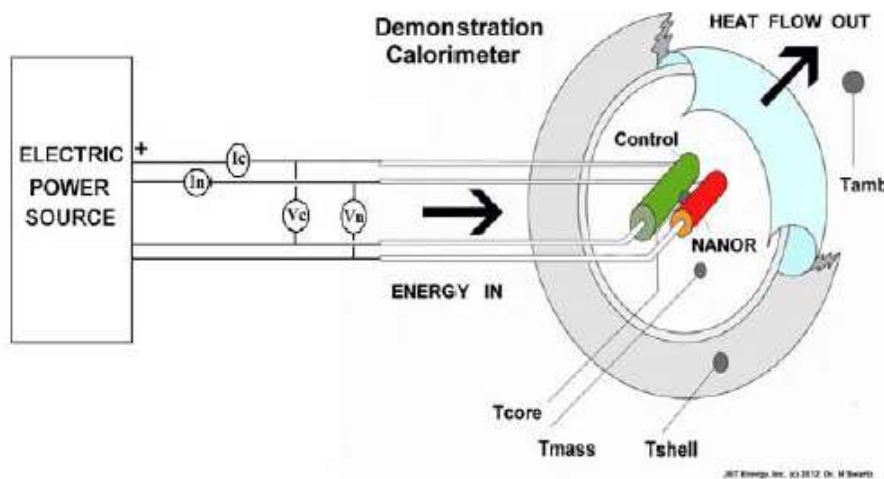




# Preloaded $ZrO_2$ -PdNi-D Nanostructured Cold Fusion/Lattice Assisted Nuclear Reaction Quantum Electronic Devices

Dry, portable Lattice Assisted Nuclear Reaction (LANR) uses hydrogen-loaded alloys to create heat and other reactions. The energy density of LANR is ten million times that of gasoline. LANR can be scaled down to miniature integrated circuit applications, and up to high power applications including robotics, transportation, electricity production, artificial internal organs, and space travel.

LANR excess power density is more than 19,500 watts/kg of nanostructured material. The preloaded NANOR®-type LANR device demonstrates an average energy gain of 14.1 times the input. The graph shows that the device's thermal energy output (red) is much more than the control resistor's thermal output (green) for the same electrical energy input.



# Reactionless AC Synchronous Generator

The ReactionLess AC synchronous Generator (RLG) uses the same types of materials used in current generators, but the magnetic circuit within the machine is configured to cancel back torque while inducing current and producing power. The RLG is claimed to be the biggest breakthrough in rotating electrical machine design since Faraday's invention of the electrical motor in 1832. The elimination of back torque allows all the energy generated to pass through the machine. Power output is determined by the strength of the excitation magnets and the synchronous reactance (resistance at 50/60 Hz) of the stator windings. Models can be cascaded as successively increased sizes for higher output.

The generator requires an initial infusion of power through a battery or AC supply, following which it produces power sustaining itself on electrons in a vacuum, without requiring external supply. Each machine such as the laboratory model shown can produce at least 2.38 times the input and can be configured in a self-running mode.



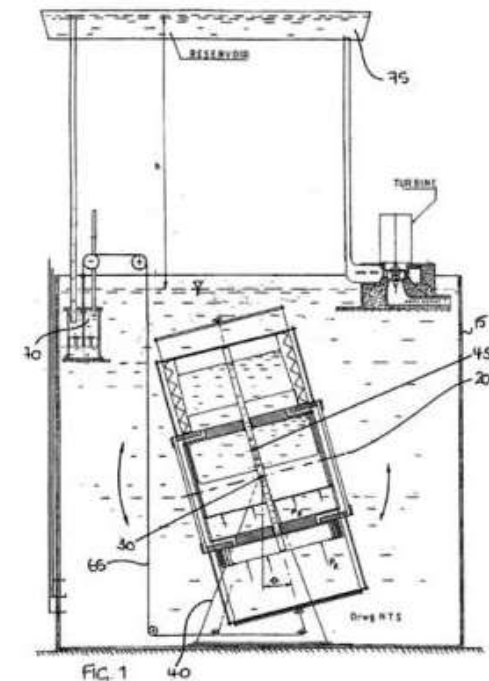
The RLG is a fundamental change in the way that energy can be generated. The RLG overcomes the inherent inefficiencies of AC generators. The RLG is based on an understanding of the non-material properties of space. The RLG essentially defies the Law of Conservation of Energy – which forms the basis of mechanics and thermodynamics laws that suggests a machine cannot attain an efficiency of over 100%. The RLG achieves over-unity operation because a unique magnetic circuit design nullifies the effect of Lenz's Law.

# Spiteri Water Pump

When a body is submerged in water there is latent hydrostatic energy in place. The submerged Spiteri water pump efficiently converts this hydraulic energy into mechanical energy without fuel nor pollution. This mechanical energy is then used to pump water uphill into a reservoir. A hydroelectric power system utilizes the reservoir's waterfall to generate cheap electricity without fuel nor pollution. A Spiteri water pump can be placed in any water body in the world to produce energy 24 hours a day, seven days a week.

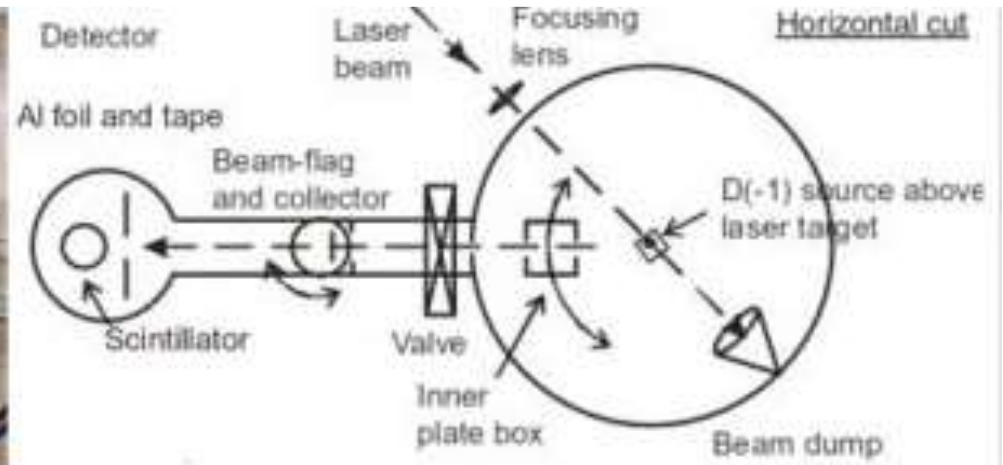
The Spiteri water pump could be combined with the hydrosonic pump to pump desalinated seawater into onshore reservoirs and water tanks.

The Spiteri water pump comprises of a housing containing a fluid. A pump motor is submerged within the fluid. The pump motor is pivotable within the housing about a fixed pivot point. A buoyant member is contained within the pump motor. A ballast member is contained within the pump motor. The ballast member contains a ballast tank. A transfer means is coupled to the buoyant member to transfer the upward movement of the buoyant member within the pump motor. And last, a pressure differential means is operable to move the ballast tank upwards within the pump motor.



# Laser-Induced Fusion in Ultra-Dense Deuterium

Ultra-dense deuterium, hydrogen atoms with one neutron and one proton, is 100,000 times denser than water and weighs 130 tons per liter. Thus normally separated atomic nuclei can be squashed closely together. Gaseous deuterium is brought into contact with a hydrogen transfer catalyst configured to cause a transition of the deuterium from the gaseous state to an ultra-dense state. The ultra-dense deuterium is collected on a carrier configured to substantially confine the ultra-dense deuterium within a fuel collection portion of the carrier. The carrier is transported to an irradiation location. One or more powerful laser beams, pulsed about ten times per second, irradiate the ultra-dense deuterium to result in easily controlled micro-fusion. Fast, heavy electrons (muons) instead of dangerous neutrons are produced to directly generate electricity and also useful residual heat. Prototypes currently have an energy gain of 20. More powerful lasers may yield an energy gain of 1000. European patent 2680271 A1 “Method and apparatus for generating energy through inertial confinement fusion”.





# Airthium's High-Temperature Heat Pump

Airthium provides reliable, low-cost, efficient and clean industrial heat supply up to 550°C/1022°F with the help of a first-of-a-kind very high temperature heat pump. A heat pump converts electricity into heating and cooling power. While electrical resistors convert electricity into heat with 100% efficiency, heat pumps are more efficient, typically delivering 2 to 5 kWh of heat for 1 kWh of electricity. Heat pumps work by redirecting the flow of thermal energy ('heat') from cold matter to hot matter, similar to how a fridge works.

Airthium disrupts the high-temperature heat pump market by the unique features of its product, enabled by a breakthrough in the underlying thermodynamics. The technology exploits the Ericsson cycle, which differs from the conventional Stirling cycle by the achievement of high temperature, fast, near iso-thermal gas compression. Energy transfers inside Airthium's system are nearly ideal, with an efficiency reaching up to 86% of the theoretical limit, while current best-in-class technologies achieve only 64%.

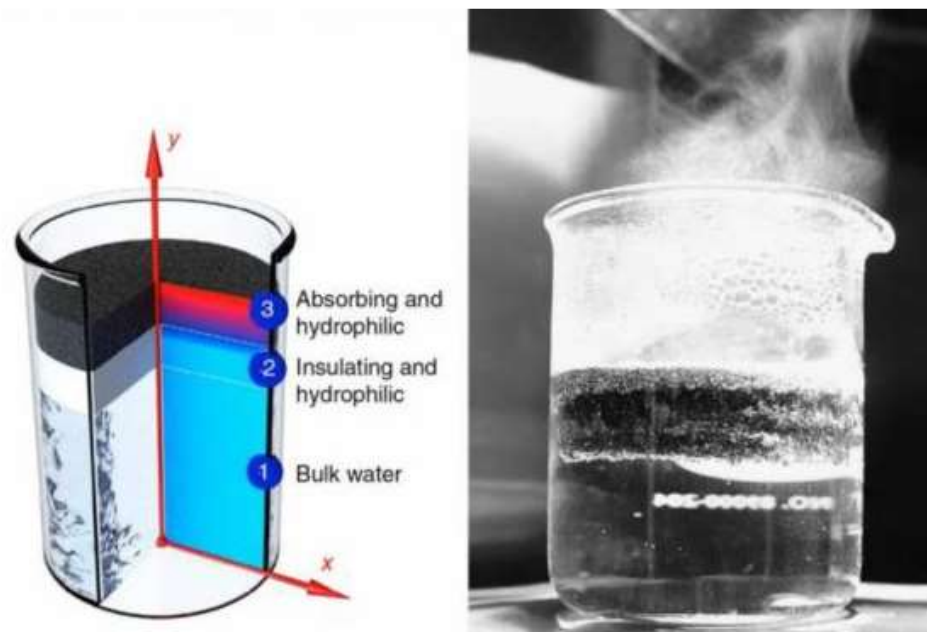
Airthium's heat pumps can replace gas-fired peaker power plants, which provide backup power when there is no sun or wind, by a hybrid daily and seasonal renewable energy storage system, powered by the same engine as the heat pumps.



# Localized Solar Steam Generator

MIT's localized solar steam generator with carbon sponge converts 85 percent of solar energy into steam at a solar intensity 10 times that of a typical sunny day – 30% more efficient than other systems. The structure – a layer of graphite flakes and an underlying carbon foam – is a porous, insulating material structure that floats on water. When sunlight hits the structure's surface, it creates a hotspot in the graphite, drawing water up through the material's very small pores, where it evaporates as steam. The brighter the light, the more steam is generated. Very little heat is lost which allows production of steam at relatively low solar intensity. US Patent Application 20150072133 A1 Localized Solar Collectors.

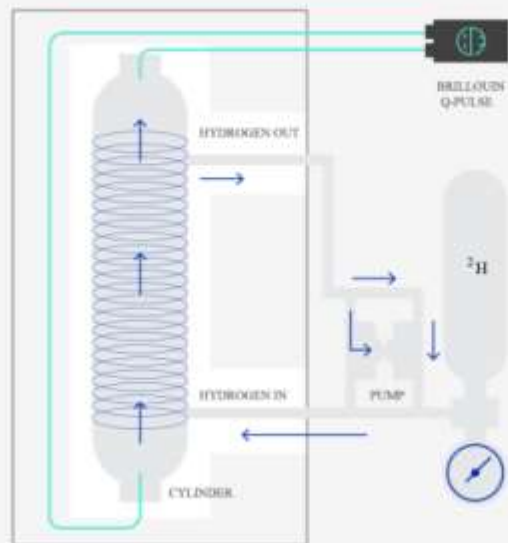
On the left, a representative structure for localization of heat; the cross section of structure and temperature distribution. On the right, a photograph of enhanced steam generation by the double layer structure under solar illumination.



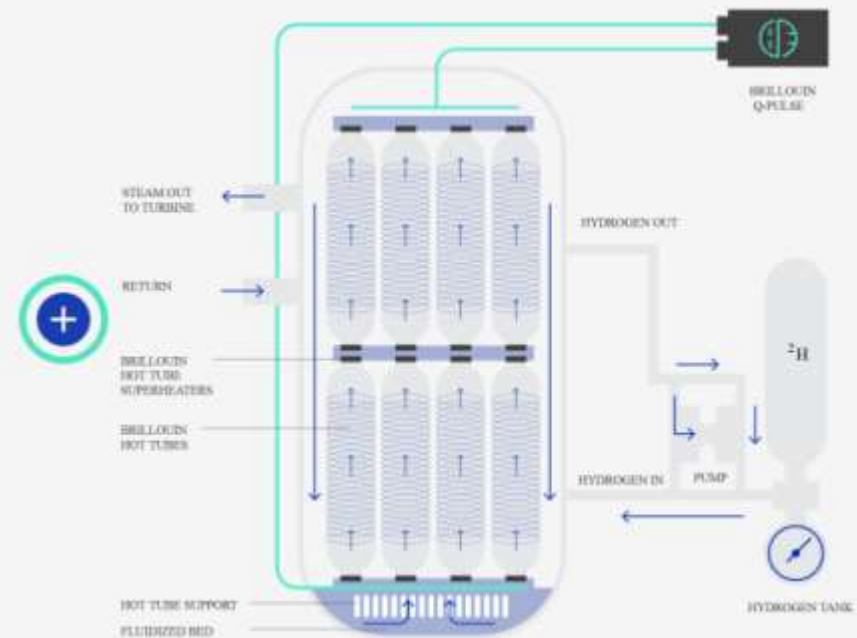
# Controlled Electron Capture Reaction

Brillouin Energy's unique form of low-energy nuclear reaction, the 'controlled electron capture reaction', generates excess thermal energy (heat) by using very small amounts of hydrogen, nickel and electricity for inputs. Hydrogen is loaded, in the form of either a wet electrolyte, or as a gas, into highly engineered metallic cores constructed from nickel inside of a pressure vessel – either a WET™ or HYDROGEN HOT TUBE™ boiler system – and catalyzed with electrical charges from Brillouin Energy's proprietary Q-Pulse™ electronic pulse generator. The amount of hydrogen in an average glass of water contains enough energy density, when applied to Brillouin Energy's unique boiler systems, to safely power 30,000 homes for a year without pollution nor radiation of any kind.

HYDROGEN HOT TUBE™



HHT™ BOILER



# Gravity Force Generator

The gravity force generator operates without fuel or external electric power source. The main part of this device is a metal rotor (or two rotors) with eccentrics. The trajectory of eccentrics in the vertical plane is cardioid. Due to this trajectory of mass there is unbalance of the gravity central point of the rotor. In other words, the rotor in motion is an unbalanced wheel. Gravity force produces additional torque for it. An analogy is the famous Thomson inertial drive. But here the rotor's plane is vertical instead of horizontal.

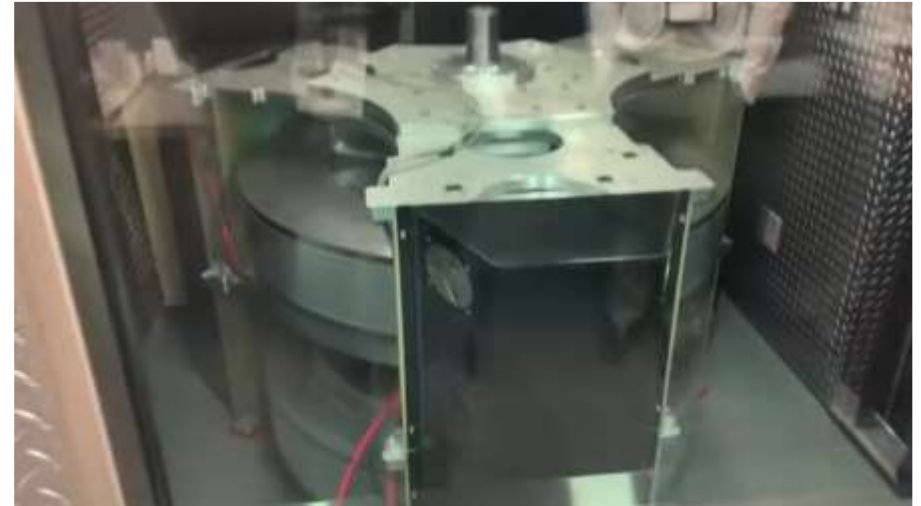
Initial rotation is provided by a small electromotor. During the start stage the input power is about 500 watts. But in operational mode the input power is about 50 watts – with output power about 12,000 watts. The extra output power is the result of gravity force.





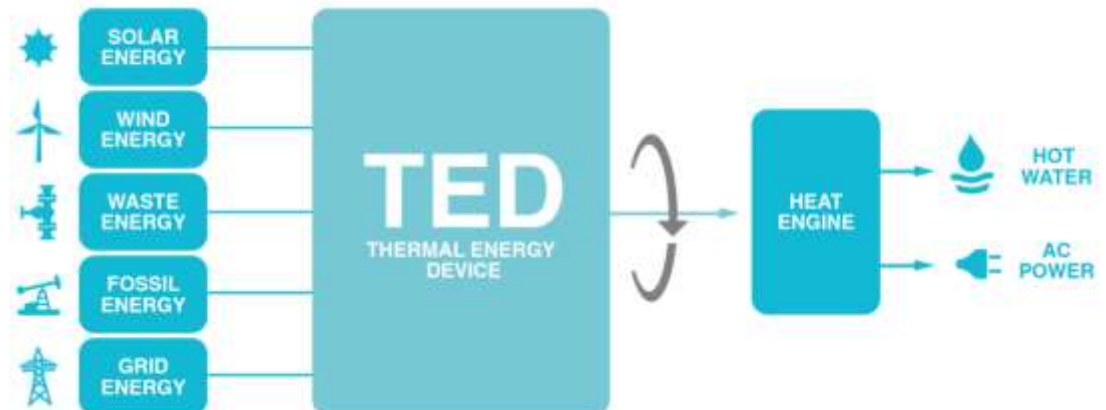
# Magnetic Propulsion Engine

The video freeze-frame is of Inductance Energy Corporation's 25-kilowatt commercial model installed in Las Vegas. The engine uses the rotary motion of a large flywheel mass (4,500 to 6,500 pounds) to induce a spin in a power ring that can produce a powerful magnetic force of up to 30,000 pounds. Think of this force as two magnets with two similar fields (North-to-North or South-to-South) 'pushing' against one another. These forces are measured at a one-centimeter distance from one segment (imbalanced magnet) to the other segment. The imbalance of the magnetic force avoids the use of the attraction side of the magnetic field. When the two opposing magnetic fields driving the flywheel mass are in the correct position, the engine fires a small electromagnetic charge measuring about 52 watts. This charge allows the opposing magnetic fields to 'see' each other, and can produce significant force to spin the large flywheel mass. This rotating mass inertia is then transferred via separate magnetic coupling to a generator which produces electrical energy. This power can also be used mechanically. The engine's in-house manufactured rare earth magnets have a documented magnetic field half-life of 17 years. Two US patent applications have been filed.



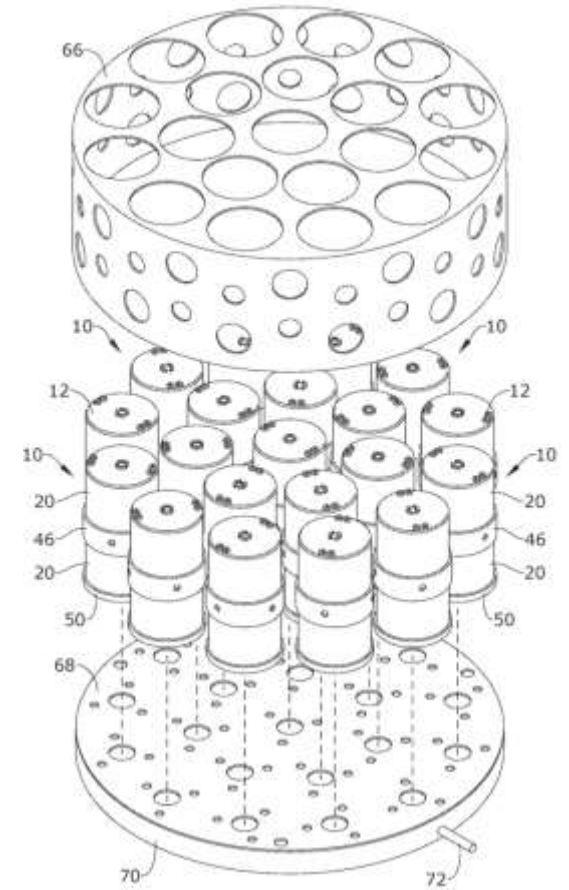
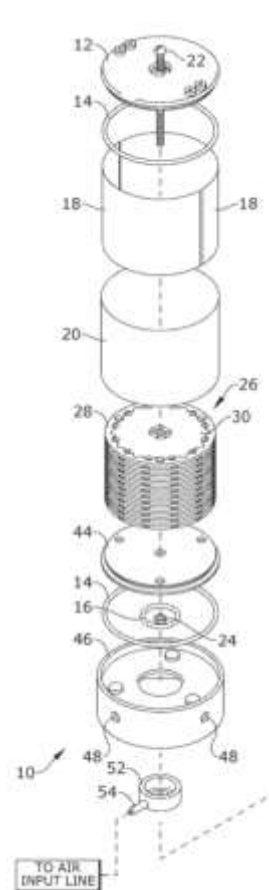
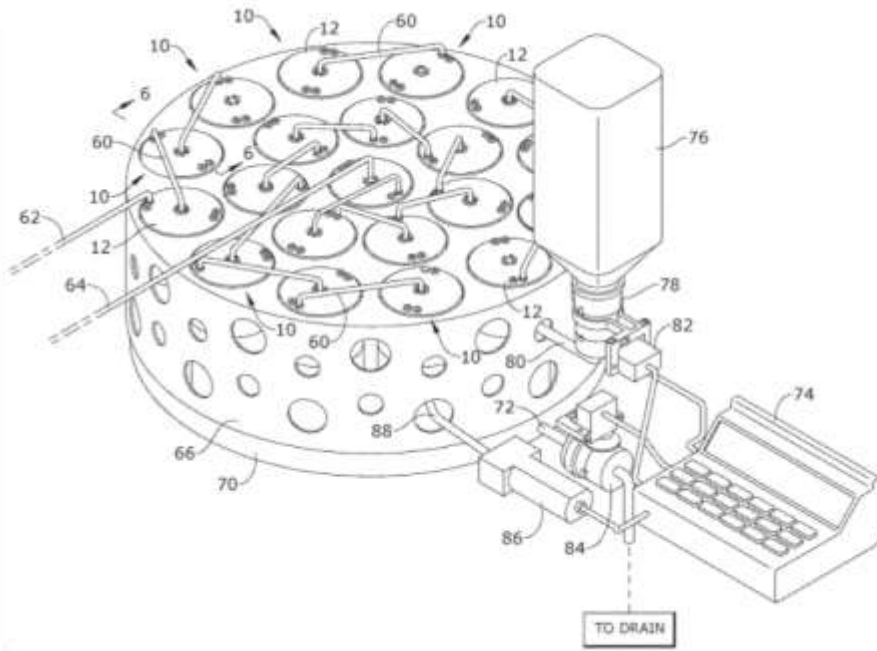
# Thermal Energy Battery

A thermal energy battery (TEB) can store six times more energy than lithium-ion batteries per volume for 60-80 percent of the price. A TEB stores electrical energy as thermal energy by heating and melting a unique phase-change material, before being extracted by a heat engine to provide electricity when, and where it's needed. The TEB is a modular energy storage unit that accepts any kind of electricity – solar, wind, fossil fuel-generated or straight off the grid – and uses it to heat up and melt silicon in a heavily insulated chamber. A standard TEB box holds 1.2 megawatt-hours of energy, with all input and output electronics on board, and fits easily into a 20-ft (6-m) container. Installations can scale from 5-kilowatt applications out to a virtually unlimited size. In the case of an outage, each TEB can remain active for about 48 hours. A TEB can also charge and discharge at the same time.



# Hybrid Solid Fuel Battery with Reduced Generation Costs

The hybrid solid fuel battery system is refuelable and electrically rechargeable. It includes a power module that stores reactive fuel plates, insulating separators and cathode rings. The reactive fuel plates are stacked together and electrically coupled together. Each reactive fuel plate is partially covered by a non-reactive layer to form an exposed bottom portion. Each reactive fuel plate is separated from an adjacent reactive fuel plate by one of the insulating separators. Each cathode ring is secured around one of the reactive fuel plates. A container storing an electrolyte solution is connected to the power module by a pipe. A controller connected to the container permits the electrolyte solution to flow to the interior of the module housing. This facilitates an interaction between the electrolyte solution and exposed bottom portions of the stacked reactive fuel plates, thereby generating electrical power.



# References:

A file of 153 pages of “102 Electrical Energy Innovations” is available at [padrak.com/vesperman](http://padrak.com/vesperman) and [commutefaster.com/vesperman.html](http://commutefaster.com/vesperman.html). Thirty low-energy nuclear reaction patents are inventoried at <http://gbgoble.kinja.com/contemporary-lenr-patents-popularly-known-as-cold-fus-1644173145?rev=1412913739346>



















Advanced Self-Powered

**ELECTRIC  
VEHICLES**

# Richardson Fuel-Less Electrical Generator

Two pairs of electromagnets warp a permanent bar magnet's magnetic fields back and forth across output field coils to induce a DC output voltage. With additional resonant circuit components, over-unity electrical energy conversion gain is achieved. US Patent 4,077,001 for "Electromagnetic Converter with Stationary Variable-Reluctance Members".

The Richardson blade-less Tesla-type steam turbine has a closed-loop cycle which is far more efficient than the electric motor in terms of converting electrical energy into rotational energy for application to a vehicle's drive wheels. The water is heated with radio frequencies like a microwave oven into steam which is then forced through two disks in sequence. The two disks are perforated in such a manner as to prevent cavitation (bubbles) even at high rotational velocity.

Since steam offers a 1,000-to-1 expansion ratio compared with gasoline's expansion ratio of approximately 300 to 1, the turbine is extremely powerful. An 18-inch diameter prototype's output power was measured at approximately 1,000 horsepower. The electricity for the water heater comes from the Richardson fuel-less electrical generator. Combining the blade-less steam turbine with his electrical generator, Frank Richardson had built a self-powered modified beetle-shaped Volkswagen automobile which he drove around during the early 1970's without bothering with refueling at gas stations, tune-ups, oil changes, etc.



# Conical Vortex Heat Exchange Engine

Richard Clem was a heavy equipment operator who in 1972 had noticed that a hot asphalt sprayer would continue to run for up to an hour even after the power was turned off! So he built a modified version as a 200-pound engine which ran on vegetable oil at 300 degrees and was started by a 12-volt battery. The heat is internally generated by the engine. During a nine-day test conducted by Bendix Corporation engineers, the engine in its self-running mode consistently generated 350 horsepower into a dynamometer. The engine was constructed from off-the-shelf components except for a hollow shaft and a custom cone with enclosed spiral channels. Illustrating its durability the only working model of the Clem engine has been continually running on his son's farm for several years.

A modern prototype engine was designed to produce 25 KW continuous output based on truncated conical vortex heat exchange engine design concepts without consumption of extrinsic fuel. It converts compressed rotary motion using non-compressible oils to create usable shaft torque at 1800 – 2300 rpm.

If the automobile industry adopts the conical vortex heat exchange engine, motorists could change its several gallons of oil only once every 150,000 miles and never buy any gasoline. Combining the conical vortex heat exchange engine with the hydrosonic pump could provide distilled ocean water as well as hot water for space heating, kitchens, and bathrooms at NO energy cost.

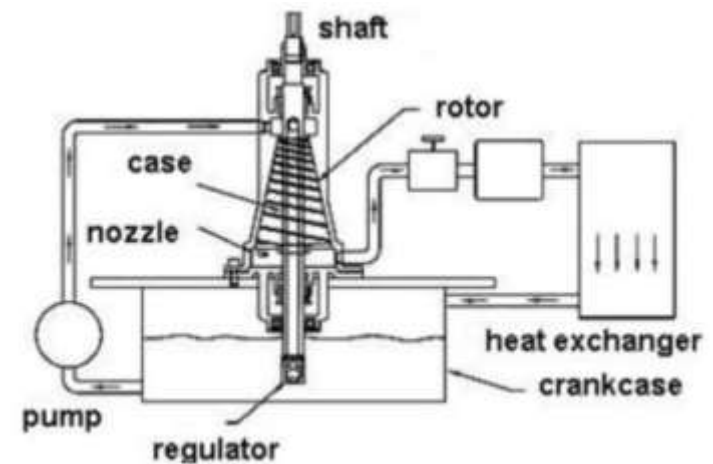


Figure 7. Principal scheme of Clem's device

# Volcheck: Engine Powered by Gas with Unusual Expansion Properties

In 1995, a man named Volcheck of Grand Coulee, Washington, made a trip across the United States and back in a car powered by a special gas he developed that had unusual expansion properties. He claimed to have obtained the formula from some unpublished notes of Leonardo Da Vinci.

Volcheck says the gas expands enormously at about 395 degrees Fahrenheit to 450 pounds pressure. In other words, from approximately 390 to 395 degrees Fahrenheit, the gas expands from a volume

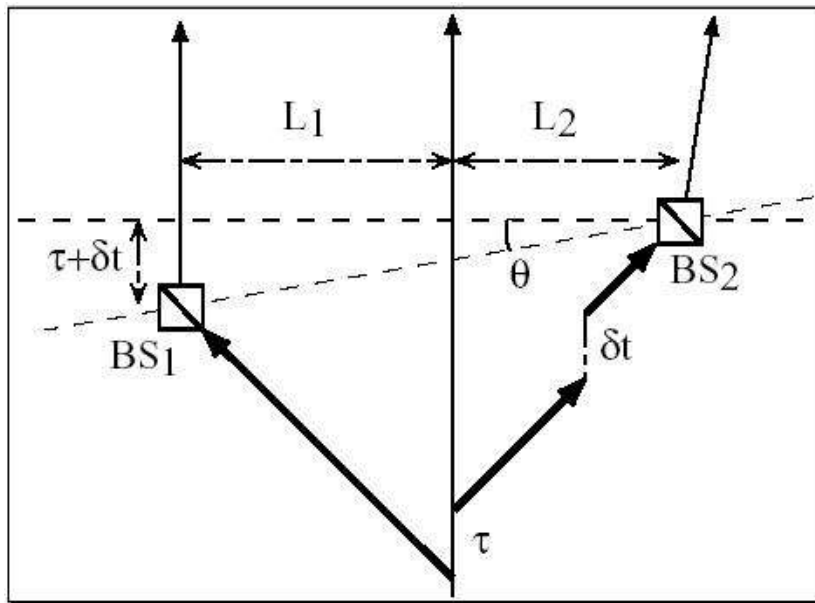


of one unit to a volume of 10,000 units. He used this gas in a modified Franklin aircraft engine which behaved more like a steam engine. He never refueled during the trip – consuming \$10 worth of this special gas.



# Torsion Field Radio

Most drivers become annoyed when a radio station's signal weakens under overpasses. The theoretical maximum capacity of torsion field communications is apparently 40 billion channels of radio and holographic television through the entire earth without attenuation at a speed of one billion times the speed of light. Torsion field communications is made possible by special crystalline lattice cells. A radio station broadcasting from its studio via the torsion field could have its signal picked up anywhere in the world without dropouts. Torsion field cell phones would allow world-wide talking.



Time diagram of an experiment involving moving apparatuses and demonstrating that quantum correlations are independent of distance as well as of time ordering between the two measurements.

The experiment was proposed by Antoine Suarez and Valerio Scarani in 1997 and carried out by Nicolas Gisin and his Applied Physics Group at the University of Geneva in 2001.

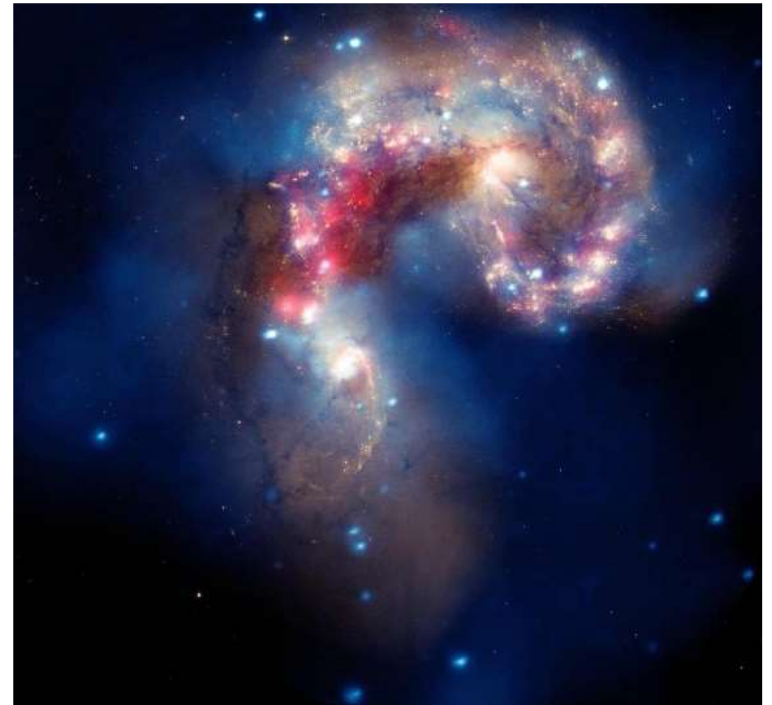


Prototype Torsion Field Generator –  
Simultaneity at a Distance

# Torsion Field Energy Applications

Since all known substances possess a non-zero collective spin state [this means, in simple terms, that everything is always in motion at all scales], then all substances must also create and exist within their own localized torsion fields. The expanse and frequency structure of any substance is determined by its chemical composition and the expanse structure of its molecules or crystalline lattice. A clear understanding of these mechanics will enable commercialization of energy storage devices which have energy conversion characteristics well in excess of gasoline [650 watt hours/kg].

The I. N. Frantsevich Institute for Problems of Materials Science, Kiev, Ukraine, has prototyped a solid-state energy cell which produces 850-1040 watt-hours/kilogram. This is at least 35-50 times the energy density of any known conventional energy storage devices developed in the West. Their claims have been verified by the Idaho National Engineering and Environmental Laboratory, Defense Advanced Research Projects Agency, and the Advanced Materials and Technologies Laboratory. A key element of their crystalline lattice deposition method relies on the effects of a torsion field beam.

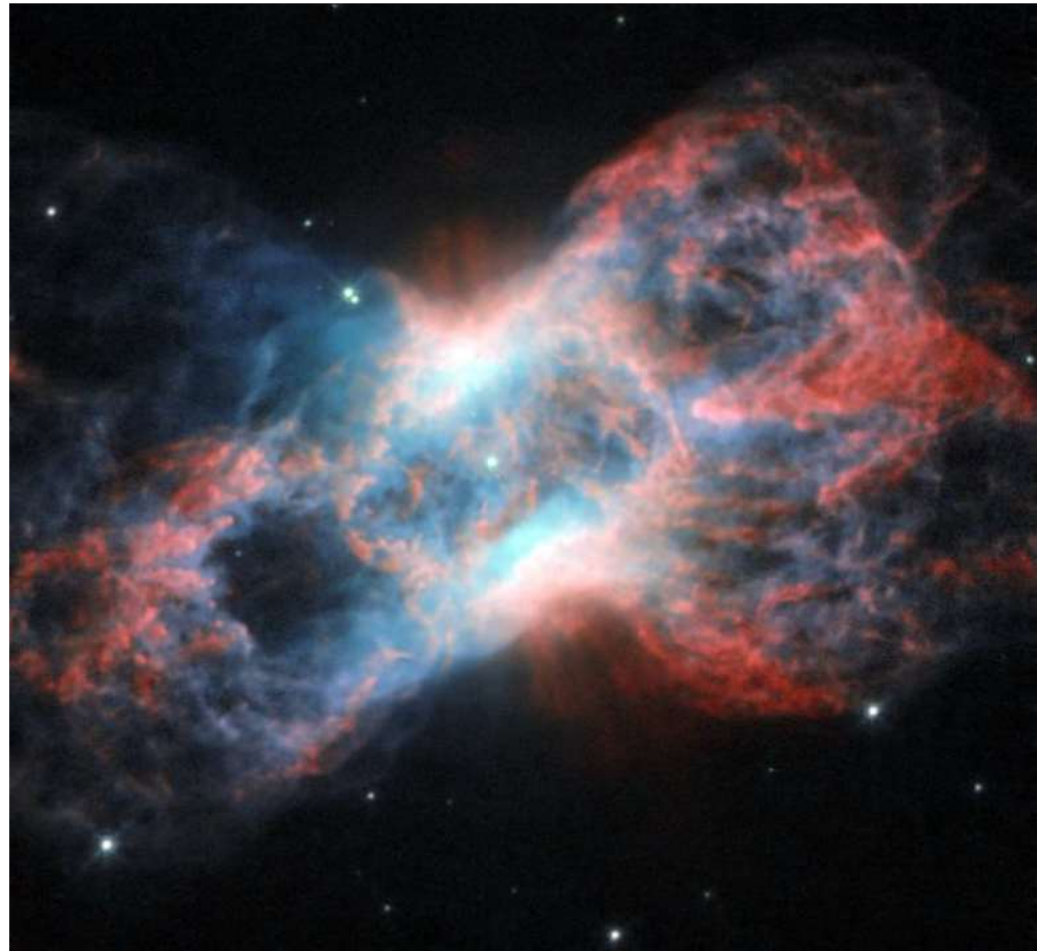


Sandia Laboratories, Los Alamos, NM, developed a thin-film solid-state energy storage device with an energy density of 250-400 watt-hours/kilogram.

# Nickel-Iron Battery

The nickel-iron battery is a superior new type of electricity storage device with none of the drawbacks of all other types of batteries such as temperature sensitivity. It is actually a modern version of inventor Thomas Edison's nickel-iron battery.

Increasing the surface area of the electroplates by up to 1000 times greatly increases current output and allows much quicker charge/discharge rates. Different chemistry reduces the weight of the battery by 50%, reduces cost, and is much more environmentally friendly than lead. The first of several nickel-iron battery patents is US Patent No. 6,060,198 "Electrochemical Battery Structure and Method".



# Compressed Air-Driven Air Conditioner/Heater

The compressed air-driven air conditioner/heater (US Patent 4,407,134 “Air Conditioning System”) relies on the principle of a vortex tube. Air whirled in a vortex tube separates with the cold air molecules collecting in one portion of the tube, and the warm air molecules collecting in another portion of the tube. The cold air is expelled from one end of the tube, and the warm air is expelled from the other end. It can be switched between providing 90% cold air and 10% warm air, or 10% cold air and 90% warm air.

The metal tube is about a foot long and a half-inch in diameter with a two-inch long compressed air intake tube perpendicularly attached about three inches from one end. The intake compressed air requirement specifications are 7 cubic feet per minute at a pressure of 40 pounds per square inch. The volume of air expelled is twice that of a refrigerant-type automobile air conditioner while requiring only one-fourth the horsepower. Also, no warm-up period is required as with conventional air conditioners or heaters. Its laboratory-certified efficiency is nearly 30%. On a hot Las Vegas summer day the air blowing out of the cold end has been measured at around 0 degrees Fahrenheit.

Combined with an on-board battery charger, the advanced self-powered electric vehicle would have the exceptionally nice feature of continuous climate control, even while parked! Parked on a cold winter day, the interior of the vehicle would always be toasty warm. On a hot summer day, the vehicle’s interior would always be refreshingly cool.





# Low-Temperature Diamond or Titanium Nitride Coating of Vehicle Parts

Nondestructively coating numerous vehicle parts such as shock absorbers with diamond or titanium nitride would enhance durability. The patent for the new low-temperature coating process is US 5,254,237 “Plasma Arc Apparatus for Producing Diamond Semiconductor Devices”.

A multiple gun plasma arc deposition system allows controlled deposition of diamond and other diamond-like materials such as titanium nitride on a substrate. Deposition is controlled by controlling the time duration of pulses to a main gun, an acceptor gun and donor gun in a vacuum chamber that may contain a small



amount of hydrogen. The deposition process is also enhanced with microwave temperature control and substrate dithering with a transducer. The diamond deposition system and process can also be used to manufacture diamond-based semiconductor devices.

# Advanced Computer-Controlled Suspension Systems

The Computer-Optimized Adaptive Suspension Technology (COAST) system replaces a vehicle's conventional shock absorbers with specially designed hydraulic shock absorbers. The COAST system utilizes a sophisticated computer and position sensors to monitor the vehicle's level at each corner. The computer's microprocessor checks the sensors 240 times per second and optimally regulates the damping on all four shocks based on this input. The firmware controls nine dynamic and static parameters of motion (roll, pitch, sprung natural frequency, unsprung natural frequency, pumping down, stored energy, topping out, bottoming out, and height).

Each shock absorber is actually a complementary pair of shock absorbers mounted in opposing vertical compression/rebound modes. The computer sends signals to valves to release pressure as required. The shock absorbers may be more durable and react faster than competing computer-controlled shock absorbers which apply pressure when needed.

The air ride suspension system replaces a vehicle's front coil springs and rear leaf springs. The air suspension comprises of a high-quality control subsystem that includes dual redundant air compressors, air dryers and filters, position sensors, computer-controlled solenoid valves, and a dashboard-mounted control to ensure proper operation and a long and reliable life of the air suspension in all weather and driving conditions. While stopped or driving, the control subsystem allows the operator to easily maintain the correct ride height under all loading conditions. For example, the chassis can be raised for a bumpy ride and lowered for stable highway driving. The vehicle body is automatically leveled at all four corners, even when parked on an uneven surface.

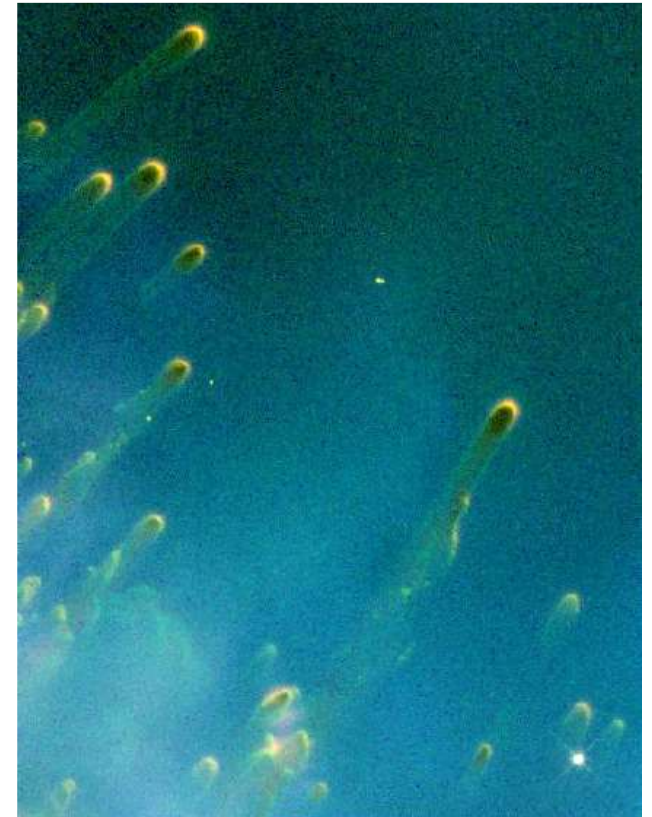
Combining these two computer-controlled adaptive suspension systems would offer a luxurious ride with sports-car control and additional features at a reasonable price. US Patents 5,056,811, 5,735,372, 4,634,142, 4,722,548, 4,468,739, 4,468,050, 5,529,152, 4,651,838, and 4,783,089.

# IPMS High-Temperature Gas Plasma Detonator

The I. N. Frantsevich Institute for Problems of Materials Science (IPMS), Kiev, Ukraine, has invented a high-temperature gas plasma detonator which can spray strategic metals and other commonly used materials onto the surface of other, previously incompatible materials. These high-temperature gas plasma detonation spray technologies make it possible to create permanent molecular bonds between materials which could never be married together before.

The IPMS has developed an extensive family of previously unknown technologies based on woven fibers made entirely of 100% pure basalt fibers (lava rock). This totally new technology allows for the production of basalt/carbon fiber foam that is extremely strong yet lighter than fiberglass. The foam can be formed into a variety of monocoque (unibody) basalt/carbon fiber foam vehicle body/frame parts.

An experimental vehicle made with lightweight IPMS-manufactured basalt/carbon fiber foam body/frame parts was reportedly the only vehicle ever tested that can cut through a cast-iron London taxicab in a collision.



# Hutchison Self-Charged Battery

John Hutchison's self-charged battery generates a perpetual DC voltage without external recharging. By stacking enough self-charged batteries into a single DC generator, the generator's DC voltage can be converted to regulated AC electricity and thereby silently electrify a house without fuel or emission of pollutants. The DC voltage could also cleanly power an electric vehicle's DC motor.

An energy researcher has reported "I have tested some of his crystal cell batteries and they do work, very low power outputs nearly continuous,..."





# Salt Water Flow Cell Car

NanoFlowcell AG's Quant E is the first electric car powered by salt water. The car generates 920 horsepower, goes 0-62 mph in 2.8 seconds, and propels the car to a top speed of 217.5 mph while emitting zero emissions. Two 200-liter tanks of salt water give the car a range of 373 miles. Its nanoFLOWCELL® develops electricity from the electrochemical reaction created by two electrolyte solutions. Two large supercapacitors store this electricity for instant delivery to four asynchronous three-phase drive motors.

The nanoFlowcell® offers a wide range of applications as a sustainable, low-cost, safe and environmentally-friendly source of energy. It uses neither precious metals nor rare earths. The cell comprises mostly water as a carrier substance, metallic salts, and crystalline structures. The nanoFlowcell® produces a nominal voltage of 600 volts and nominal current of 50 amperes.



# Endless Electric Field Generator

The solid-state 'endless electric field generator' produces a permanent electric voltage (similar to a permanent magnet) that does not break down and is resistant to short circuits. Its permanent electric voltage can sustain a constant current through a load. Various manufacturing techniques will use only materials that are cheap, non-toxic and in abundance. A postage stamp-sized device could endlessly output one watt of constant electrical power – enough to power a cell phone for twenty years. Appliances and electric cars could be constantly powered without fuel and pollution.

This technology works by producing a permanent electric field (the opposite of a permanent magnetic field in a permanent magnet) that does not break down. From this permanent electric field, a constant flow of electricity can be produced.

Currently, prototype outputs are modest – only capable of powering small lights or other loads. By developing methods of increasing the surface area of the device, which will boost the current to a higher level (the voltage is already there), the technology could be scaled up to provide electricity for any application – mobile phones, computers, electric cars, homes, machinery, etc.



# IPMS Crystal Lattice Energy Storage/Battery Device

The I.N. Frantsevich Institute for Problems of Materials Science (IPMS), Kiev, Ukraine, has developed an energy storage device which works on a completely different principle from chemical batteries. Requiring only 15 to 30 minutes to recharge, IPMS crystal lattice energy storage devices produce the same current and voltage levels throughout 98% of their discharge cycle. They produce no heat during discharge, regardless of the rate at which they are discharged. Their quick recharge capability allows them to easily capture regenerative braking energy, extending the electric vehicle's range. Their energy densities of between 850 and 1050 watt-hours/kg are about a third more than gasoline's energy density of between 550 and 600 watt-hours/kg. They operate well in the temperature range of -40 to +60 degrees centigrade.

The crystal lattice battery stores the charges in crystalline layers of a sheet-like material similar in appearance to mica. Due to nonlinear quantum mechanics effects, the electrical characteristic of each crystalline layer is that of a capacitor as thin as one molecule. Since capacitance is inversely proportional to thickness of the separation between layers, the practical consequence of the battery is to electrically function in a manner similar to that of a giant capacitor. A side benefit of these batteries is that they are made only of proprietary materials which are environmentally friendly, plentiful, and inexpensive.



# Quantum High Energy Density Storage or Retrieval Device

Essentially a very thin battery, the solid-state Quantum High Energy Density Storage or Retrieval (QUENSOR™) device has an energy density of about 1-15 kilowatt-hours/kilogram, which is comparable to gasoline, or more. A fundamentally new principle and a new method of manufacture are employed.

Electric energy is stored or retrieved from quantum dipole electric fields throughout the volume of the QUENSOR™ film. Electric energy is stored in the QUENSOR™ film by charging the dipole electric fields from an electric energy source. Electric energy is retrieved from a QUENSOR™ film by discharging the dipole electric fields and supplying the energy to a load. Electric breakdown in the film is avoided because positive and negative electric charges in the film are balanced everywhere. Busbars attached to metal layers are connected to terminals for charging or discharging the QUENSOR™ film.



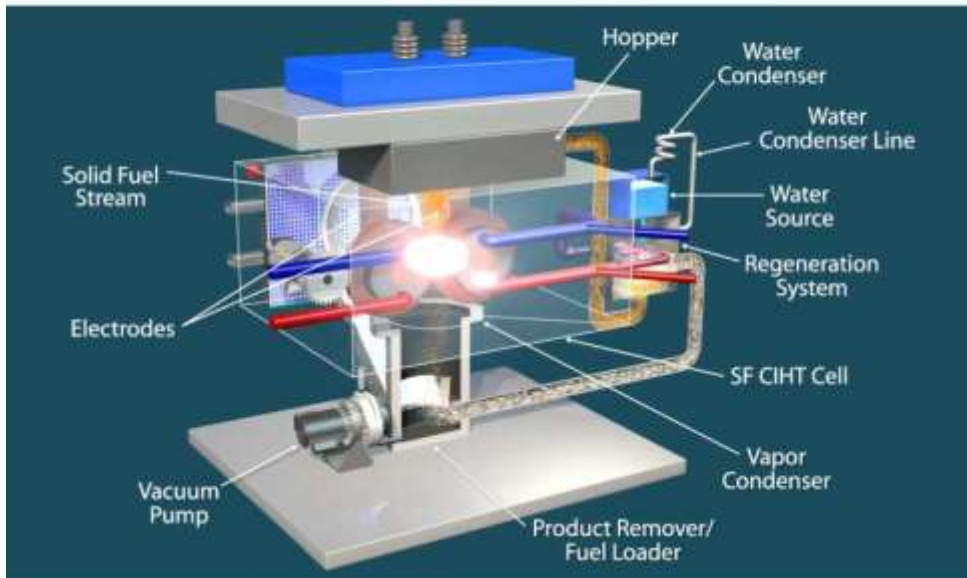
A composite QUENSOR™ and light-polarizing photovoltaic film LUMELOID™ panel may be used for the storage or retrieval of solar-electric energy day or night on demand.



# Catalyst Induced Hydrino Transition Cell

BlackLight Power's Catalyst Induced Hydrino Transition (CIHT) cell generates electricity directly from hydrogen. Reactions occur at both the anode (negative electrode) and cathode (positive electrode) that cause ions to flow through the electrolyte (ion-conductive medium between the electrodes) and electrons to flow in the external circuit such that the overall result is the formation of some hydrinos from hydrogen of the reactants. No extreme conditions nor precious or exotic materials are needed. Less than 1% of the electrical energy gain is needed to electrolyze the water for producing the hydrogen fuel.

SunCell Power System



SunCell Power System



- 3,000 miles per liter of water.\*
- Projected cost of less than \$100 per kW electric.
- One third the weight of an internal combustion engine (ICE).
- Projected 200kW (267 HP) SunCell and electric drive system is less than that of a comparable combustion system.
- Has the potential of unsurpassed capability in terms of range, capital cost, power, logistics, and pollution abatement to zero including zero carbon dioxide emission.



\*Calculations:  $H_2O$  to  $H_2(1/4) + 1/2O_2$  (50MJ/mole or 2.78 GJ/kg, 2.78 GJ/liter)

Model S energy consumption rate of 291 Wh/mile  
(<http://www.teslamotors.com/goelectric#savings>)

1 Whr = 3600 J

Model S energy consumption rate of 1 MJ/mile

2780 MJ/liter / (1 MJ/mile) = 2780 miles/liter

# Melanin Battery-Generator

The melanin battery-generator is a photoelectrochemical system which integrates a semiconductor material and a water electrolyzing material, melanin, inside a monolithic design, to produce hydrogen directly from water. Natural or synthetic light is used as the main or sole source of energy. The system or light absorbing compound generates enough energy to start, lead and complete the photoelectrolysis reaction. The system can generate hydrogen, oxygen and high energy electrons, and can synthesize water from the union of hydrogen and oxygen, thereby generating electricity. The system can also be coupled to other processes, generating a multiplication effect, and can be used for the reduction of carbon dioxide, nitrates, sulphates and the like.

The process continues as the same molecule brings together both elements turning them into water again; as a result one more energy load is triggered. Once this process is reached, it can continue for 100 years. This ever-lasting battery can only be used to power up household appliances, but this is just the beginning, as it is planned that it can boost the engine of an electric car very soon. Imagine not having to buy batteries ever again.

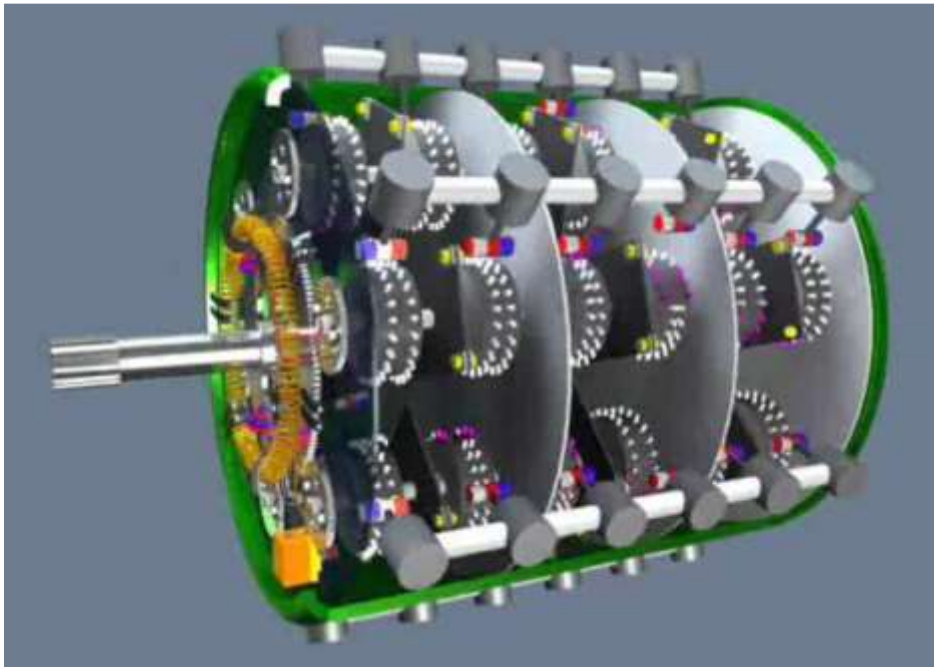
US Patent 8,920,990: Device for performing a photoelectrochemical method of separating water into hydrogen and oxygen



# Walden Amplified Magnetic Motor

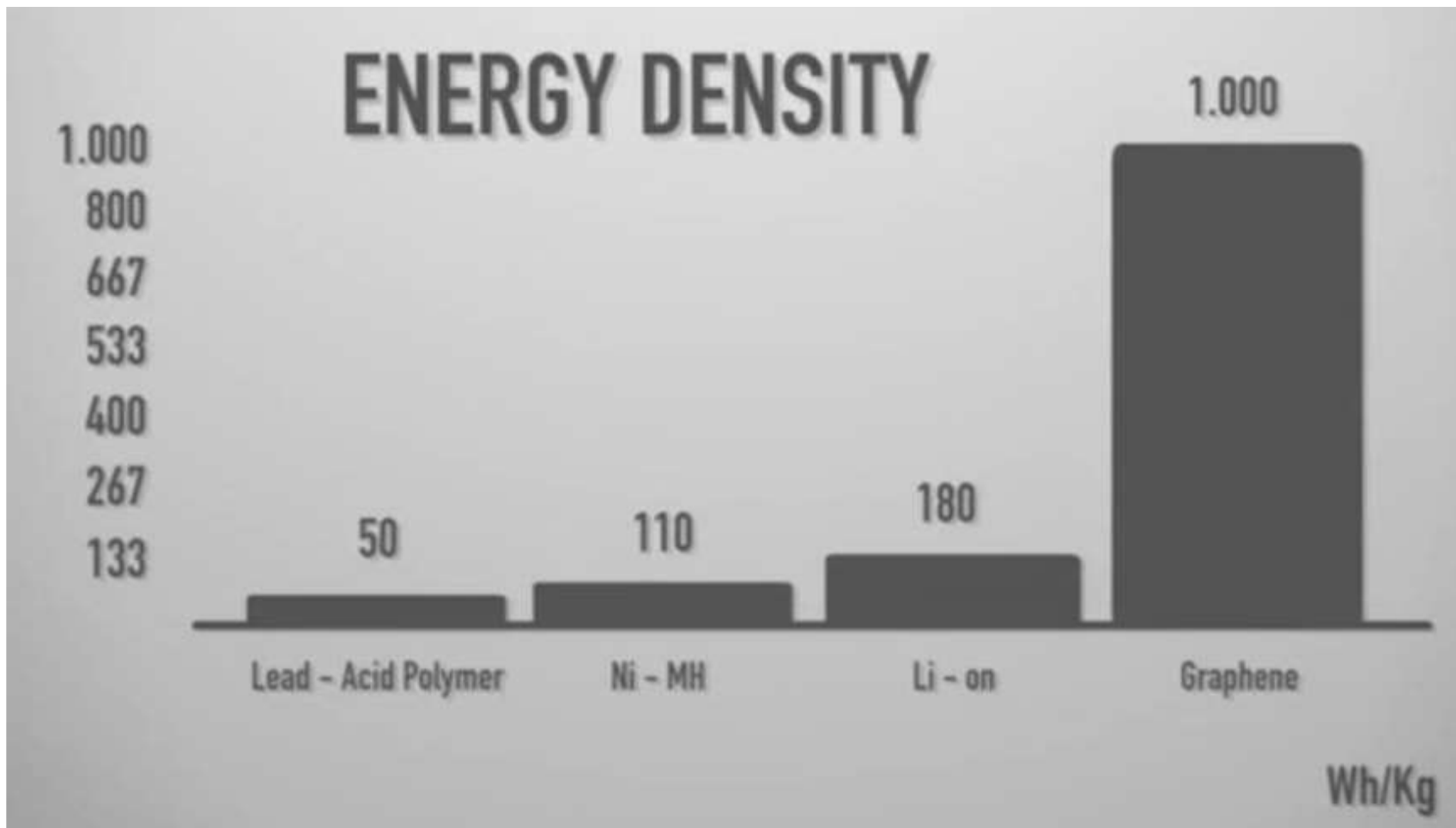
Michael Walden's Amplified Magnetic Motor runs on minimally small input power for its control electronics, but all torque and rotational motion is provided by the permanent magnets on the rotor and stator. The Walden amplified magnetic motor meets the basic requirements for electric vehicles. This model uses permanent magnets of the same type and model generating force *only* from the change in distance between the rotor magnets and the stator poles. There is no difference in magnetic force between the rows of the rotor magnets to increase torque on this model.

US 20100308601 A1 "Permanent Magnet Motion Amplified Motor and Control System".



# Graphene Polymer Battery

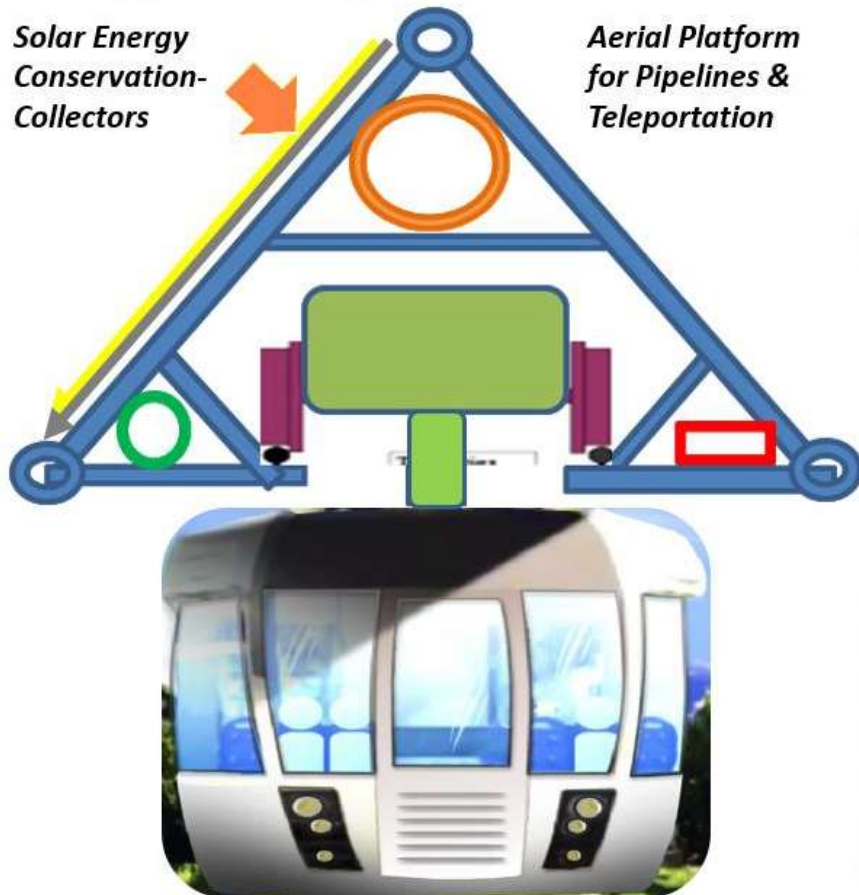
Graphenano's super-thin graphene polymer battery may triple the range of Tesla Model S electric cars. Their battery would be considerably lighter and safer than lithium-ion batteries yet still cost the same. The rate of recharging may be 33 times faster than lithium-ion batteries and still retain 80% capacity after thousands of charging cycles.





# Sky Train

Sky Train Corporation's eco-friendly Sky Train's 'Vertically Articulated Suspended Technology' allows operation as the world's fastest, safest and most practical train. The Sky Train swings on curves for passenger comfort allowing greater speeds. Suspended overhead passes unimpeded above all congested traffic and land uses.



# Sirius Ultra-Capacitor Battery

WRL Technologies' six kilowatt-hour Sirius ultra-capacitor battery can be recharged in 16 to 30 seconds. It costs less than lithium batteries and has more than ten times the energy storage density. Its lifespan is at least 45 years and does not degrade when completely discharged, overcharged or kept at 100 per cent capacity. Cell phones with this non-toxic safe lightweight battery can be recharged in 15 seconds and last 10 to 20 hours. A MOTEV Bike has a top speed of 120 kilometers/hour, is quiet, operable in knee-high water, and has a single charge range of 150 kilometers or more.



# Electrostatic Motor

Rather than relying on magnetic fields to create rotary motion, the electrostatic motor uses the electrostatic (static cling) force of electric fields to align closely stacked stationary and rotating aluminum plates. An electrostatic motor is smaller and lighter than a conventional motor, operates without a gearbox, and eliminates the need for copper windings, electrical steel laminations and rare-earth magnets. At 95% efficiency, it cuts losses by a factor of three compared to conventional motors.

Air cushions keep the plates slightly apart from one another – resulting in no maintenance. Electronics precisely control a high-voltage, high-frequency electric field. Fluid mechanics set up the air cushions and a proprietary dielectric liquid.

Applications include energy storage, electric vehicle motors, power windows, low-speed wind turbine generators, drones, and energy infrastructure.

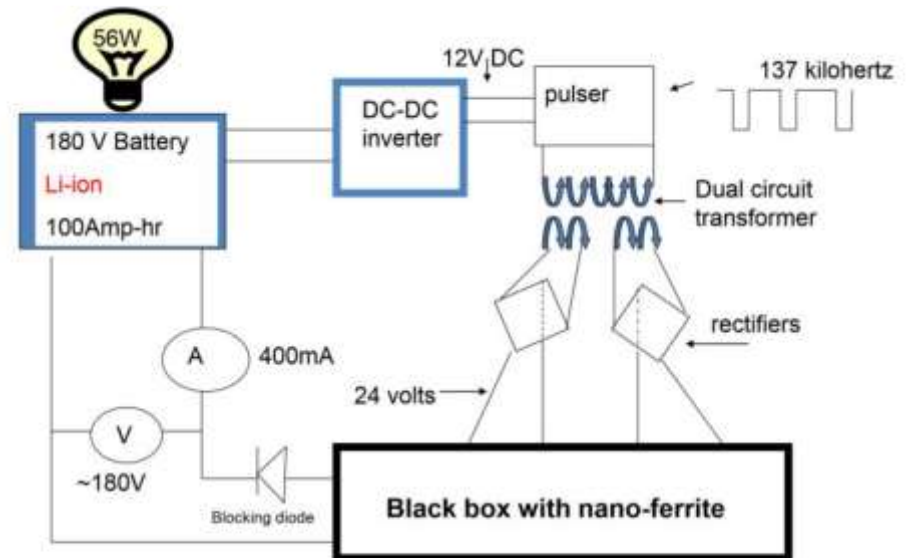


A prototype electric motor that uses a new principle for transforming electricity into rotary force is being developed at C-Motive Technologies in Madison. Company co-founder Dan Ludois is an assistant professor of electrical and computer engineering at UW-Madison.



# Manelas Battery Charger

The prototype Manelas battery charger is a one-pound 4" x 4" x .5" SrFe<sub>12</sub>O<sub>19</sub> strontium ferrite billet with grains 3-10 nanometers in size. A large proportion of the atoms are near a grain's surface and reside in shallow, non-parabolic potential wells which produce nonlinear large amplitude low-frequency vibrational modes. Nonlinear coupling from the quantum vacuum results in energy localization at the nanoscale which circumvents the second law of thermodynamics. When the billet is properly conditioned and is impressed with a resonant electrical frequency the self-oscillating magnetic fields of these grains combine to enable the billet to generate a net electrical output while becoming cooler than the ambient temperature.



- An oscillating current is impressed on battery. Super important point here. The billet has a natural frequency of magneto-elastic origin when it is properly conditioned. We try to resonate with that frequency.



# Fisker Flexible Solid-State Battery

The Fisker Inc. flexible solid-state battery features 2.5 times the energy density of lithium-ion batteries with a two-thirds cost reduction. EV ranges may be 500 miles on a single charge. Three-dimensional solid-state electrodes with 25 times more surface area than flat thin-film solid-state electrodes and extremely high electronic and ionic conductivities enable cold temperature operation and fast charging times as low as one minute. The 780 HP Fisker EMotion has a range of 400 miles and a top speed of 161 MPH.



# Graphene Magnesium Battery

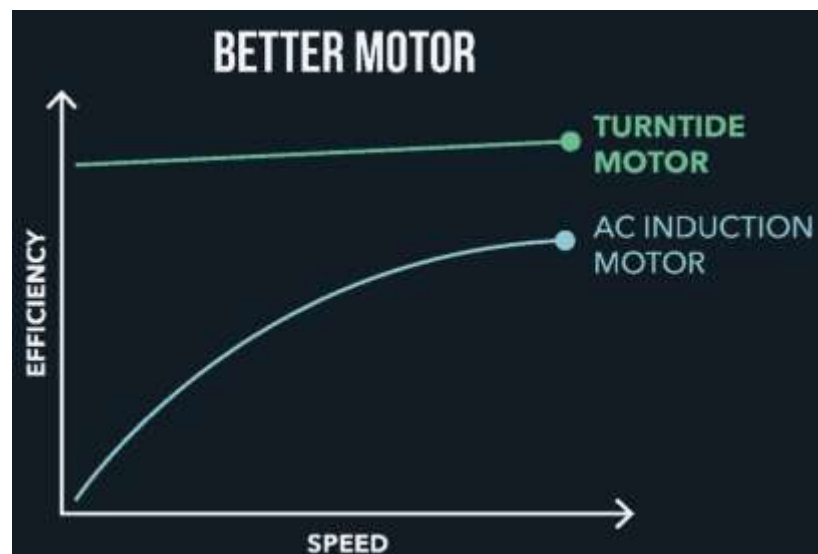
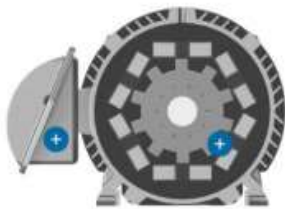
Russia's New Technologies of Siberia is entering small-scale production of its "Monarch" electric car. During 2020 up to 50 luxury cars in two different sizes with elements of aluminum, carbon and Kevlar will be produced. Mass production of up to 20,000 cars per year with onboard free-energy generators is planned to begin in 2021. The car will have a range of 500 to 1000 kilometers and a full battery charge in just 3.6 minutes. Thanks to the electromagnetic suspension with moving parts that also serve as power generators, the battery can be charged directly while driving. One kilogram of its lightweight graphene magnesium battery stores seven kilowatt-hours of electrical energy. The battery's structure resembles that of conventional lithium-polymer batteries. Alternating graphene and silicon plates serve as cathodes, and cheap magnesium oxide serves as the anodes. Graphene magnesium batteries are durable, simple to repair, environmentally safe, and resistant to water and extreme temperatures.

An LED strip shown in the photo runs the entire length of the car between two ceiling windows. The car's automatic pilot system ultrasonically scans the road surface. An Internet connection provides continuous monitoring of traffic jams, traffic accidents, and the weather.



# High Rotor Pole Switched Reluctance Motor Driven by a Software Controlled Inverter

A patented high rotor pole switched reluctance motor is combined with matching motor controller and powerful user-friendly software. With no rotor windings the motor is free of rare-earth metals and runs cooler which eliminates overheating failures. Unlike conventional analog motors that constantly draw electricity, this motor only uses electricity when it is needed to perform useful work. The Turntide Smart Motor and its intelligent controls deliver up to 75 percent annualized energy savings when compared to conventional fan motors. Industry results show the exponential improvement of Turntide motors over standard induction motors in performance characteristics including torque, power density, efficiency, versatility, and cost. The motor itself can act as a sensor, using advanced analytics to detect temperature, torque, vibration, and current issues. It upgrades itself automatically via over-the-air updates.



# Solid-State Lithium-Metal Battery

A solid-state lithium-metal battery replaces the polymer separator used in conventional lithium-ion batteries with a ceramic solid-state separator. The carbon or silicon anode used in lithium-ion batteries is replaced with a lithium-metal anode. The lithium metal anode is more energy dense than conventional anodes. An electric vehicle that gets 200 miles of range could now get between 300 and 400 miles of range. The battery can charge up to 80% capacity in 15 minutes. Extreme high and low temperatures do not affect battery operation.

Battery charge time is reduced by eliminating the charge bottleneck resulting from the need to have lithium diffuse into the carbon particles in conventional lithium-ion cell. Battery life is prolonged by eliminating capacity fade that results from the unwanted chemical side reaction between the carbon and liquid electrolyte in conventional lithium-ion cells. Battery safety is improved by replacing the combustible organic porous separator and organic anolyte material in conventional lithium cells with a ceramic solid-state separator.





# Casimer Self-Propulsion

The cavity sides are like the two plates of Casimir's original experimental proposal. A cavity roof is added that prevents the other two plates from moving together. The surface of the ceiling that lies inside the cavity experiences an enhanced quantum-flux radiation pressure; but the outside surface of the ceiling, the roof, experiences the weaker ambient flux that exists outside the cavity flux enhancement zone. Therefore, there is a continuous net radiation pressure acting toward the cavity roof. This net electromagnetic radiation-pressure will power all of our machines and propel all of our vehicles all of the time, everywhere, for free.

Cavity Walls	Z-P E C	Cavity Floor & Roof																																																																																								
<p>Purple Arrows represent the forces that are acting on the Cavity Walls. These Purple Arrows come in pairs that are equal in magnitude <u>and</u> opposite in direction!</p> <p style="text-align: center;">◀▶, ▲▼, ▶◀</p> <p>All of these forces cancel out!</p>	<p style="text-align: center; color: red;">Zero-Point Energy Converter</p> <p style="text-align: center; color: red;">US Patent Pending</p>	<p>Blue Arrows represent the forces that are acting on the <b>Ceiling</b> and <b>Roof</b> of the Cavity. These two Arrows are opposite in direction, but are <b>Not Equal in magnitude !!!</b></p> <p style="text-align: center;">▲▲▲ &amp; ▼▼▼</p> <p>These Forces do NOT cancel!</p>																																																																																								
<p>The large upward-directed forces that are represented by the large blue arrows overcome the small downward directed forces that are represented by the small blue arrows. This causes an net upward directed force that is directed <i>toward</i> the cavity Ceiling!</p>																																																																																										
<p style="text-align: center;"><b>Total Floor Area Pressures of a Macroscopic Array Of Nanoscopic Holes or grooves</b></p>		<p style="text-align: center;"><b>A Macro-scopic Array of Nano-Scale Holes Or Grooves</b></p>																																																																																								
<table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th colspan="2" style="background-color: #00ffff; color: black;">Wall Separations (nm)</th> <th colspan="2" style="background-color: #00ffff; color: black;">Floor Pressures Pa (N/m<sup>2</sup>)</th> </tr> </thead> <tbody> <tr> <td>0.5</td><td>2.08E+010</td> <td>8</td><td>3.18E+005</td> </tr> <tr> <td>1</td><td>1.30E+009</td> <td>9</td><td>1.98E+005</td> </tr> <tr> <td>2</td><td>8.14E+007</td> <td>10</td><td>1.30E+005</td> </tr> <tr> <td>3</td><td>1.61E+007</td> <td>15</td><td>2.57E+004</td> </tr> <tr> <td>4</td><td>5.09E+006</td> <td>20</td><td>8.14E+003</td> </tr> <tr> <td>5</td><td>2.08E+006</td> <td>30</td><td>1.61E+003</td> </tr> <tr> <td>6</td><td>1.00E+006</td> <td>40</td><td>5.09E+002</td> </tr> <tr> <td>7</td><td>5.42E+005</td> <td>50</td><td>2.08E+002</td> </tr> <tr> <td>80</td><td>1.00E+002</td> <td>70</td><td>5.42E+001</td> </tr> <tr> <td>100</td><td>1.30E+001</td> <td>80</td><td>3.18E+001</td> </tr> <tr> <td>200</td><td>8.14E+000</td> <td>90</td><td>1.98E+001</td> </tr> <tr> <td>300</td><td>5.09E+000</td> <td>100</td><td>1.30E+001</td> </tr> <tr> <td>400</td><td>3.18E+000</td> <td>200</td><td>8.14E+000</td> </tr> <tr> <td>500</td><td>2.08E+000</td> <td>300</td><td>1.61E+000</td> </tr> <tr> <td>600</td><td>1.00E+000</td> <td>400</td><td>5.09E+000</td> </tr> <tr> <td>700</td><td>5.42E+000</td> <td>500</td><td>2.08E+000</td> </tr> <tr> <td>800</td><td>3.18E+000</td> <td>600</td><td>1.00E+000</td> </tr> <tr> <td>900</td><td>1.98E+000</td> <td>700</td><td>5.42E+000</td> </tr> <tr> <td>1000</td><td>1.30E+000</td> <td>800</td><td>3.18E+000</td> </tr> <tr> <td></td><td></td> <td>900</td><td>1.98E+000</td> </tr> <tr> <td></td><td></td> <td>1000</td><td>1.30E+000</td> </tr> </tbody> </table>		Wall Separations (nm)		Floor Pressures Pa (N/m <sup>2</sup> )		0.5	2.08E+010	8	3.18E+005	1	1.30E+009	9	1.98E+005	2	8.14E+007	10	1.30E+005	3	1.61E+007	15	2.57E+004	4	5.09E+006	20	8.14E+003	5	2.08E+006	30	1.61E+003	6	1.00E+006	40	5.09E+002	7	5.42E+005	50	2.08E+002	80	1.00E+002	70	5.42E+001	100	1.30E+001	80	3.18E+001	200	8.14E+000	90	1.98E+001	300	5.09E+000	100	1.30E+001	400	3.18E+000	200	8.14E+000	500	2.08E+000	300	1.61E+000	600	1.00E+000	400	5.09E+000	700	5.42E+000	500	2.08E+000	800	3.18E+000	600	1.00E+000	900	1.98E+000	700	5.42E+000	1000	1.30E+000	800	3.18E+000			900	1.98E+000			1000	1.30E+000	<p>A proof-of-concept array can be made using the same techniques, materials and equipment that are used in semiconductor manufacturing, along with a wide variety of other nanotechnologies.</p>
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7	5.42E+005	50	2.08E+002																																																																																							
80	1.00E+002	70	5.42E+001																																																																																							
100	1.30E+001	80	3.18E+001																																																																																							
200	8.14E+000	90	1.98E+001																																																																																							
300	5.09E+000	100	1.30E+001																																																																																							
400	3.18E+000	200	8.14E+000																																																																																							
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# Axial-Flux Electric Motor

An axial-flux electric motor's spinning rotor has a larger diameter, because it turns alongside the stator, rather than inside it. Torque equates to force multiplied by radius. With a larger radius than in a conventional radial motor, the axial-flux motor delivers more torque for the same force – resulting in a 30% torque density advantage. The stator yoke is also removed, which reduces the stator iron mass by up to 80%. Compared to the complex, multiple slot windings of conventional radial motors, the axial-flux motor's segmented armature lends itself to low-cost, serial production.



*Complete 2-speed electric drive unit  
up to 6000Nm and 300kW peak at wheels from 85kg*



# Sodium-Air or Lithium-Air Battery

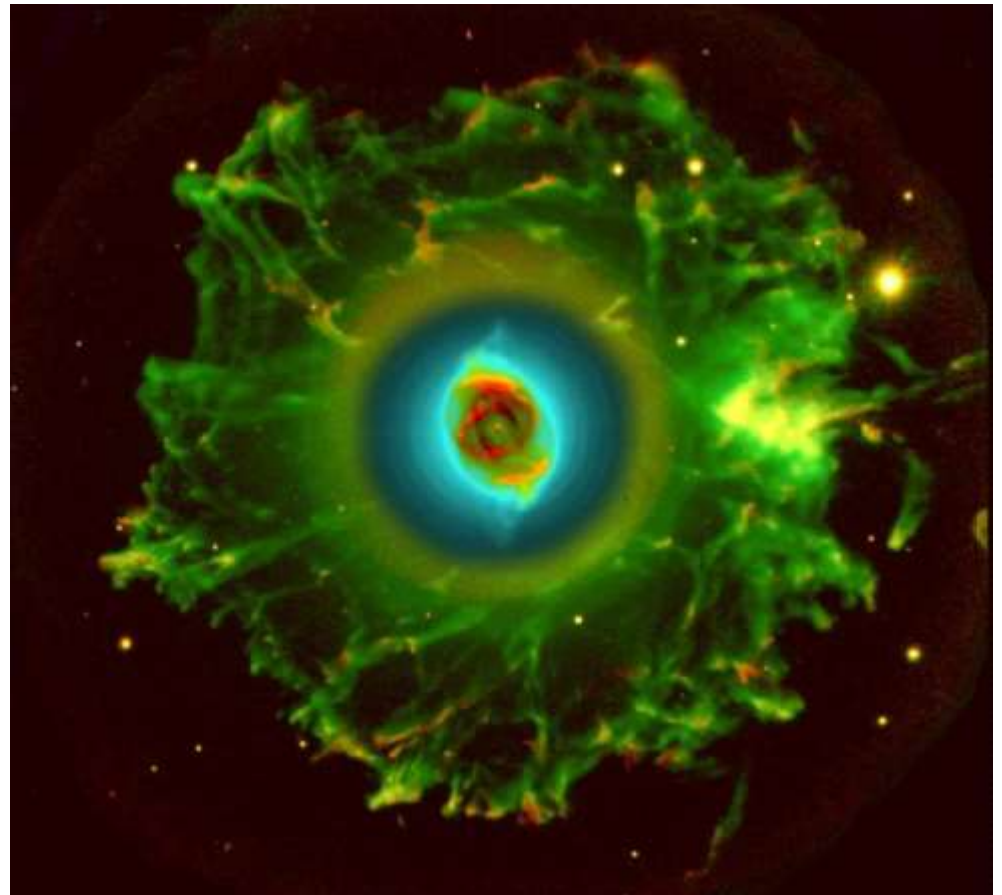
The Argonne National Laboratory has teamed with the Illinois Institute of Technology to develop a solid-state battery with the world's highest energy density. The future driving range of standard EVs may be raised to a thousand miles or more. It promises to do so cheaply without cobalt.

The typical lithium-ion battery in electric cars stores about 200 watt-hours per kilogram (Wh/kg). Their lab experiment has reached 675 Wh/kg with a lithium-air variant. The team believes it can reach 1,200 Wh/kg.

The current prototype is based on lithium, but the same type of battery could be developed with sodium. Switching to sodium would halve the driving range, but it would still be double today's generation of batteries. The battery uses a solid electrolyte made from a ceramic polymer based on nanoparticles. It achieves a reaction of four molecules at room temperature instead of the usual one or two. It is able to extract oxygen from the surrounding air to run the reaction. It can operate over a thousand cycles of charging and discharging. It is safer and less likely to catch fire than today's batteries.

# References:

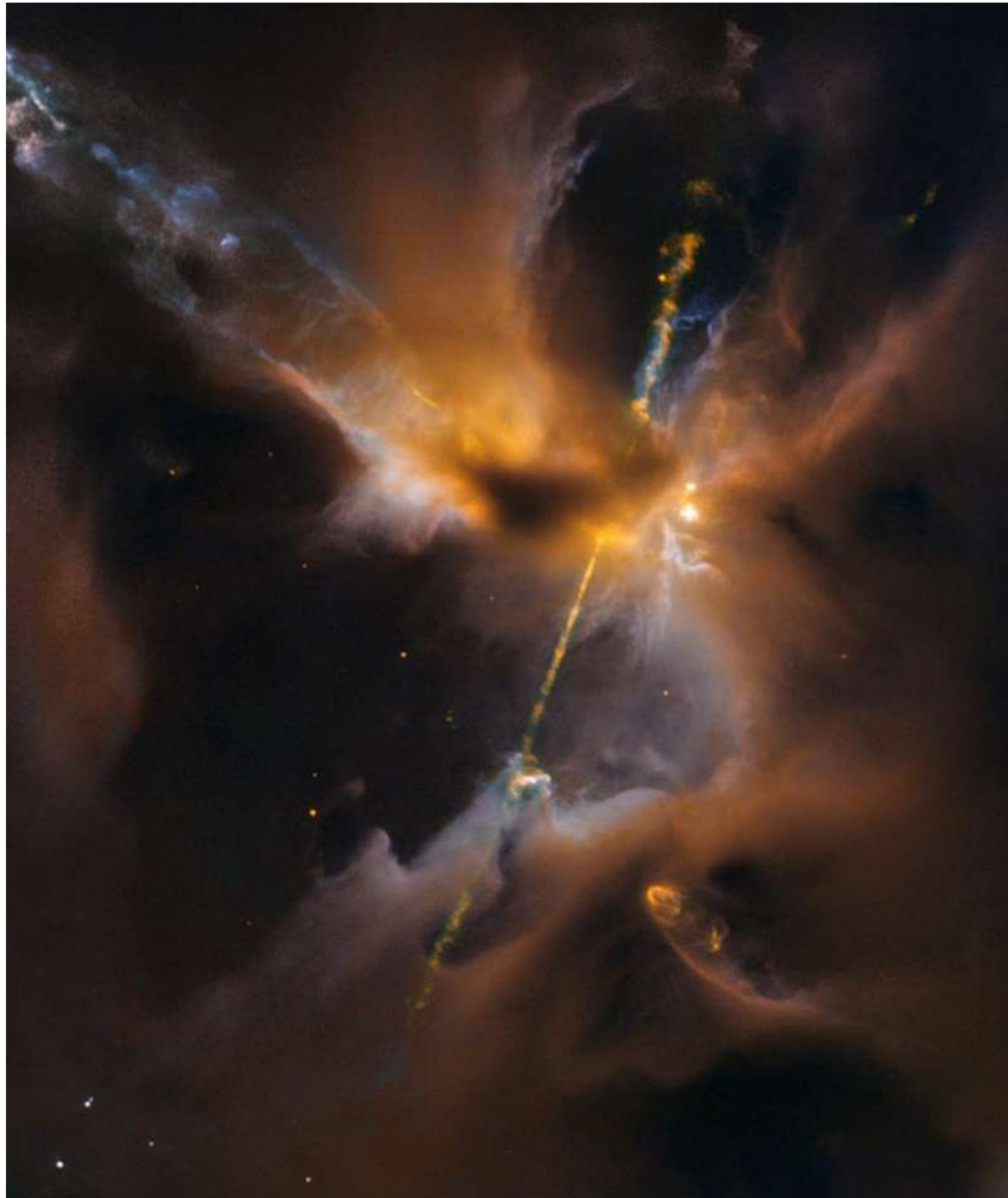
Three files, 153 pages of “102 Electrical Energy Innovations”, 262 pages of “Space Travel Innovations”, and 34 pages of “Torsion Field and Interstellar Communication” are available for free downloading at [padrak.com/vesperman](http://padrak.com/vesperman) and [commutefaster.com/vesperman.html](http://commutefaster.com/vesperman.html).

















## Blinded to the Future<sup>2</sup>

"Heavier-than-air flying machines are impossible." --- Lord Kelvin, president, Royal Society, 1895.

"I think there is a world market for maybe five computers." --- Thomas Watson, chairman of IBM, 1943.

"There is no reason for any individual to have a computer in their home." --- Ken Olsen, president, chairman and founder of Digital Equipment Corp., 1977.

"The telephone has too many shortcomings to be seriously considered as a means of communication. The device is inherently of no value to us." --- Western Union internal memo, 1876.

"Airplanes are interesting toys but of no military value." --- Marshal Ferdinand Foch, French commander of Allied forces during the closing months of World War I, 1918.

"Everything that can be invented has been invented." --- Charles H. Duell, Commissioner, US Office of Patents, 1899.

"The wireless music box has no imaginable commercial value. Who would pay for a message sent to nobody in particular?" --- Radio Corporation of America CEO David Sarnoff's associates, in response to his urgings for investment in radio in the 1920's.

"The ordinary 'horseless carriage' is at present a luxury for the wealthy; and although its price will probably fall in the future, it will never come into as common use as the bicycle." -- The Literary Digest, 1889.

"Professor Goddard does not know the relation between action and reaction and the need to have something better than a vacuum against which to react. He seems to lack the basic knowledge ladled out daily in high schools." --- New York Times editorial about Robert Goddard's revolutionary rocket work, 1921.

"Who the hell wants to hear actors talk?" --- Harry M. Warner, Warner Brothers, 1927.

"[It] is, of course, altogether valueless.... Ours has been the first, and will doubtless be the last, party of whites to visit this profitless locality." -- Lt. Joseph D. Ives, Corps of Topographical Engineers, 1861, on the Grand Canyon.

"Landing and moving around on the moon offer so many serious problems for human beings that it may take science another 200 years to lick them." -- Science Digest, August, 1948.

"The [flying] machine will eventually be fast; they will be used in sport, but they are not to be thought of as commercial carriers." -- Octave Chanute, aviation pioneer, 1904.

"X rays are a hoax." "Aircraft flight is impossible." "Radio has no future." -- Physicist and mathematician Lord Kelvin (1824-1907).

"Computers in the future may weigh no more than 1.5 tons." -- Popular Mechanics, 1949.

"We don't like their sound, and guitar music is on the way out." -- Decca Recording Co., in rejecting the Beatles, 1962.

"Well informed people know that it is impossible to transmit a human voice over wires." Boston newspaper re Joshua Coppersmith's invention of his 'telephone', 1865.

"The bomb will never go off, and I speak as an expert in explosives." -- Admiral William Leahy, U.S. Atomic Energy Project, 1945.

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<sup>2</sup> <http://www.keelynet.com/shoulders/>

# Trinity – Test of First Atomic Bomb

Trinity was the code name of the first test of a prototype atomic bomb. The genius designers of the bomb couldn't really be certain what was about to happen. Will it fizzle? Will it start a worldwide chain reaction? (Debunked by no less than Albert Einstein.) It was a uniquely spooky situation for them. All they had to guide them was mathematics and physics.

They did make bets on the bomb's explosive power. The highest any of them dared guess was 18,000 tons of TNT. On July 16, 1945, amidst the pre-dawn darkness of a remote New Mexico desert, the bomb exploded with a force of 20,000 tons of TNT and the light of a 'thousand suns'.

Nine nations now possess a total of 17,300 nuclear warheads.



**A ring of plutonium used in an atomic bomb core**



# **RADIOACTIVITY NEUTRALIZATION**

## **Methods**



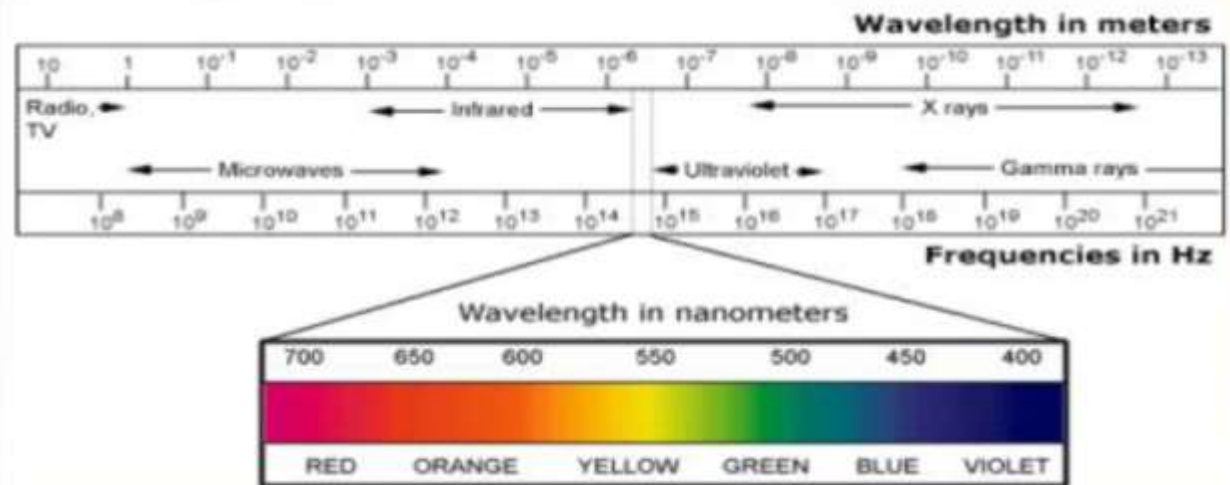
# Dr. Radha Roy's Transmutation Process

Professor Radha R. Roy invented a process for cost-effectively transmuting radioactive nuclear isotopes to harmless, stable isotopes. Radioactive elements all have too many neutrons. Roy's process transmutes these unstable isotopes to stable ones by knocking out the extra neutrons by bombarding them with photons (produced as X-rays) in a high-powered electron linear accelerator.

A photon is a football-shaped packet of electromagnetic waves with a content of energy equal to Planck's constant times the frequency of the waves.

Visible light comprises of photons with a range of frequencies with energy contents within which they can stimulate, but not over or under-stimulate, an eye's light receptors.

Photons of far higher frequencies have sufficient energy to alter nuclei.





# Deep Underground Burial of Radioactive Waste

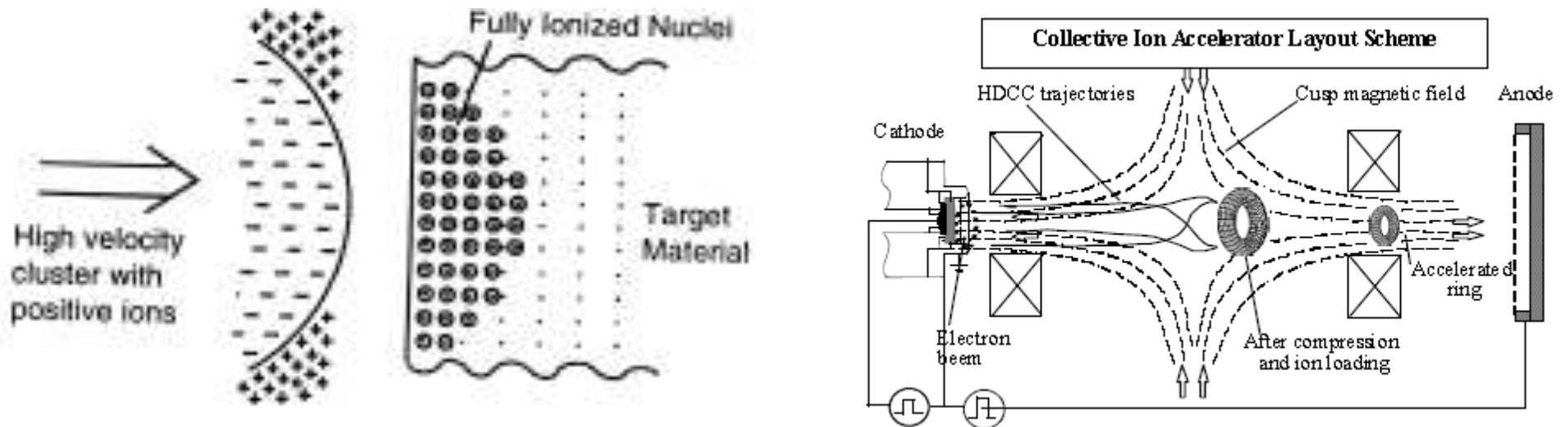
The Department of Energy once chose deep underground burial of radioactive waste inside Nevada's Yucca Mountain with an estimated lifetime cost of \$150 billion as the best answer to the problem of permanent disposal of nuclear waste.



Military 'clients' of the Department of Energy oppose neutralization of nuclear waste in order to preserve their source of bomb-grade uranium and plutonium.

# Remediating Nuclear Waste with Electron-Captured Protons Results in Significant Net Energy Gain

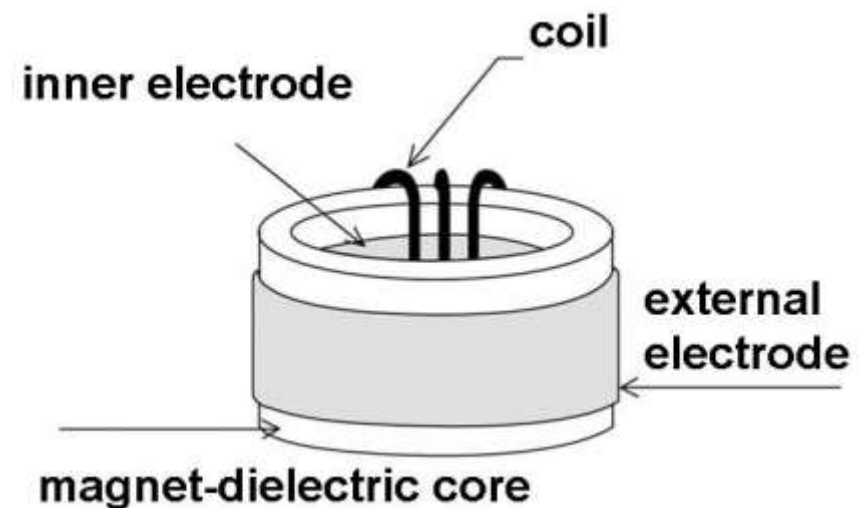
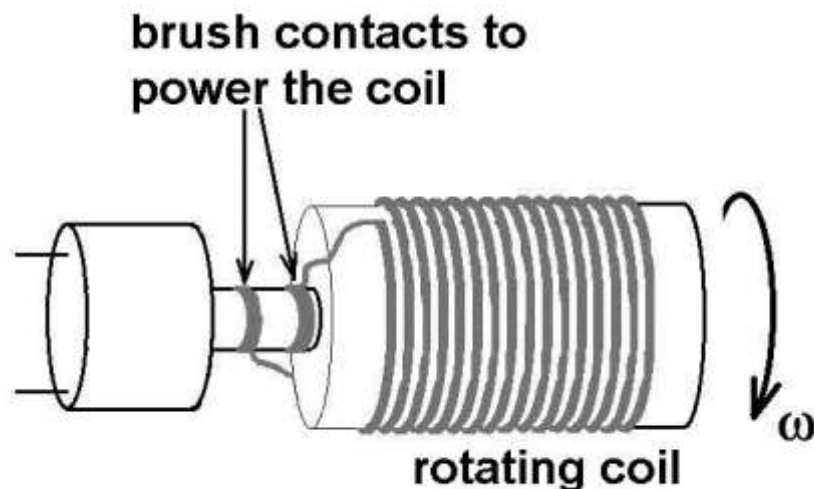
Using high-density charge cluster accelerators, 10 to 20 times as much energy can be produced by remediating radioactivity emissions from stockpiles of nuclear waste products than originally consumed by the remediation process. The electron clusters travel at no more than 10% light speed. This new low-velocity method for remediating nuclear waste with electron-captured protons results in substantially more energy [in the form of photons as light and electrons as heat] than is required to power the treatment apparatus itself.



# Methods of Influencing Radioactivity Decay

During 10 hours of cavitation process in a 5-kilowatt cavitator a 20% decrease of radioactivity was measured in the ionized liquid material ***and around the device also.***

Complete neutralization of radioactivity is expected with 100 hours of operation. The theory is that controlled disturbance of aether density influences radioactivity decay.



# Hawkings' Generator of Cold Electricity

The Hawkings' generator results from feeding high voltages oscillating at optimally 150,000 hertz to two 4-inch fluorescent lights. Each fluorescent tube has a strong permanent magnet attached to its center – north pole on one side, and south pole on the other side. The magnetic field between the two poles deflects the electrons in the tube off to one side. The tube is now no longer capable of generating hot electricity. Instead only *cold* electricity is extracted from the zero point energy field by the tube. The cold electricity emanates out the other end of the tubes which are each wired to a brass electrode. A 6 to 8-inch white spark of cold electricity 4 inches in diameter is produced between the two brass balls. An equivalent-sized spark generated by an arc welder would require thousands of amperes and volts.

Cold electricity is not measurable with ordinary voltmeters and ammeters since it strangely has no electrons. However, cold electricity can power lamps, etc. Totally different applications could result from the observation that materials inserted in a spark of cold electricity sometimes transmute to elements of higher density.





# Piezonuclear Reactions in Solutions Cavitated by Ultrasound

Ultrasonic cavitation of doubly distilled deionized water produces abnormal changes in the concentration of the elements. Ultrasonic cavitation of solutions of iron produces pulses of neutrons without gamma emissions above the background level. Ultrasonic cavitation of solutions of a radionuclide caused a decrease of the radioactivity obtained more quickly than is the case for the natural decay.

Pat. WO/2008041254 “Apparatus and process for the production of neutrons by means of ultrasounds and the cavitation of substances”

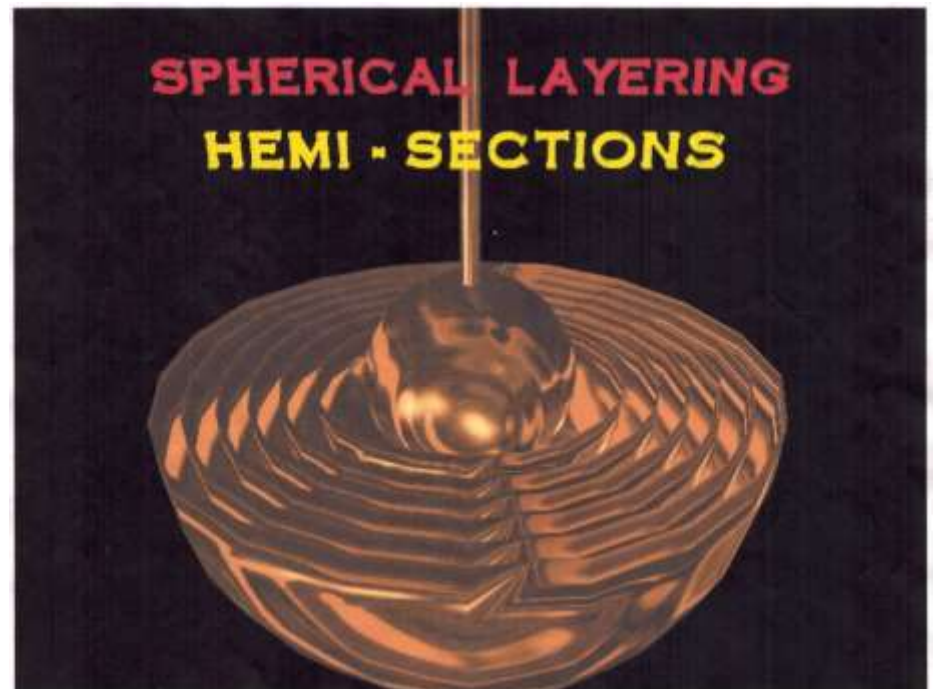
Pat. WO/2008041255 “Process and plant for the production of endothermic and exothermic piezonuclear reactions by means of ultrasounds and the cavitation of substances”

Pat. WO/2008041253 “Apparatus and process for the quenching of the radioactivity of radioactive materials by means of piezonuclear reactions induced by ultrasounds and cavitation”



# Dematerialization Devices A, B, C and D Using Highest Powered Positive Ions Ever

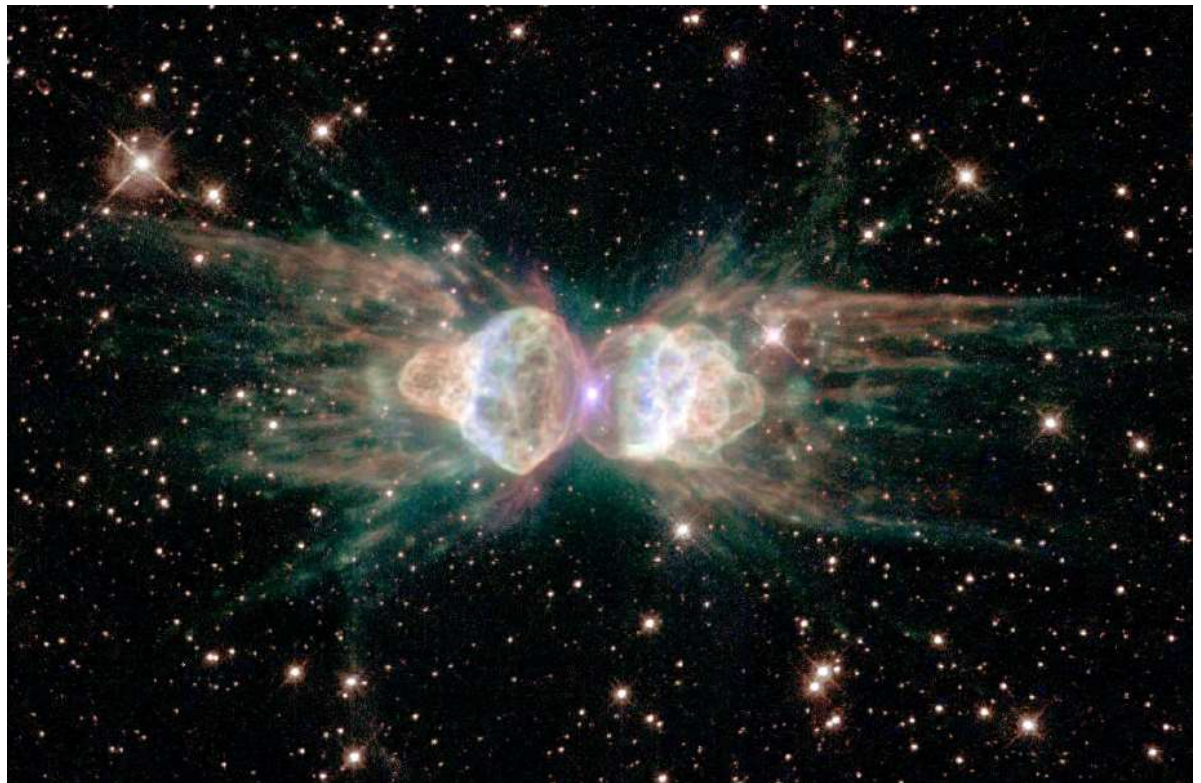
A dematerialization device is constructed of copper only. Four types of dematerializers make it possible to transmute any radioactive waste into its lowest possible harmless form by passing it through a dematerialization spherical boundary – an extremely active boson field kinetics area of plasmatic surface tension/ extreme heat. The dematerializers have the ability to heat the waste hotter than the sun – to the point where anything is converted into its lowest form. Nuclear waste, primarily strontiums, will annihilate themselves since their almost unnaturally huge dent in space/time dissolves to near a low format environment.



# Combining Brown's Gas with Bucking Magnetic Fields Inside a Plasma Ball

Two coils are wound on a shaft in opposite directions. Currents are run through the coils which are then rotated in opposite directions. Bucking magnetic fields are then created and shaped into toroids. The double toroids contain a plasma ball in the middle of the magnetic lines of force.

Spent nuclear fuel pellets are dropped into the magnetic bottle. The fuel pellets are then destroyed by a combination of the implosion machine, Brown's gas, and the Keller catalytic process.





# Flame-Free Incineration of Radioactive Waste in a Catalyzer

Boreskov Institute of Catalysis in Novosibirsk, Russia has developed catalytic fluidized bed treatment of mixed organic wastes containing radionuclides. Radioactive waste is neutralized through flame-free incineration in a catalyzer.

Capable of incinerating 50 metric tons of waste annually, the device was installed at the Novosibirsk Chemical Concentrates Plant. According to A. Kostin, the factory's deputy technical director, "The device is based on a catalytic converter that provides low temperatures for the oxidation process," – thus reducing the amount of nitrous oxides produced. This novel approach treats mixed organic wastes in a catalytic fluidized bed transforming these dangerous flammable liquids to compact solid form convenient for further reprocessing or disposal.



PROTOTYPE DEMONSTRATION PLANT CATALYTIC REACTOR  
(SECOND FLOOR VIEW (NOVOSIBIRSK))

Experiments have confirmed the method's efficiency and environmental safety.



# Barker's Radioactivity Remediation Method

When a negative potential is applied to alpha-emitting radioactive material, enhanced alpha decay of the radioactive material results. The energy of the alpha decay particles is captured and converted to thermal energy. The rate of decay of the radioactivity of radioactive materials is greatly accelerated, and the materials are thereby decontaminated at a rate much faster than normal. The radioactive materials are placed within the sphere or terminal of a Van de Graaff electrostatic generator and allowed to be subjected to the electrical potential of the generator, such as in the range of 50 kilovolts to 500 kilovolts, for at least a period of 30 minutes or more.

Barker's method may be the easiest, most effective and least messy method for remediation. It is dry and reproducible. One shot of only minor energy is required, and then the process self runs. The equipment is simple, off the shelf and inexpensive, and requires no special skill, nor is it 'twitchy'.



US Patent 4,961,880 "Electrostatic Voltage Excitation Process and Apparatus"  
US Pat. 5,076,971 "Method for Enhancing Alpha Decay in Radioactive Materials"

# DOE in 1992 Witnessed 96% Reduction of Radioactivity of Cobalt-60 with Brown's Gas

Professor Yull Brown invented the unusual gaseous fuel known as 'Brown's gas'. This gas – on its face a stoichiometric mixture of monatomic hydrogen and oxygen obtained by electrolysis of water – can denature radioactive elements.

An experiment involved the treatment with Brown's gas of a sample of the radioactive isotope cobalt-60. A Geiger counter's reading dropped from 1000 counts per minute to 40 counts per minute – a reduction in radioactivity of 96% that was witnessed by some Department of Energy officials. Their clumsy explanation of their denial that the reduction of radioactivity was due to Brown's gas was found to be ludicrous.



The radiation is neutralized by the molecules reforming into another material that is 'balanced'. Materials are radioactive when their electron shell has been stripped and is not balanced with the inner protons and neutrons. The inner mass radiates particles trying to become balanced again. Brown's gas simply allows the protons, neutrons and electrons to come apart and back together again in a balanced (non-radioactive) form – forming a glasslike material.

# 'Hutchison Effect' for Neutralizing Both Radioactive Waste and Dispersed Radioactivity

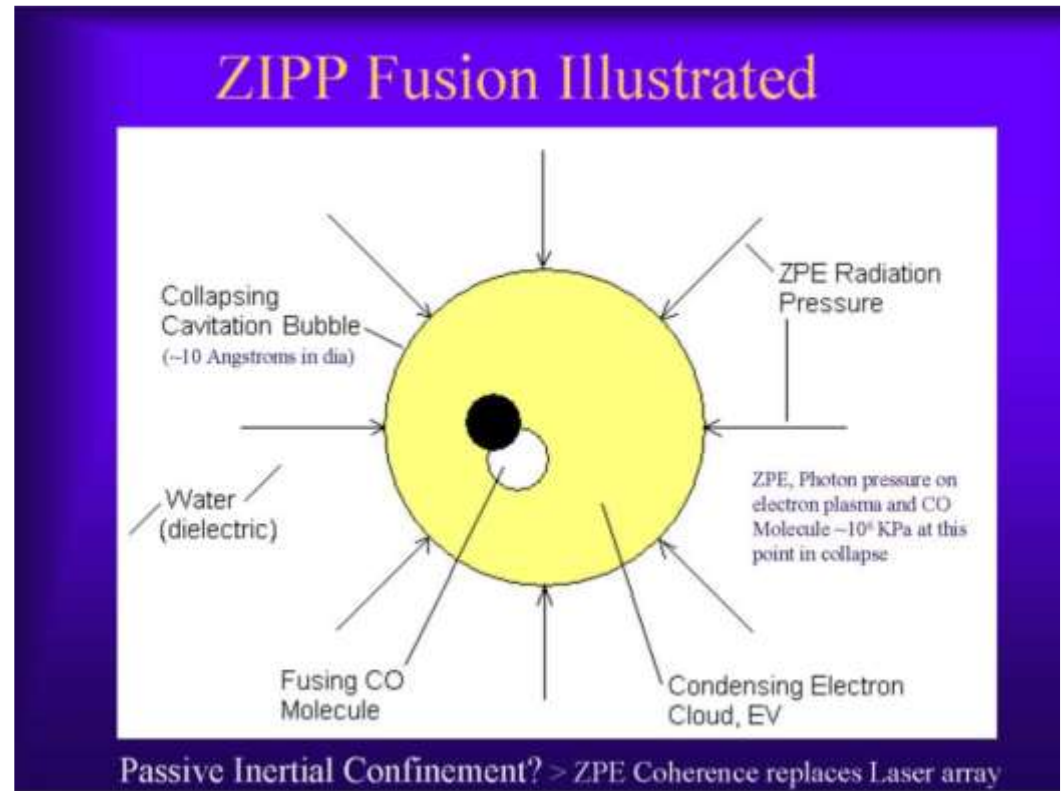
With a specially designed Hutchison-Lazaryan electronic frequency generator (shown in photos) John Hutchison claims by utilizing the 'Hutchison effect' he can neutralize radioactive waste and also excess radioactivity dispersed over an area of several square miles and maybe up to within a radius of 75 miles. A youtube video shows Hutchison's demonstration of transmutation of an alpha emitter with his 'raygun'.



# ZIPP Fusion

The ZIPP fusion process induces a wide variety of fusion reactions, resulting from the radial compression of individual diatomic and other simple molecules dissolved or suspended in a light water, carbon arc electrolysis cell. A variety of other cell configurations are envisioned.

The process appears to produce only stable isotopes, which should therefore make it capable of stabilizing a wide variety of radioactive waste materials. The theory on the process draws from condensed charge phenomena, Brown's gas implosion, cavitation bubble collapse and sonoluminescence – all variations of the Casimir effect – which is believed to cohere the zero-point energy of quantum vacuum fluctuations. Transmutations using variations of this basic process may be applicable to a wide variety of nuclear wastes and appears capable of operating with an efficiency exceeding 100%.



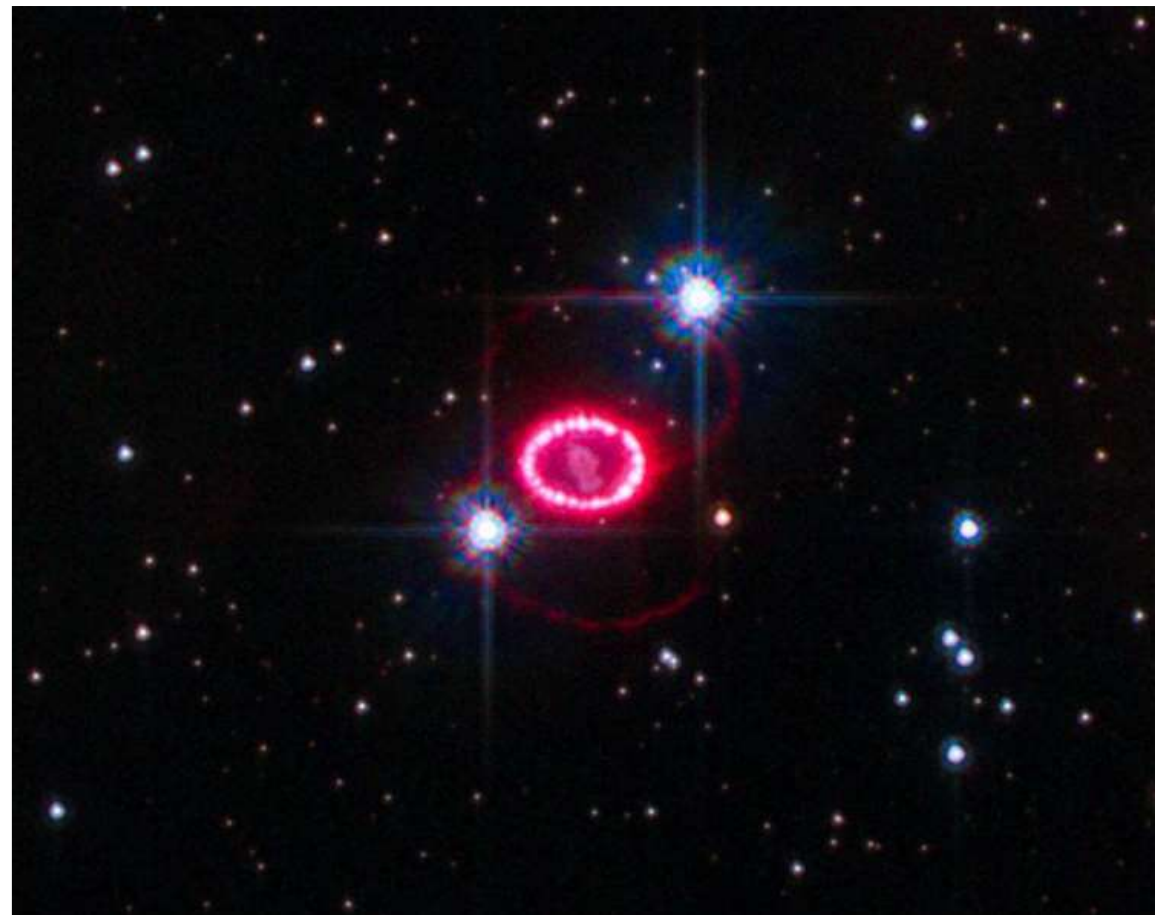
A major implication of this process is that the strong force of the nucleus is understood as an ultra-close range Casimir effect. The process is simple and inexpensive to develop.



# RIPPLE Fission

The RIPPLE fission process utilizes a supersonic ionized gas to aerosol a counter flow heat exchanger that envelopes the radioactive waste aerosol in a vacuum induced plasma vortex which appears to disrupt the matter stabilizing influence of the quantum vacuum fluctuations resulting in 'gentle' low recoil fission reactions which produce only stable fission products, with excess neutrons being prompt converted to protons via quenched beta emissions.

The process is believed applicable to the entire spectrum of radioactive waste without the need for waste partitioning. This process is also conjectured to operate with an over-unity energy efficiency.

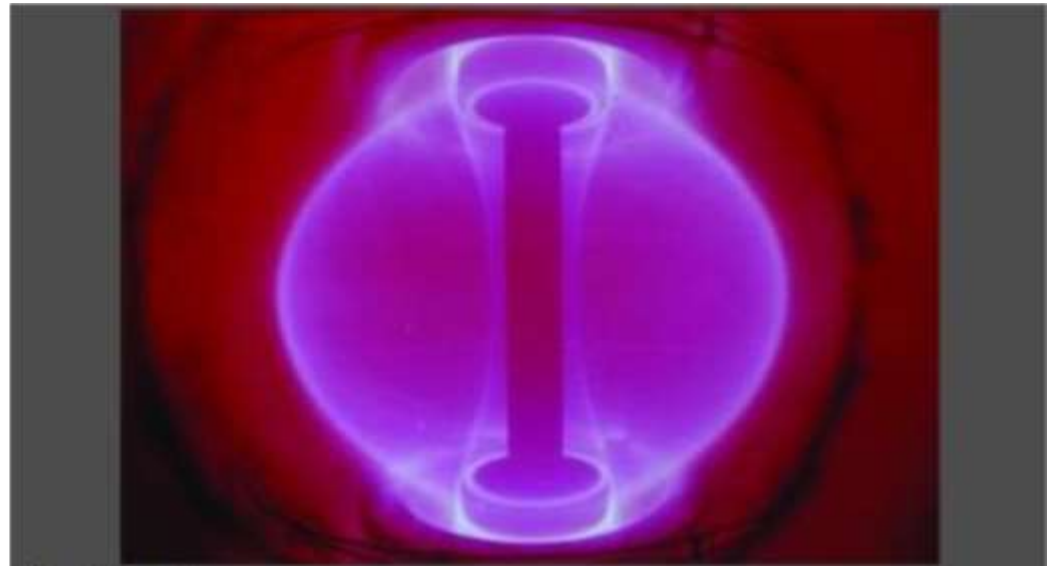


# Nuclear Fusion-Fission Hybrid Could Contribute to Carbon-Free Energy Future

Radioactive waste would be destroyed using a fusion-fission hybrid reactor – the centerpiece of which is a high-power Compact Fusion Neutron Source (CFNS) made possible by the invention of the Super X Divertor. The Super X Divertor is designed to handle the enormous heat and particle fluxes peculiar to compact devices; it would enable the CFNS to safely produce large amounts of neutrons without destroying the system.

The CFNS is based on a tokamak, which is a machine with a ‘magnetic bottle’ which confines high temperature (more than 100 million degrees Celsius) fusion plasmas for sufficiently long times.

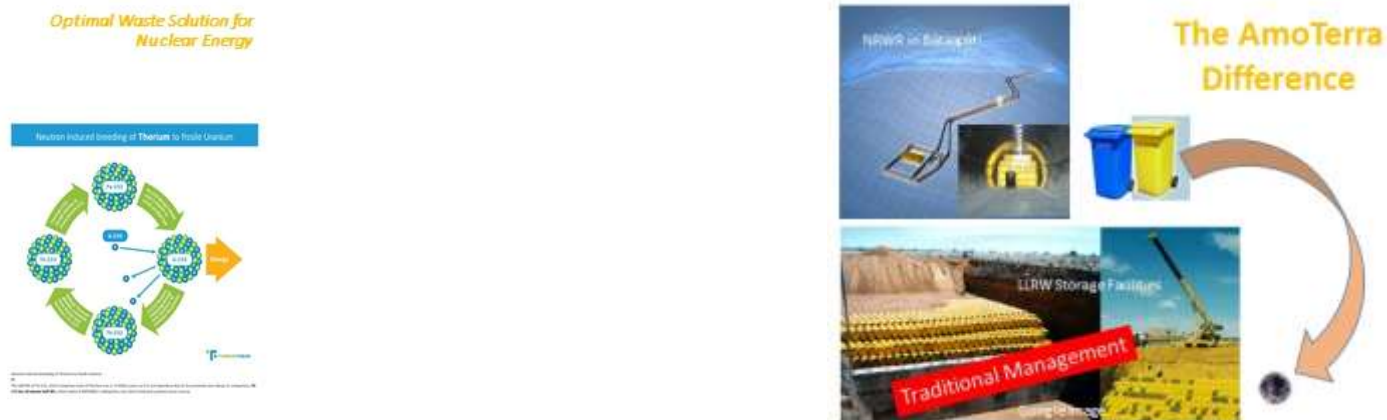
The CFNS would provide abundant neutrons through fusion to a surrounding fission blanket that uses transuranic waste as nuclear fuel. The fusion-produced neutrons augment the fission reaction, imparting efficiency and stability to the waste incineration process.



# AmoTerra Process

The AmoTerra process utilizes confined explosions involving proprietary mixtures of materials that include radioactive waste. Ignition of such mixtures causes nuclear transmutations resulting in reduced radioactivity (to near-background levels) following combustion, gradually over 1 to 4 days. Every 1,000 M<sup>3</sup> of material processed yields €9.6 MM savings (projection based on a minimal inventory of 50,000 M<sup>3</sup> of client-specific waste streams) with an 80% volume reduction.

This technique has been confirmed by Italy's National Agency for Atomic Energy and is supported by French Alternative Energies and Atomic Energy Commission scientists as a serious candidate for treatment of nuclear waste stockpiles.



We must realize that we can no longer throw our wastes away...

Because...

There is no "away"

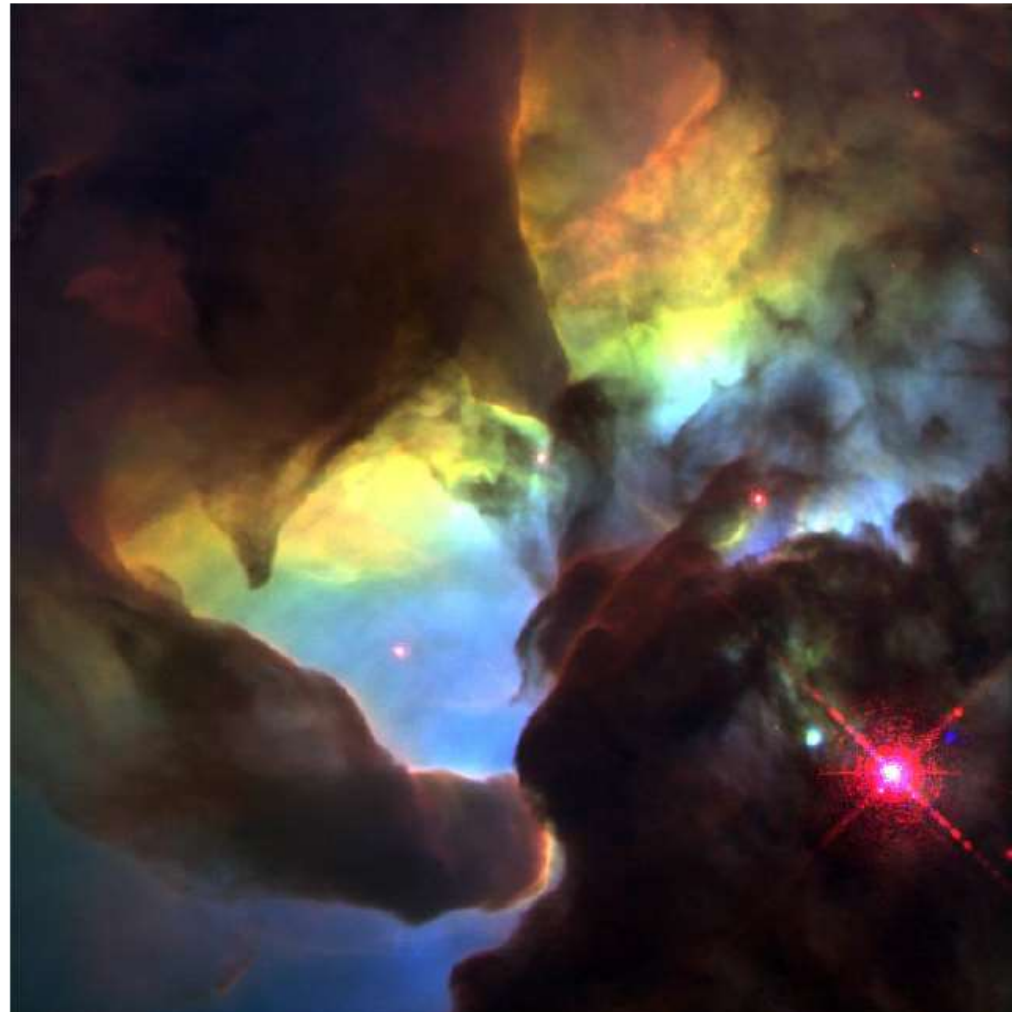
— William T. Cahill

# Higher Group Symmetry Electrodynamics

Extremely weak, non-classical, higher group symmetry electromagnetic fields can alter significantly the level of radioactivity in materials – even those in the environment.

Experiments suggest that higher group symmetry electrodynamics modulate the quantitative and /or qualitative properties of radioactive species. If the non-classical fields directly affect the radioactive species, it is likely that the appropriate field parameters will be discovered to neutralize radioactive emissions.

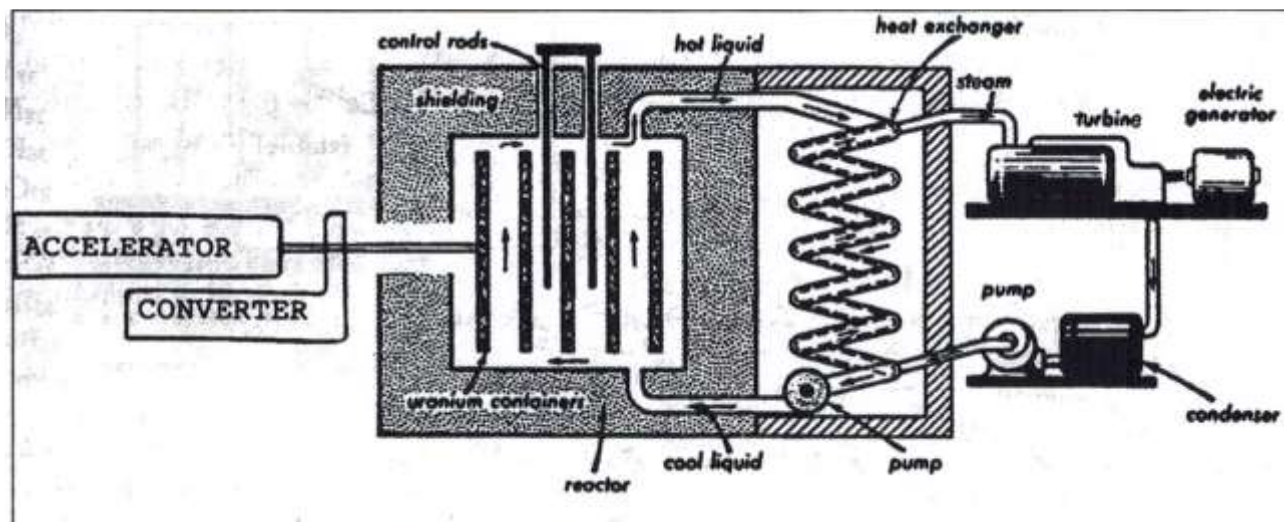
The technology is extremely simple and could be applied with minimum logistics for treating massive structures, *in-toto* outdoors, such as the Chernobyl disaster site.





# Photo-Remediation

The *photo-remediation* process involves the use of a high-energy electron beam impinged on a target which in turn produces a monochromatic gamma radiation that is tuned to induce *photo-fission* and *photo-neutron* reactions in the target material causing rapid neutralization of radioactive isotopes. The efficiency claimed exceeds 500% due to the high cross-section reactions in the giant dipole resonance region. The 10 million electron-volt (MeV) electron beam produces typical fission reactions in the 200 MeV range – effectively turning high-level solid wastes such as spent nuclear fuel into an energy source. Photo-remediation offers several advantages: No need for extensive chemical pre-processing and the energy required to effect transmutation is greatly reduced. No new technology needs to be developed, yet the engineering of such a photon reactor must be completed, and it could itself become a practical method for generating power.



Accelerator Driven Reactor Schematic

# Implosion Machine can Annihilate High-Level Nuclear Waste

The implosion machine is an electric arc welder which is modified to duplicate nature's ball lightning. The circuit makes and then breaks a pure direct electrical current flowing between two electrodes. The electromagnetic energy field around the current completely collapses which causes an implosion. An object held between the two electrodes disappears in a manner similar to quasars or black holes swallowing matter. Imploded matter is possibly converted into 'dark matter' which is not of the elements as we know them. It appears that the higher the level of nuclear waste, the less energy it takes to implode or neutralize the material, and a higher audible sound pitch is observed.

The two photos show a Brown's gas system focusing the flame on the radioactive material, with a critically controlled DC pulse to trigger implosion.



# Refresher-Regenerator

A 'refresher-regenerator' reverses the order-to-disorder arrow in the second law of thermodynamics within a controllable radius. It could reverse all radioactive isotopes to relatively safe uranium in situ in twelve days of machine time. Positive side effects of the \$70 million or less machine's operation would be reverse aging adults to young adulthood, backing diseases out of existence, reversing all decay and pollution, providing a new means of food preservation, and disarmament in the active footprint of the machine.

The refresher-regenerator capitalizes on a new Grand Unification Theory (GUT) employing the Electrino Fusion Model of Elementary Particles and the Electrino Hypothesis that fractons come in  $\pm e$ ,  $\pm e/2$ ,  $\pm e/4$ , and  $\pm e/8$  – not in  $\pm 2e/3$  and  $\pm e/3$  of the Quark Hypothesis. Unique to this theory is that electrinos can fuse, but every time they do so, they switch from matter to antimatter or vice versa. The Refresher-Regenerator fuses positrons (antimatter) into the core particles of protons and neutrons (matter) with positive order energy, reversing the order-to-disorder arrow in the second law of thermodynamics in the machine footprint to disorder-to-order direction. The control of the Refresher-Regenerator machine is through controlling the effective beam currents to the collision chamber of the positrons through the timed gating of beam peaks.

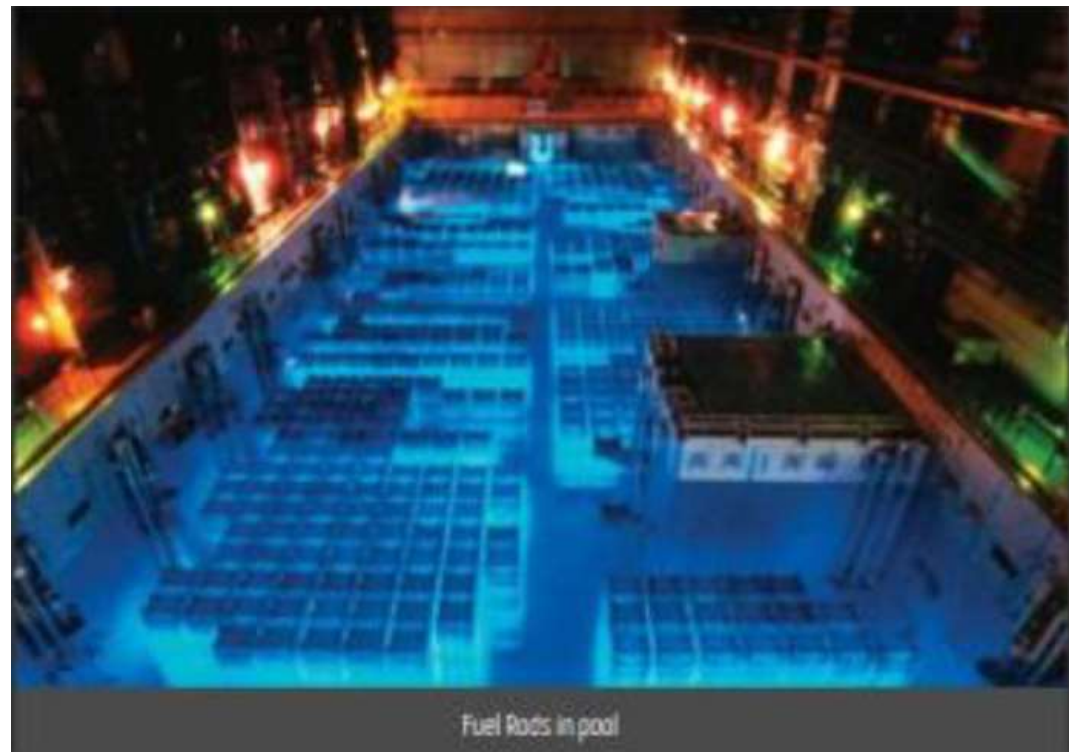




# Entombment of the Fukushima Reactors

Use 3D/4D printing to build entombments of the Fukushima reactors and water pools/tanks in layers of hemp concrete, lead, and tungsten with a rounded edges hemp plastic exterior. Plant hemp and radiation-eating mushrooms identified by the Albert Einstein Institute.

The 'contour crafting' construction technique builds on large/huge mobile construction gantries with suspended 3D/4D printers that build/print around the areas that are radiating...the buildings and tanks. Printed encasement layers could include hempcrete – a hemp-based concrete that is the world's strongest building material. Hemp plastic is waterproof and 10x stronger than steel.





# Method, System and Apparatus for Conditioning Electromagnetic Potentials, Fields and Waves to Treat and Alter Matter

This invention exploits the fact that all electromagnetic fields, potentials, and waves are composed of more fundamental electromagnetic structures.

To directly engineer spacetime and induce desired changes in matter – specifically the mass-energy of the body dielectric, in all parts and dynamics – the invention uses and applies these more fundamental electromagnetic structures, which constitute curvatures of spacetime capable of directly affecting and changing matter according to the exact pattern and dynamics of the internal structures.

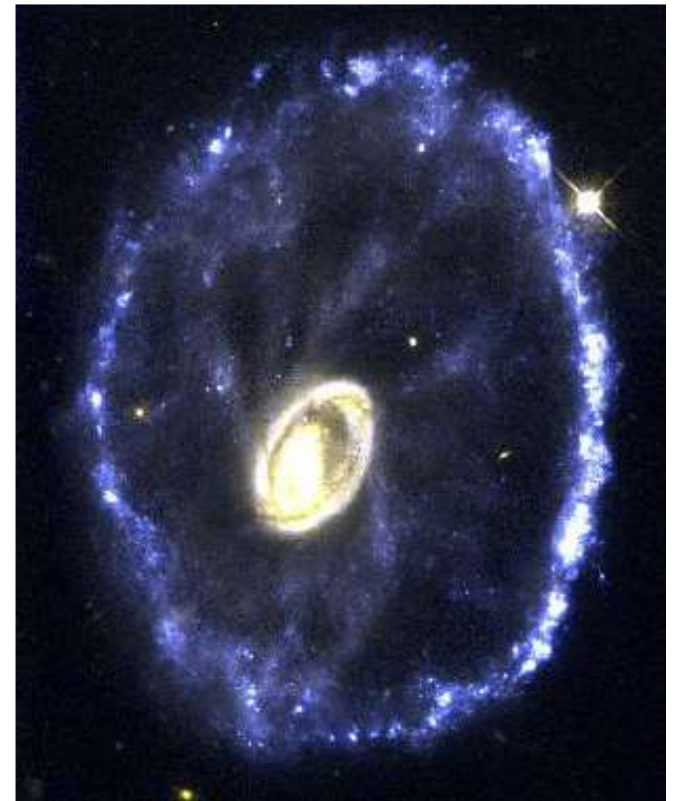


# Kervran Reactions

The very compelling evidence compiled by French Nobel candidate Dr. Louis Kervran has identified a wide range of nuclear transmutations in biological systems that have not been adequately explained.

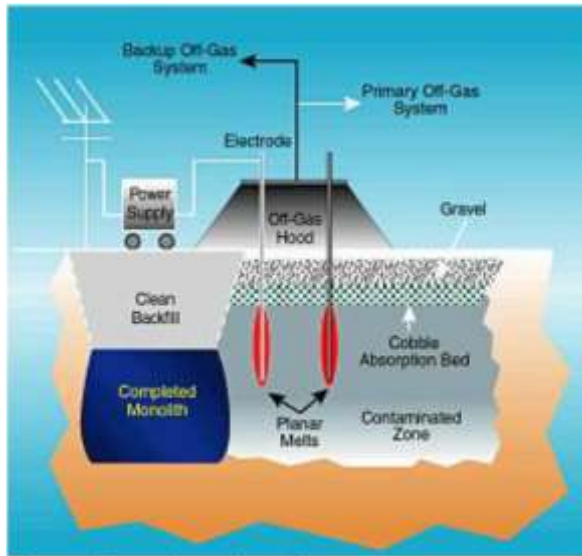
Coherence of zero-point energy via Casimir effects within the *Somatid* particles identified by the Canadian Gaston Naessens is implicated as a possible cause. A wide variety of *in vitro* and *in vivo* reactions are believed to be possible as proven in nature and numerous experiments typically involving a reaction medium composed of a dielectric fluid such as water.

Highly radiation resistant microorganisms have been found thriving in the core of nuclear reactors indicating the possibility of microorganisms being capable of transmuting some bioactive nuclear wastes in the course of the normal metabolism of such organisms.

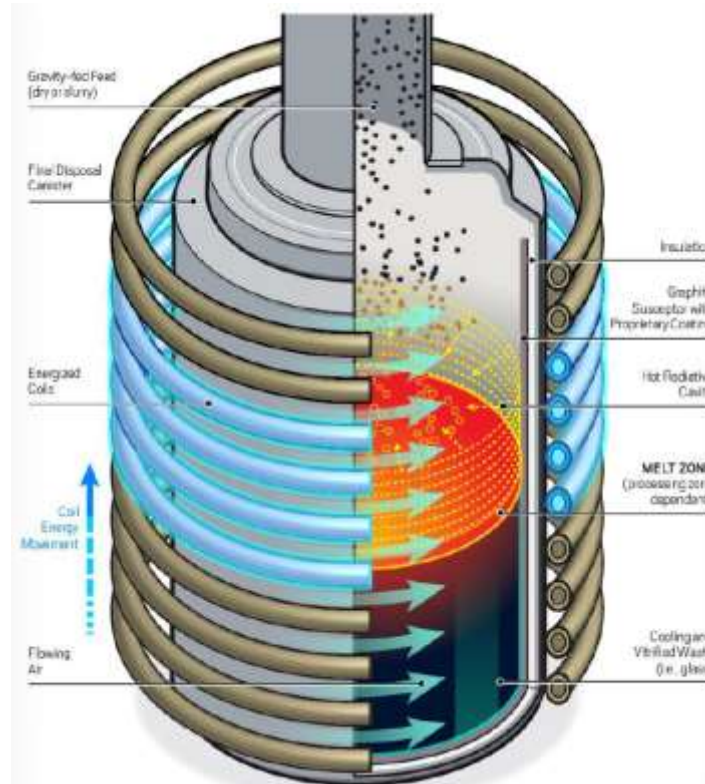


# Geomelting of Radioactive Waste

'Geomelting' involves mixing nuclear waste with soil or other 'glass-formers' in large, lined metal tanks. The mix – 20 per cent waste and 80 per cent soil – is heated through two graphite electrodes at temperatures of up to 3,000 degrees C. The molten substance is then allowed to cool and forms a large glass block that is harder than concrete. The process will enable nuclear waste to be stored safely for 200,000 years – longer than the radioactivity will last. Geomelting has been tested successfully by the American government, which is building a \$53 million pilot plant in Washington state.



Planar melting system schematic.



Modular Vitrification System (MVS™)





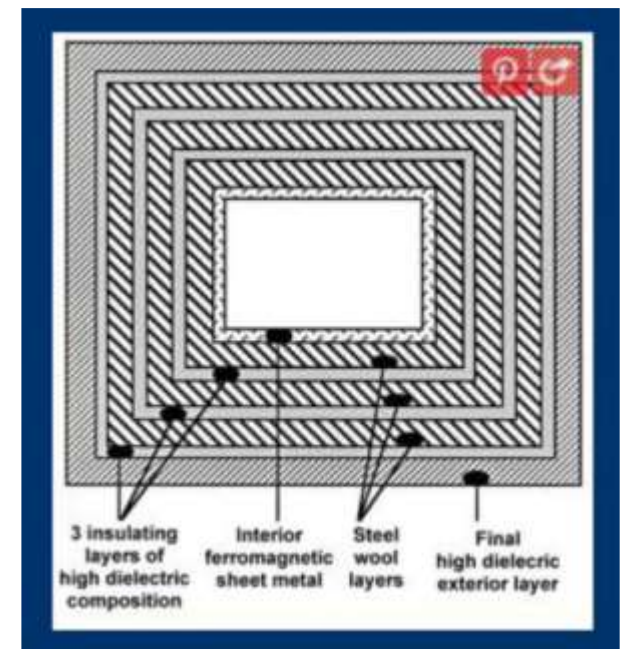
# Wilhelm Reich's Oranur Effect Method can Denaturize Radiation Sources

Wilhelm Reich's 'oranur effect' method (oranur  $\equiv$  orgone anti-nuclear) is based on his discovery that radiation sources could be denaturated (rendered less toxic) with a corresponding observation of variations in decay-rate 'constants'.

Unusual long-distance atmospheric, biological and geophysical effects from underground nuclear bomb tests and nuclear power plant accidents can only be explained by the existence of a radiation-irritated atmospheric/planetary energy continuum.

The life-energy field (also called 'cosmic ether' and 'orgone energy') surrounding radioactive material is an active agent in radioactive decay processes. The diagram is of a 3-layer orgone energy accumulator

Peter Sturrock at Stanford has discovered variations in decay-rate processes matching the sunspot numbers. Reich made a similar discovery decades earlier – as a part of his discovery on oranur.





# Graphene Oxide can Decontaminate Radioactive Fluids

Presently, bentonite clays and activated carbon are used to remove radioactive contaminants from water. Graphene oxide flakes are much more effective, however. Their large surface area allows each flake to adsorb a large amount of toxins, and the clumping action occurs within minutes. The graphene oxide is easily burned from clumped up material – leaving a radioactive slag to be melted down and processed.

In a test of the technique, the one-atom-thick microscopic flakes were added to water containing uranium and plutonium, along with substances like calcium and sodium that have been shown to negatively affect their adsorption. The graphene oxide was nonetheless able to ‘clump’ the worst toxins quickly, regardless of the water’s pH value.

Shown are a vial holding graphene oxide flakes in solution (left), and another vial in which those flakes have caused simulated nuclear waste to form into clumps (right).



# Thorium Reactor

If operators lose control of a nuclear reactor's self-sustaining chain reaction or fail to properly keep it cool, a meltdown can occur, resulting in disasters like those seen at Chernobyl and Fukushima. By itself, thorium can't sustain that feedback loop. But to produce power it still requires some other radioactive material such as weapons-grade plutonium.

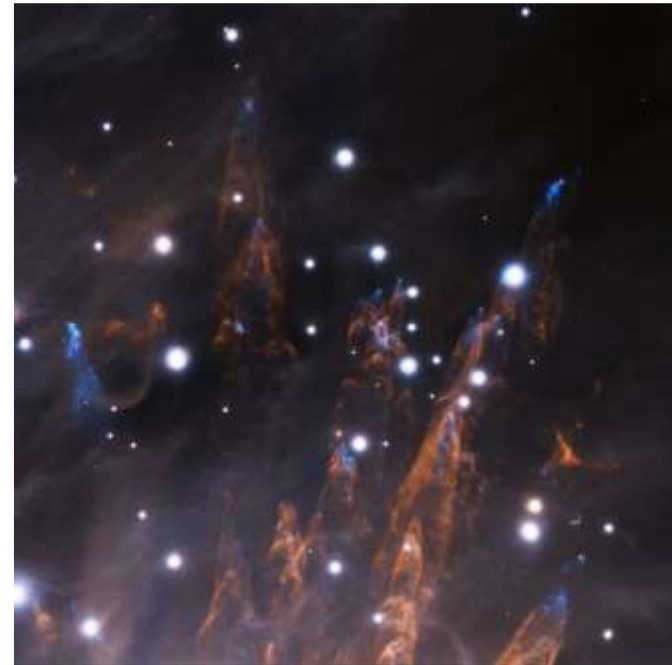
Russia's Tomsk Polytechnic University's new thorium reactor can burn 97% of weapons-grade plutonium, producing power and thermal energy, without the danger of a meltdown. The waste material that's produced is a mix of graphite, plutonium and other decay products that no longer pose a nuclear hazard.

High-temperature gas-cooled low-power (60 megawatts-thermal) thorium reactors require relatively low input energy which can make them up to 50 percent more efficient than other reactors. Waste heat can also be harnessed for desalination of water or to produce hydrogen fuel.



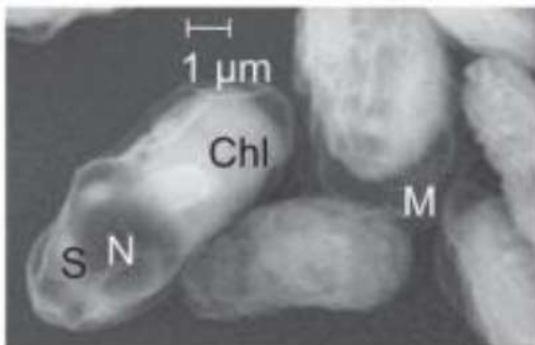
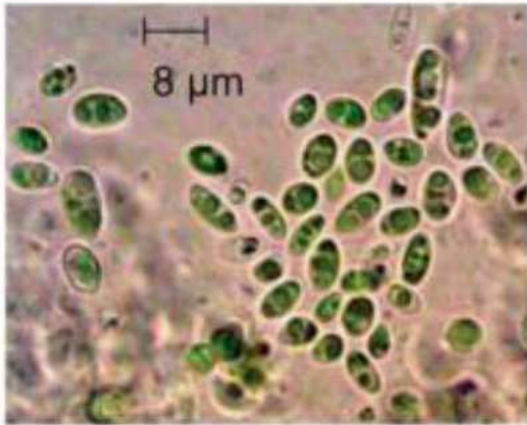
# Bacteria Neutralizes Liquid Nuclear Waste

Russian scientists have discovered in a deep liquid nuclear waste storage site in Siberia a unique bacteria which is capable of converting radionuclide ions, including those found in uranium and plutonium, into sedentary forms, thereby preventing the spread of dangerous radiation into the surrounding environment. Through lab experimentation, the scientists were able to fine tune the conditions necessary for the bacteria to carry out its useful work.



# Bioremediation of Radioactive Wastewaters with Algae

Algepower, Inc., has developed a patent pending, sustainable, safe, low-cost method of phytoremediation of radioactive wastewaters. Waste water is pumped into vertical shallow ponds covered with air supported translucent domes. CO<sub>2</sub> is introduced by micro bubbles from tubes or as a carbonate. During its growth the highly radiation resistant algae will absorb the radioactive toxins which can then be extracted.





# References:

Two files, 237 pages of “Radioactivity Neutralization Methods” and 104 pages of “Radioactivity Neutralization with Paul Brown’s Gamma Ray Method”, are available for free downloading at [padrak.com/vesperman](http://padrak.com/vesperman) and [commutefaster.com/vesperman.html](http://commutefaster.com/vesperman.html).





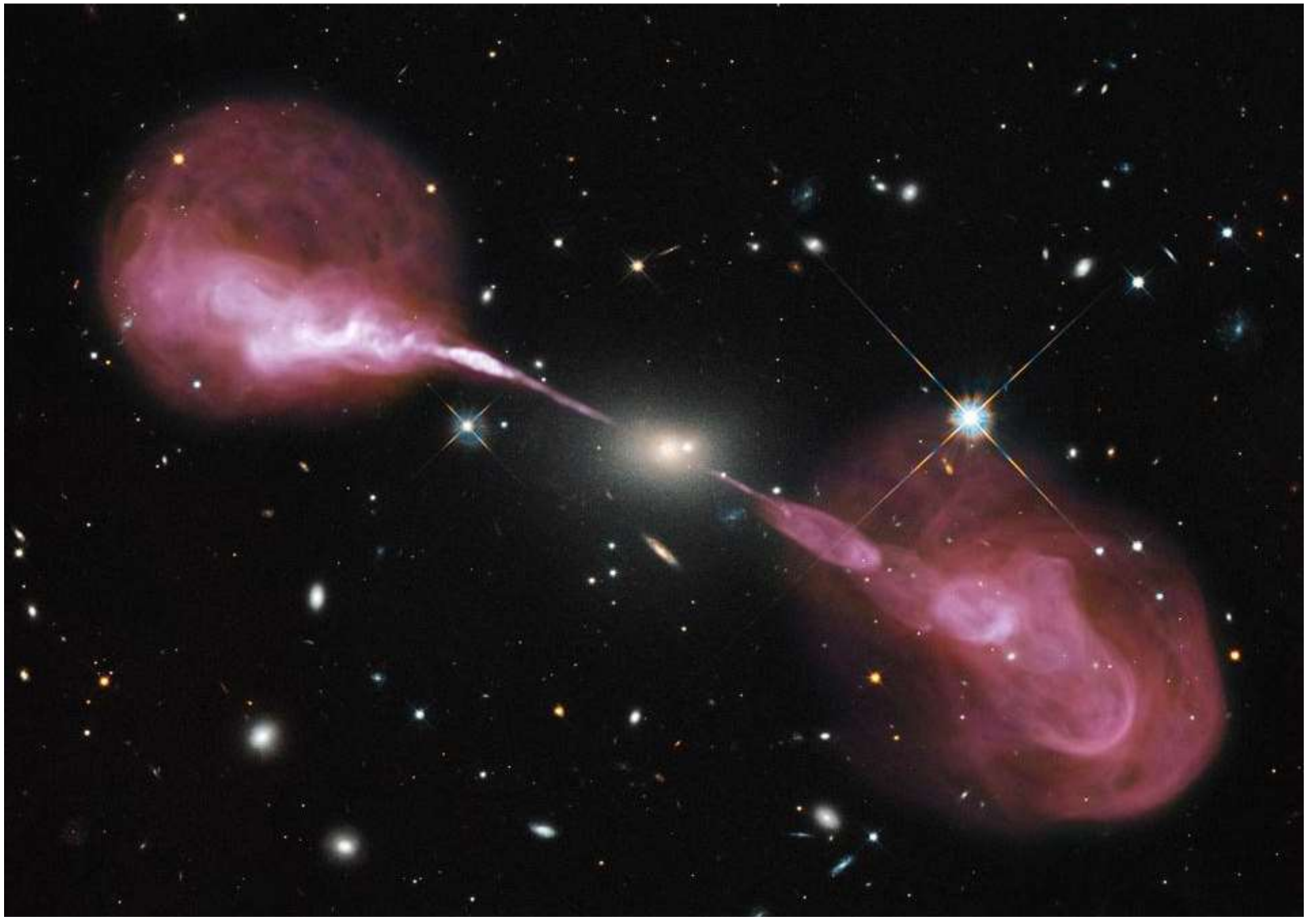


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# Colliding Plasma Toroid Fusion Reactors Could Lift Payloads into Orbit with 99% Cost Savings

Plasma spiral toroids similar to ball lightning remain stable in partial atmosphere with no magnetic fields for containment. Toroids are then fused by colliding them. In aircraft 30,000 pounds of jet fuel could be replaced with 2.2 pounds of fusion fuel. Payloads could be lifted into orbit for \$100 per pound by replacing 8,000,000 pounds of chemical fuel with one pound of fuel. A jet/ramjet engine would heat air for thrust using fusion energy instead of combustion – reducing by 10,000 times the fuel load mass to fly from 0 km to 160 km in altitude. Orbital velocity could be achieved using NASA Hyper-X technology. Chemical propellants exit spacecraft at 350 meters/sec. Plasma spiral toroids exit at 600,000 meters/sec.



A Plasma Spiral Toroid Captured at 1/10,000 Shutter Speed



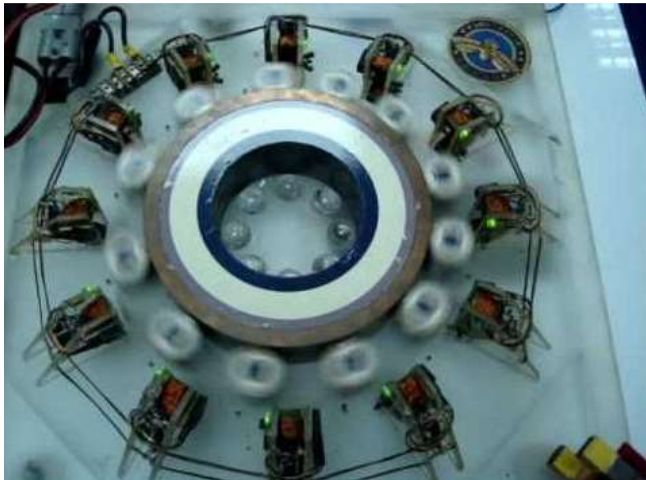
Plasma Spiral Toroid Around Electric Arc



# Magneto-Gravitational Converter (Searl Effect Generator)

The Searl effect is based on magnetic fields that generates a continual motion of magnetized rollers around magnetized rings (also called plates) producing electric energy and, under certain conditions, an anti-gravity effect that can be used for propulsion. It comprises of three concentric magnetic rings with magnetic rollers rolling around the rings. The inner set of rollers travel around at 250 miles per hour, the middle set travels at approximately 600 miles per hour, and the outer set at approximately 1500 miles per hour.

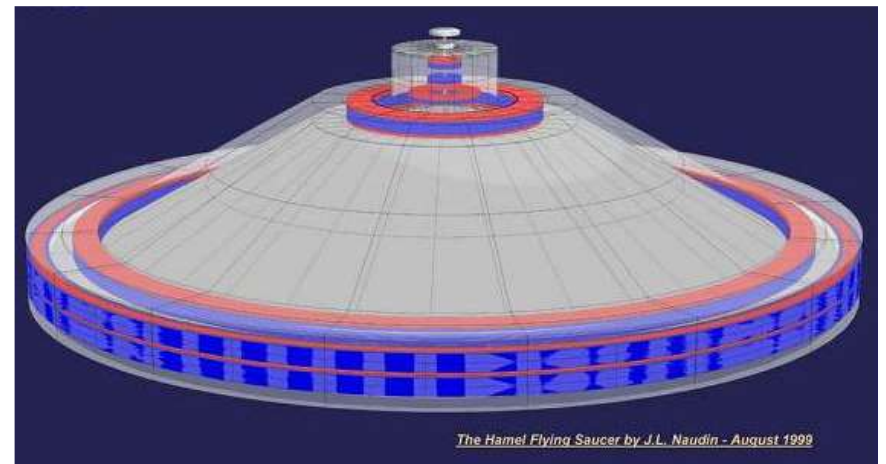
An uncontrolled Searl effect generator will rise about 50 feet as the rollers increase speed, emit a light blue halo which indicates energy is being extracted from the ether, and then shoot up into the sky gaining speed, never to be seen again. A Searl effect generator can be easily controlled by immersing it in an electromagnetic wave field the frequency of which is a harmonic of the Searl effect generator's primary frequency. While in resonance, the magnetic poles of the rollers reach a unification state, and they stop moving.



# David Hamel's Gravito Magnetic Device

David Hamel's gravito magnetic device (GMD) encloses opposing magnetic fields that have varying vector angles to produce a strong anti-gravity field. The GMD has magnets attached to radial spokes or arms that are jointed. These magnets are floated in a magnetic housing and when properly biased, continue to spin, gaining momentum and speed with each rotation and achieving tremendous electrostatic buildup on the outside rim. The parts inside the GMD are configured in such a way as to promote an enclosed constant variation of opposing magnetic fields. In the resting state, the moving cones are balanced and stabilized in a magnetic field repulsion, like a magnetic bearing. The startup of the GMD is initiated by lowering a magnet at the center top of the shell, inside the shell, towards the momentarily magnetically balanced moving cones.

As the center magnet, which opposes the one attached at the center of the upper moving cone, is lowered inside the GMD, it forces the upper cone to move sideways, shifting the magnetic balance between the cones inside the GMD. The cones stay offset to each other for a short while and then plasma-like energy starts to build up around the GMD. This energy built up creates a shift of colors from red-orange to light blue and then white. Following this effect the GMD starts to lose weight and quickly generates an upper lift in a greater ratio than its total weight. If a control system is in place, it is easy to stop its effect.



# David Burns' Anti-Gravity Flying Saucer

Scottish inventor David Burns has shown at a conference of energy researchers a video of his four-foot model of a self-propelled flying saucer actually flying around a field under remote radio control. His model aircraft has some unusual flying characteristics. For instance, because of its anti-gravity field produced by a circular mechanism in its surprisingly thin body, it doesn't land like a plane on wheels. It flops down on the ground on its belly. It is launched by holding it up and throwing it forward. While it has a small electric motor-powered propeller on its front and a rudder on its rear so it can bank somewhat on turns, it can't fly or land upside down because of its anti-gravity field.



Mr. Burns claimed that a full-size model will hover above the ground on a cushion of air and carry more than 2,000 passengers from London to Los Angeles in several minutes.

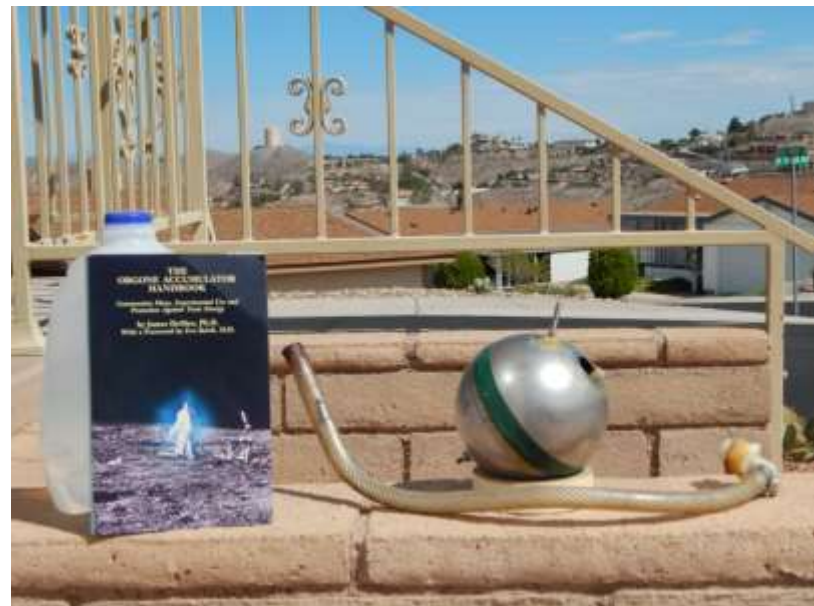


# Orgone Energy Accumulators May Impart Anti-Gravity to a Rocket

A Moe-Joe cell operates as an orgone energy accumulator. Anecdotal reports by Moe-Joe orgone energy cell experimenters have included observations of slight to moderate anti-gravity effects. When unpacked and assembled without even having been filled with specially charged water, a Moe-Joe orgone energy cell when picked up will sometimes feel light as an empty beer can. When picked up at other times it sometimes will feel noticeably heavier. When installed on vehicles, no water nor hydrogen enters the engine.

Mounting one or more Moe-Joe orgone energy cells inside a rocket may reduce its attraction (weight) by the earth's gravity. However, experimenters should first carefully test for strange damage to a rocket's electronics, etc!

The Moe-Joe orgone energy cell in a car sometimes makes the car feel noticeably lighter and speedier as well as more powerful due to a possible anti-gravity effect. The Moe-Joe orgone energy cell shown to the right increased the mileage of a 1993 Saturn from 30 to 47 MPG, and reduced emissions by 90%.



# Inertia Reduction, and Possible Impulsion by Conditioning Electromagnetic Fields

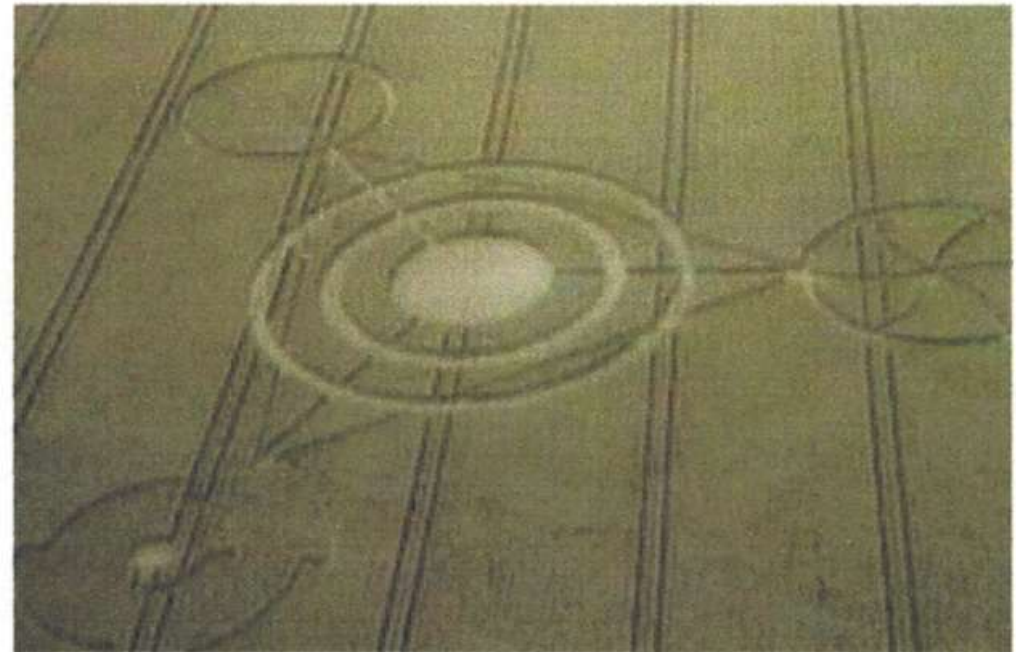
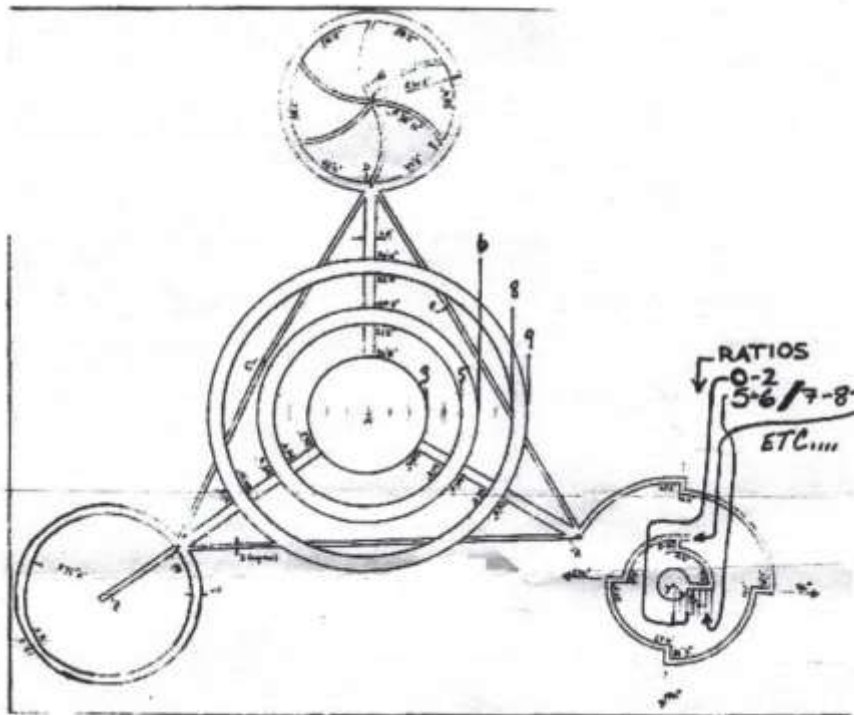
Electromagnetic fields can be specially conditioned to couple with gravity. Propulsion takes place by action and reaction of fields. An electric charge or magnetic flux can interact for propulsion, with electric and magnetic fields existing in space. This would include fields of space caused by the flow of charged particles, and the rotation of celestial bodies. These effects are mild. Zero-point energy could be the key for coupling. Bringing inertial resistance to zero would amplify the effects of space fields.

Great acceleration with very little force of thrust would be possible; also deceleration with very little force of thrust. There would be very little stress on the vehicle and its inhabitants. Zero-point energy is isotropic in undisturbed space, and Lorentz invariant. Such is not the case with accelerating bodies. Haisch, Rueda, and Puthoff suggest that the inertia of bodies might be the result of spectral distortion of zero-point energy in inertial frames of accelerating bodies, and of a resisting electromagnetic Lorentz force that arises from the distortion.



# Mike Hanson's Flying Saucer Engine

Gravity is this; the atom/element in question which exists only between a particular format of bosons will make a 'dent' in space. These 'dents' will attract one another because in the constant noise of space (particle noise in the passage of time) each gives a signature wave. A machine with the ability to cause dead space of format 3 to convert suddenly into format 7 would make a temporary and artificial type of weight. The crop circle photo exactly depicts Mike Hanson's design of a flying saucer engine which comprises a triangle of three anti-gravity spheres and one dematerializer in the center. A dematerialization device is constructed of copper only.







# **Inertia-less Craft & Artificial Gravity**

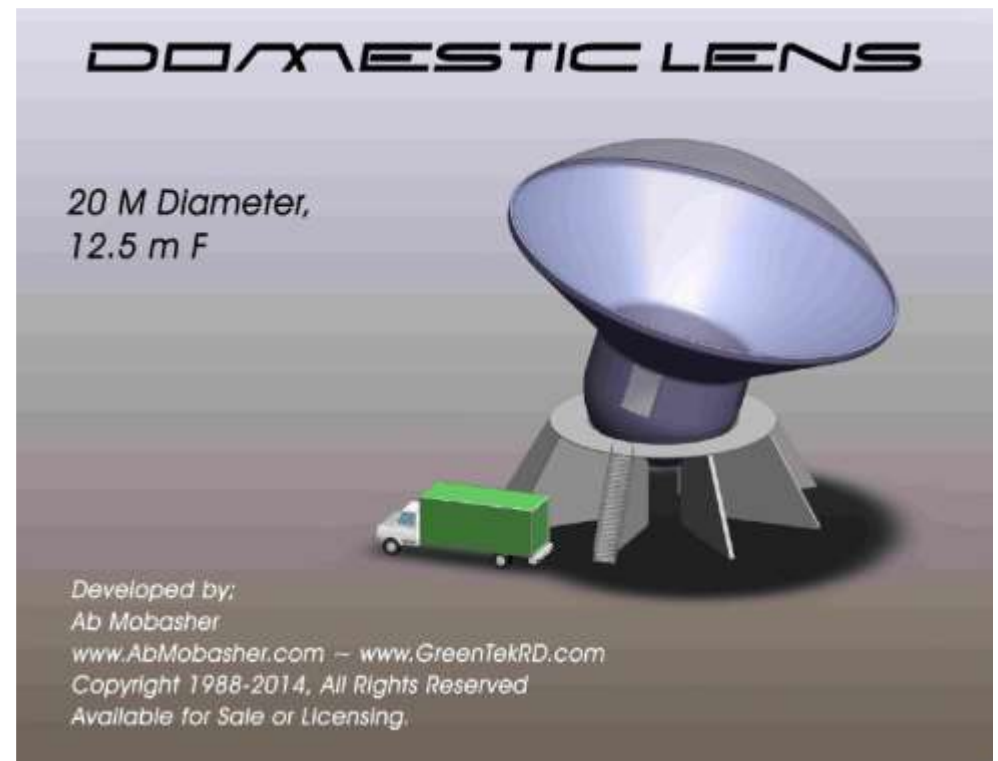
An inventor has designed inertia-less craft and artificial gravity  
(details are proprietary).

# Domestic Lens

The Domestic Lens™ is a large, lightweight, thin and inexpensive lens for the optical industry. Immediate applications could be large-diameter lenses to be used in telescopes, photographic, viewing and other applications at a fraction of the cost of large diameter lenses. The abrasion resistant Domestic Lens™ would be as much as 50 times lighter than traditional lenses. They would be of higher resolution than Fresnel lens.

An inexpensive proprietary manufacturing technique allows manufacturing in most focal lengths in a relatively short time for extremely large observatory telescopes. Telescopic focal lengths can be adjustable to some extent.

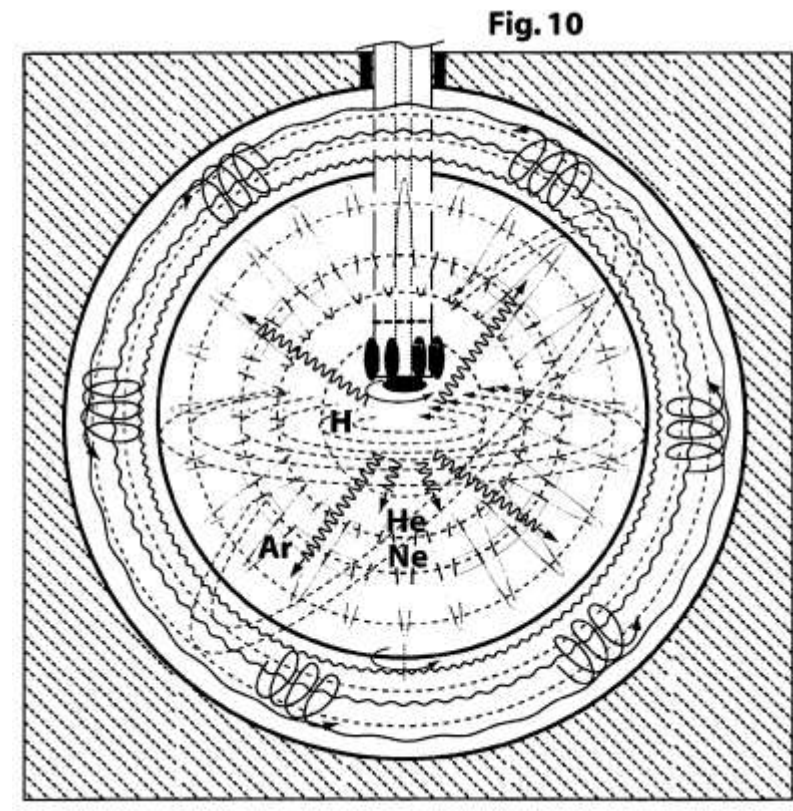
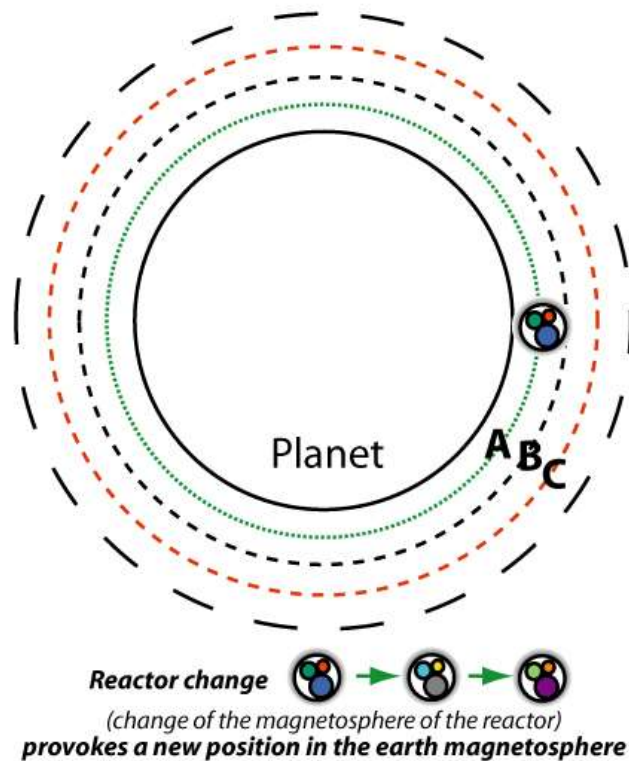
Large radius hemispheres can be constructed from geodesic or seamless (proprietary) arrangements of **Mobasher Globe Lens**. Other applications include solar power (e.g., Multask Dome), heat generation, food processing, and melting metals, glasses or ceramics.



The sun's energy can be concentrated to generate heat as high as 10,000 degrees F.

# Double Magnetic Fields Plasma Reactor

A double magnetic fields plasma reactor generates its own magnetic and gravitational fields to counter the forces of Earth's magnetic and gravitational fields. It works at room temperature and atmospheric pressure. The reactor contains different matters (matter, antimatter and dark matter) – indicated by the small circles with different colors. Changing the configuration of the matters inside the reactor affects their magnetic and gravitational fields, which in turn alter the magnetosphere around it. This magnetosphere is independent from the magnetosphere of the planet. In order to find its natural gravitational balance relative to the planet's magnetosphere, the craft is compelled to lift and move itself into a new position. Eur. Pat. EP 1 770 717 A1 "Gravitational and energy system" (126 pages).

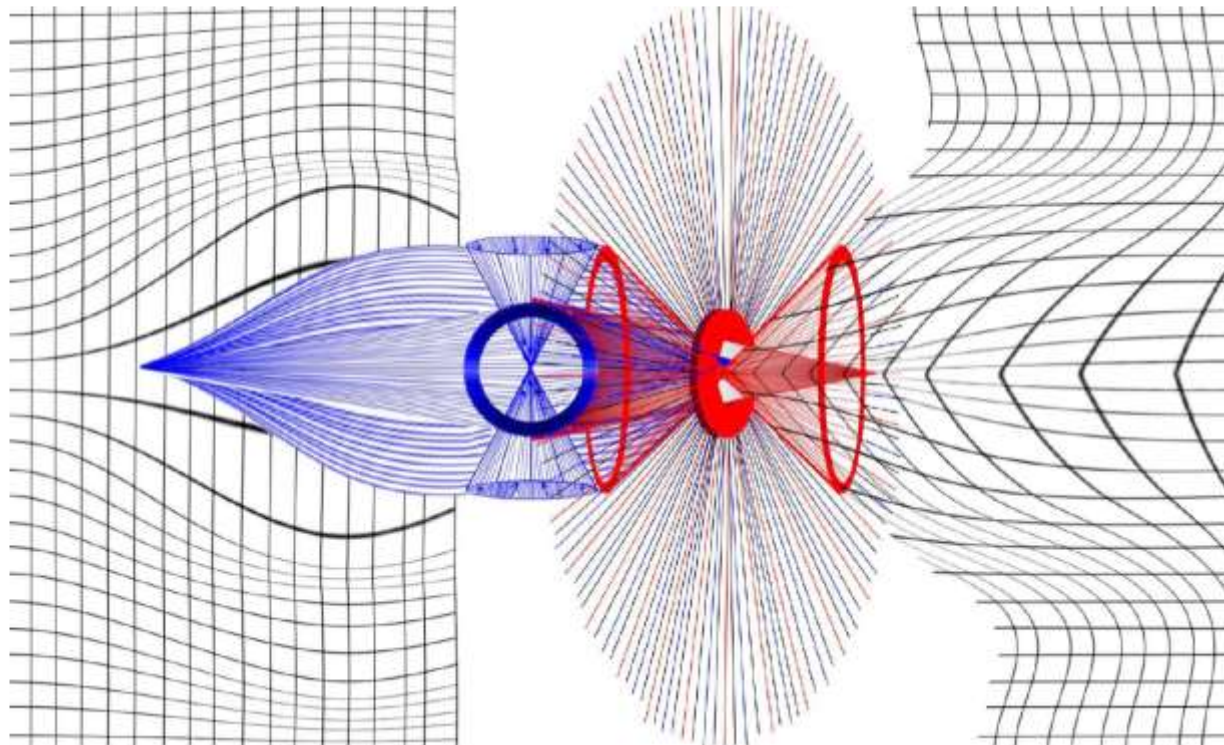




# Magnetic Vortex Drive Engine

Magnetic fields are manipulated to create a magnetic analog of the Schauberger principle of vortex cavitation. The field created by both expanding and compressing local magnetic fields propels a craft as if it were falling into a hole (one created magnetically).

The neutral point between these two fields is the location of crew friendly habitat. All hull surfaces pointing toward the center would be where the affect of what we might call magnetic attraction would create some semblance of gravity. Anyone inside this craft would not be affected by inertia because they would be inside the magnetic field and only affected by it. Therefore almost any angle and any speed turn is possible.



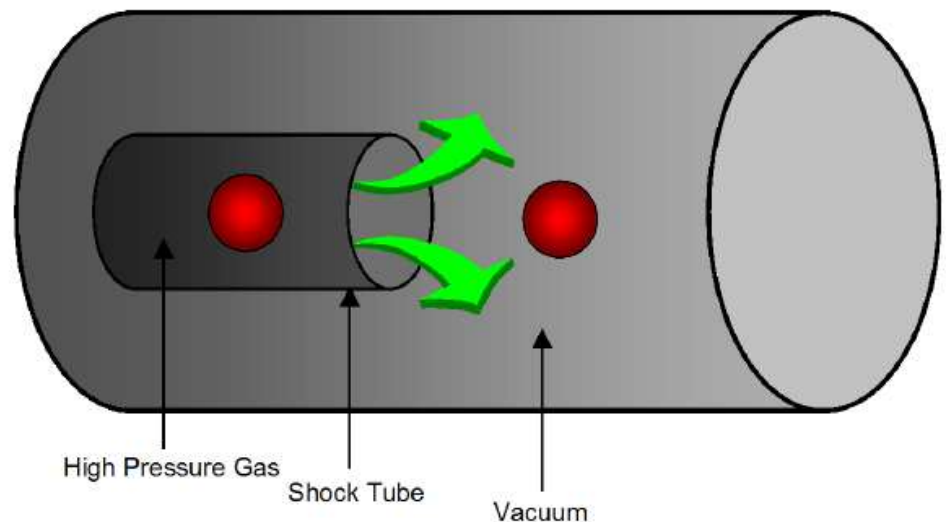
# Meta-Stable Helium as Rocket Propellant

A special formulation of meta-stable helium will be the ideal rocket propellant for expanding human civilization into the solar system (e.g. to colonize Mars). When a micro-crystal of meta-stable helium is triggered by the right frequency of laser light, it will return to the form of gas as if it had been compressed by tens of millions of atmospheres of pressure. It will release 43 times more energy per unit weight than any conceivable chemical combination.

Gases like helium or hydrogen are converted to liquid metallic plasmoids which can be levitated magnetically in a vacuum and allowed to cool off by radiation, which will then cause them to crystallize into metastable materials, including those of high-energy density materials.

Ultra-high temperature plasmas, relevant to thermonuclear fusion R&D, are utterly irrelevant to relatively low-temperature liquid metallic plasmoids.

With meta-stable helium as fuel, a rocket could take a 50-percent payload to Mars and back in two weeks. (Accelerate there and return at one gee.)



# Space Drive Engine

The space drive engine provides unidirectional thrust generated by a rotating gyroscope moved alternately to and fro along the thrust vector direction while precessing the gyroscope as it moves in one direction but not precessing it in the opposite direction.

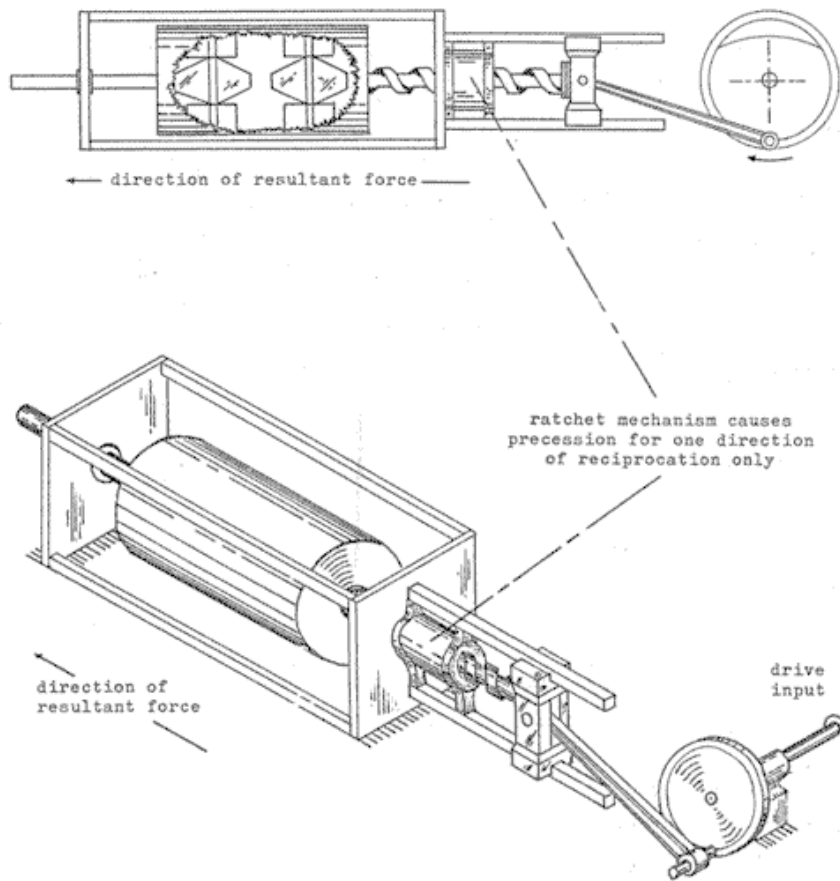


Figure 3. Linear Force Machine (mechanical)

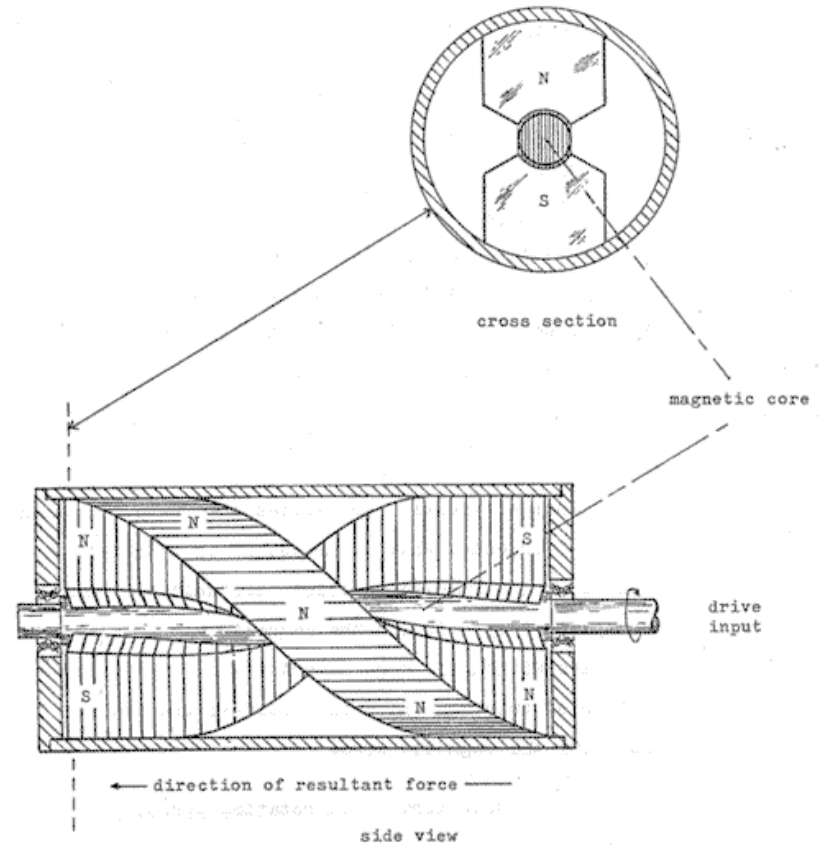


Figure 4. Linear Force Machine (magnetic)

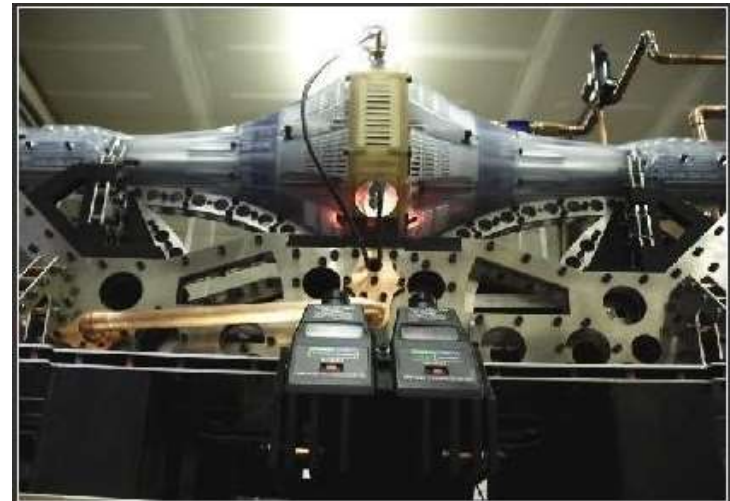


# Torsion Field Communications

Electromagnetism is produced by charge, and gravity is produced by mass. A torsion field is produced by the *spin* of a mass, whether it is an electron or as large as a star. Electromagnetic fields such as light, radio, and magnetism are vector fields in that they possess both magnitude and direction of propagation. Gravitational fields are also vector fields with both magnitude and direction. Torsion fields are scalar; they only have the property of magnitude. Torsion fields operate independently of direction. They also have the extraordinary property of holographically operating throughout the *entire* Universe without respect to time nor distance.

The theoretical maximum capacity of torsion field communications is apparently 40 billion channels of three-dimensional holographic television with a speed faster than one billion times the speed of light through the entire earth without attenuation or even between planets instantly. Torsion field cell phones would allow world-wide talking or texting.

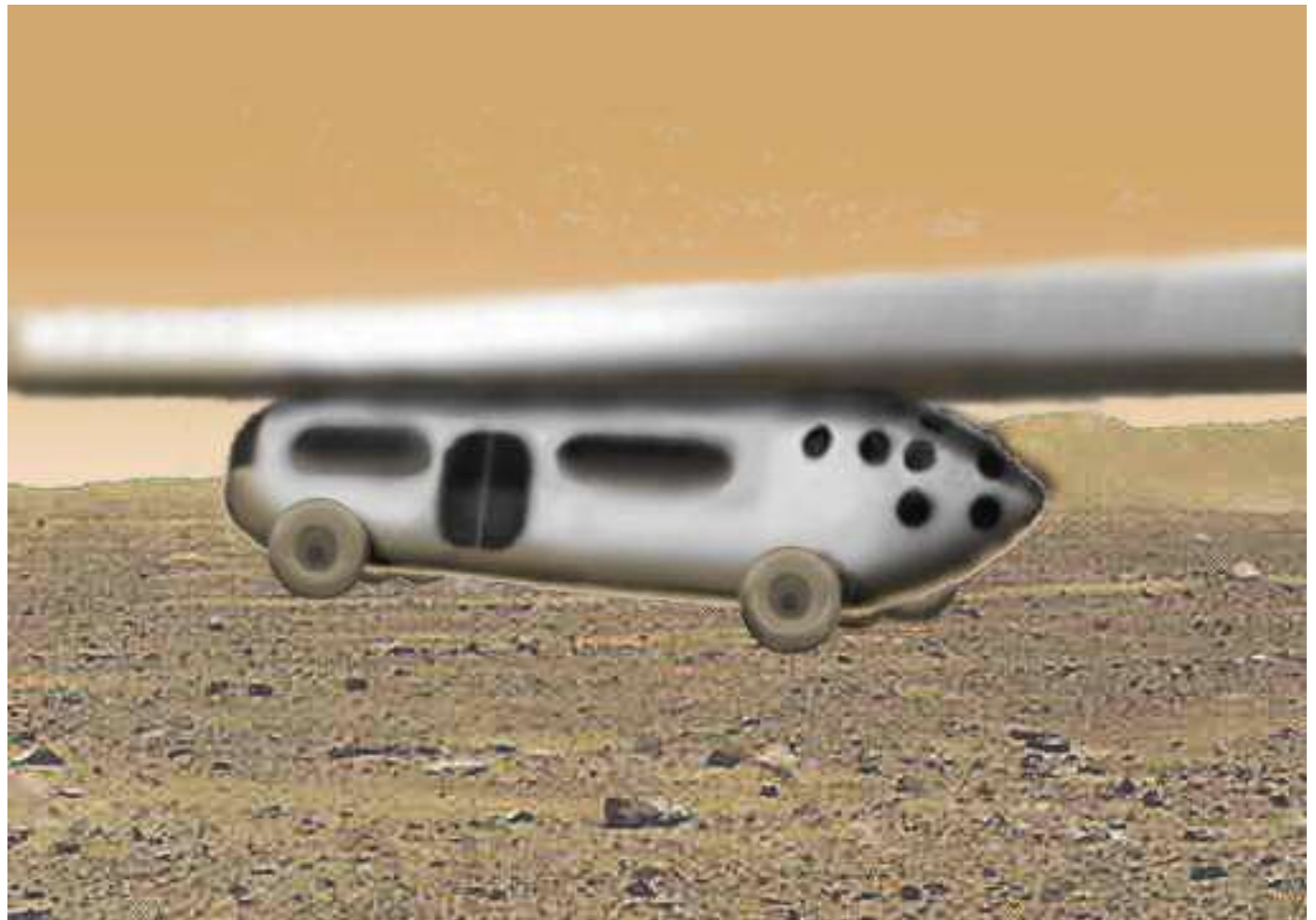
A unique design has been developed for a counter-rotating torsion field generator based on a newly patented micro-solenoid technology, special crystalline lattice cells, counter-rotating mono-polar magnetic plates, mono-chromatic standing wave lasers, and some scalar parallel processor technologies from the Swiss Institute of Technology in Zurich.



# Ground Transportation for Colonies on Mars and Earth's Moon

A colony on Mars or Earth's moon with more than one building would require ground transportation between the buildings. Analysis shows that overhead light suspended rail would be more practical than individual vehicles being driven between the buildings on the ground.

Compensating for weak gravity, mining equipment could brace themselves against an elevated rail's structural supports when digging trenches for subways or valuable ores in the ground.

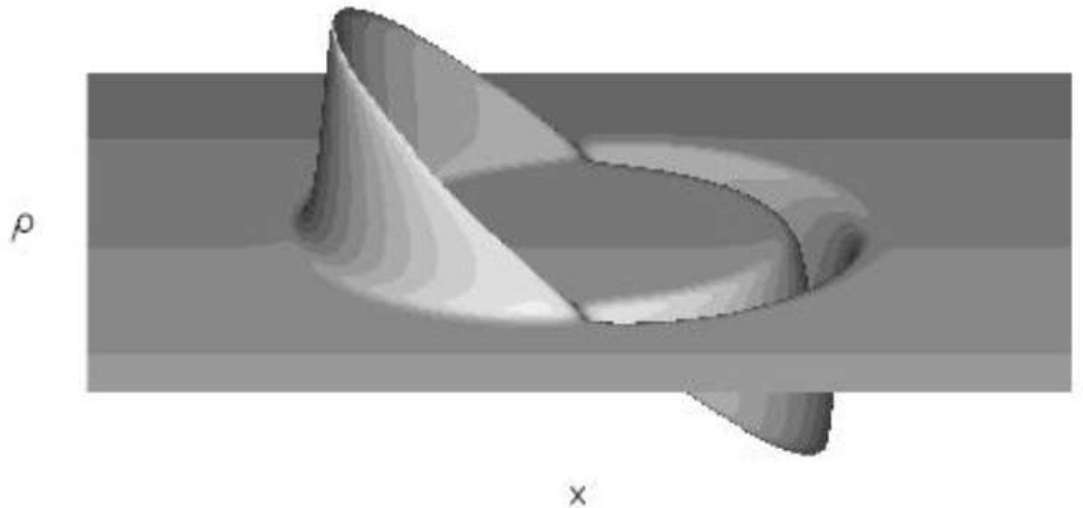


# Warp Drive Would Travel Faster than Light

It is possible to travel faster than light. You just wouldn't travel faster than light. The Alcubierre drive, as it is known, involves expanding the fabric of space behind a ship into a bubble and shrinking space-time in front of the ship. The ship would rest in between the expanding and shrinking space-time, essentially surfing down the side of the bubble.

A beam of light next to the ship would still zoom away, same as it always does, but a beam of light far from the ship would be left behind. That means that the ship would arrive at its destination faster than a beam of light traveling the same distance, but without violating Einstein's relativity, which says that it would take an infinite amount of energy to accelerate an object with mass to the speed of light, since the ship itself isn't actually moving.

By manipulating extra dimensions with astronomical amounts of energy, a faster-than-light engine, or warp drive, could be created that would bend but not break the laws of physics. The tricky part is that the ship wouldn't actually move; space itself would move underneath the stationary spacecraft.

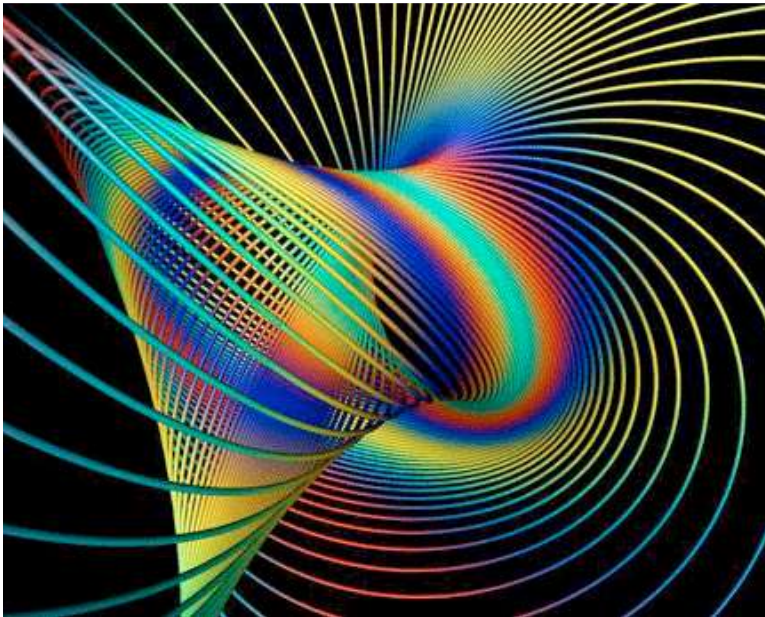


To create the bubble the ship would surf down may require manipulating the 11th dimension, a special theoretical construct of M-theory (the offspring of string theory). If the 11th dimension could be shrunk behind the ship it would create a bubble of dark energy, the same dark energy that is causing the Universe to speed up as time goes on. Expanding the 11th dimension in front of the ship would eventually cause it to decrease, although two separate steps are required. Exactly how the 11th dimension would be expanded and shrunk is still unknown.

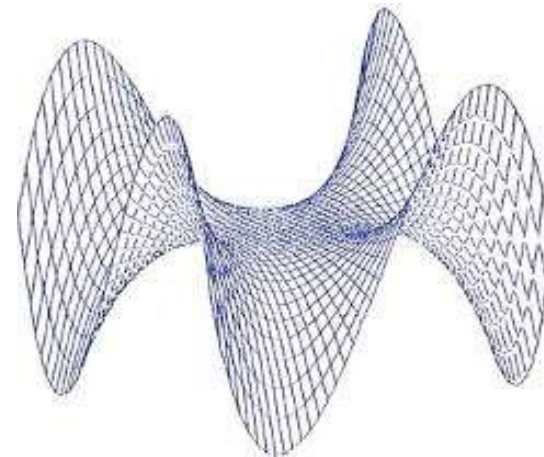


# Torsion Field may 'Uncurve' Space and Enable Advanced Propulsion Devices

Electric, magnetic, and gravitic fields all support propagation velocities that are at the speed of light. The torsion field is different from these other three fields that could have spherical symmetry. Torsion could be right-handed or left-handed and is based upon a cylindrical field and can be created by large accumulations of electricity and rotation of a body that if above a certain speed, would enhance the torsion field. Russian astronomers have detected the present locations of spinning stars via their torsion fields even though their light has left many years ago.



**Torsion Field: Einstein's Metric Torsion Tensor allows a spin-field to twist spacetime.**



**Twisted Space: Torsion can uncurve space for antigravitic and faster-than-light propulsion.**

# IPMS-Chernovitsky Super Ceramics

Kiev, Ukraine's I.N. Frantsevich Institute for Problems of Materials Science (IPMS) is one of more than 70 institutes founded after World War II. 6600 of the most brilliant theoretical physicists in the entire Soviet Union were commissioned to research materials for nearly 50 years. Because the Institute was forced to operate in a purely theoretical environment, with no pressure whatever to meet production or marketing deadlines, operating virtually isolated from any contact with the outside world, that the scientists were able to produce at least 7 whole new sciences, 30 technologies, and 130 materials unknown in the West.

One of the Institute's four sites, IPMS-Chernovitsky, developed moldable, machine-able, ultra-high temperature, super-hard, and strategic metal-alloyed ceramic substances. These ceramics can withstand operating temperatures of 1200 degrees centigrade. This is more than 400 degrees centigrade higher than can be tolerated by other known ceramic materials commercially available anywhere else in the world. In fact this is higher than the theoretical limit allowed by the quantum mechanics model relied on in the West.

These materials are being utilized in entirely ceramic internal combustion engines, high-speed jet turbines and self-lubricating bearing surfaces. The ceramics produced at the IPMS-Chernovitsky plant have been made harder by fully one factor of hardness than the hardest alloyed metal machine tools currently produced by any other known means of manufacture. They have been made harder by at least one full order of magnitude than either natural or synthetically produced diamonds.

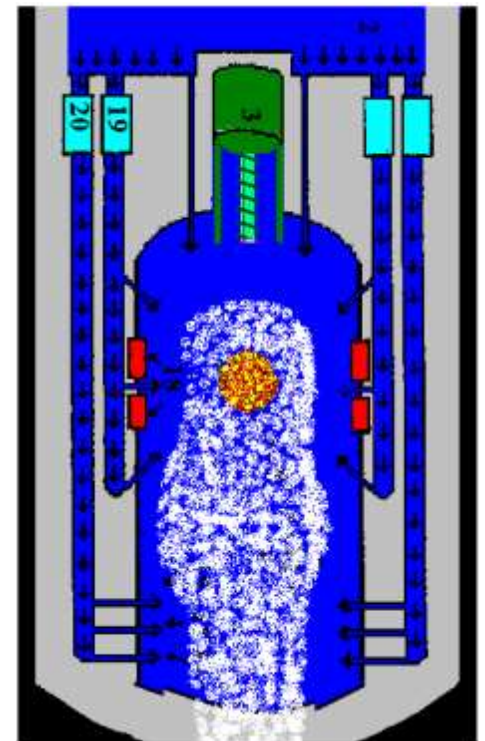
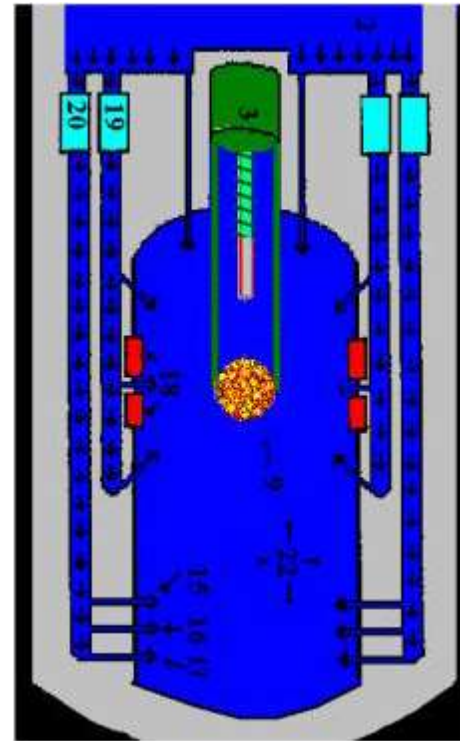
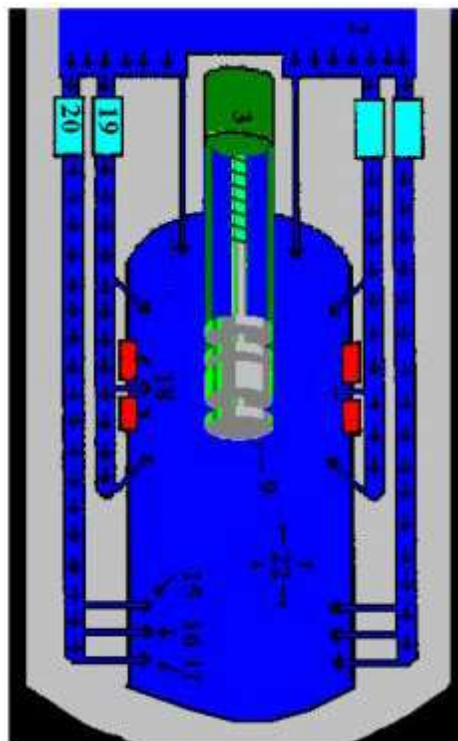
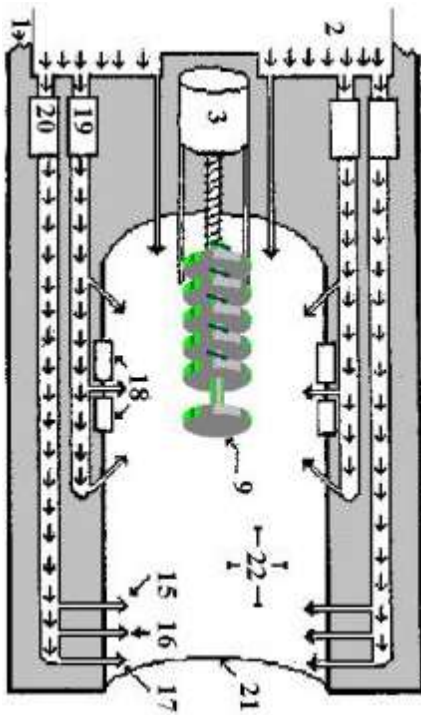
Ceramic pistons manufactured for use in ceramic diesel engines will, when struck by a hard object, produce a clear resonant tone which persists for more than seventeen seconds. This is at least eight seconds longer than the resonant persistence produced by the finest glass or crystal ever manufactured.

# Atomic Powered Plasma Rocket Engine

The atomic powered plasma rocket engine first assembles radioactive metal cubes from storage into disks. A worm gear positions the disks together into a critical mass which generates plasma. Liquid propellant is sprayed into the chamber to contain the plasma and vaporized. Thousands of times more thrust per pound is produced than chemical rockets. This design overcomes the deficiencies associated with earlier atomic rockets.

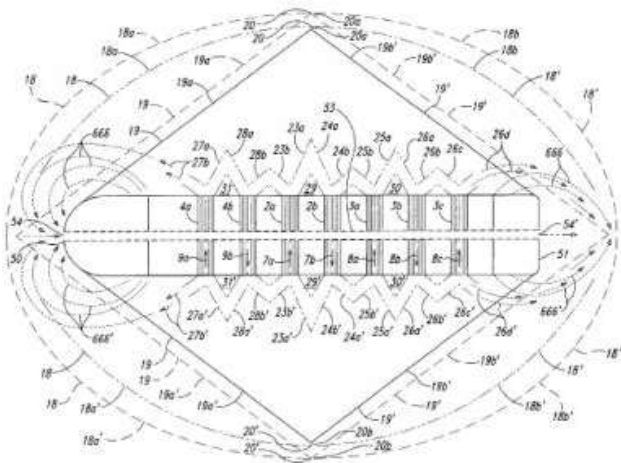
<https://us-mg6.mail.yahoo.com/neo/launch?.rand=brhtctjs8ndaf>

<https://dl.dropboxusercontent.com/u/95180397/Universal%20Patent%20Number%201%200Starship%20Engine%20Paper%20ID%2029.pdf>



# Tubular Shaped Interstellar Space Craft

The tubular shaped interstellar space craft possesses a magnetic field and a plasma vortex. The craft has a vast array of capacitors. The craft also has a proton accelerator, plasma guns, and diversion devices. The craft will approach the speed of light over time at 1 g of acceleration. Round trip to Mars in 5.3 days (plus 1 day minus 3 days). The craft obtains fuel directly from an atmosphere or a radiation induced atmosphere in space at no cost. The craft has three on-board escape exploratory craft. The craft produces plasma vortices within an electromagnetic field. The field is an inhomogeneous, diamagnetic, orbiting plasma field, with a magnetohydrodynamic electrically conducting plasma current. Seven uninsulated tungsten bands encircle the craft. A craft surrounded by energetic charged particles would have a downward thrust. US Patent 8,109,471.





# Nuclear Electric Rocket

Russia's Mstislav Keldysh Research Center in Moscow is developing a nuclear electric rocket to multiply the speed of movement through space. A flight round trip to Mars will take two to four months, while the current chemical rocket requires a year and a half to two years to accomplish the same trip.

Instead of focusing on nuclear thermal energy (energy used to heat gas, then released), they are focusing on nuclear electric energy. The heated gas rotates a turbine which in turn drives an electrical generator and a compressor by ensuring the flow of the propellant in a closed circuit. Therefore, the craft is propelled like an ion or plasma thruster due to the converted electrical energy.

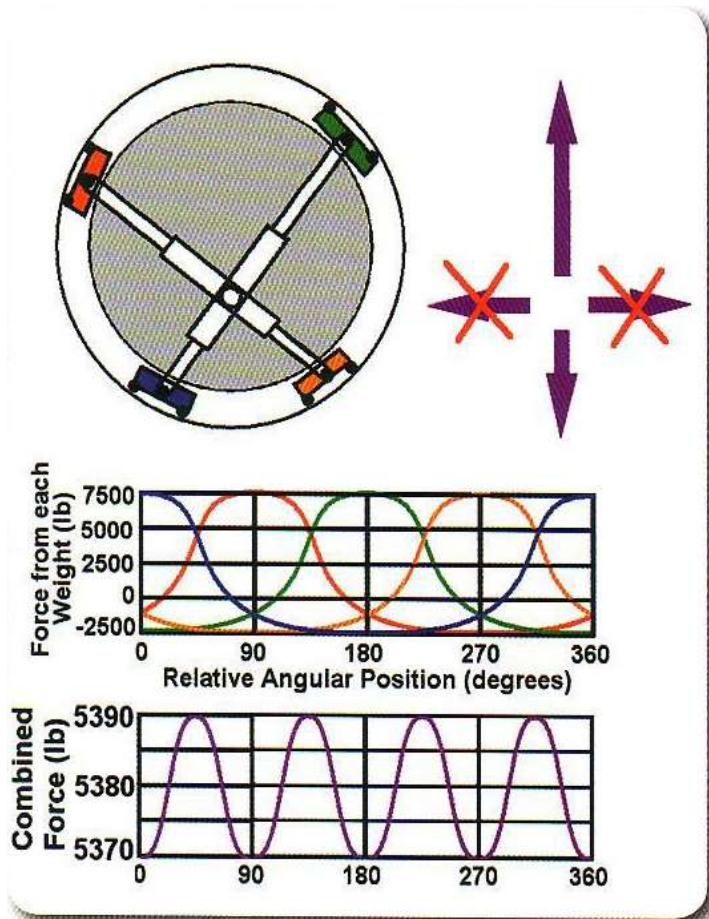


In 2011 a budget of U.S. \$544.4 million was earmarked to fund the newly designed space module. Of these resources, U.S. \$232 million will be spent by the state corporation Rosatom in the creation of the reactor. The creation of a nuclear propulsion system will be the responsibility of the Mstislav Keldysh Research Center. Rocket and space corporation Enérguia will build the spacecraft that will be launched after 2025.

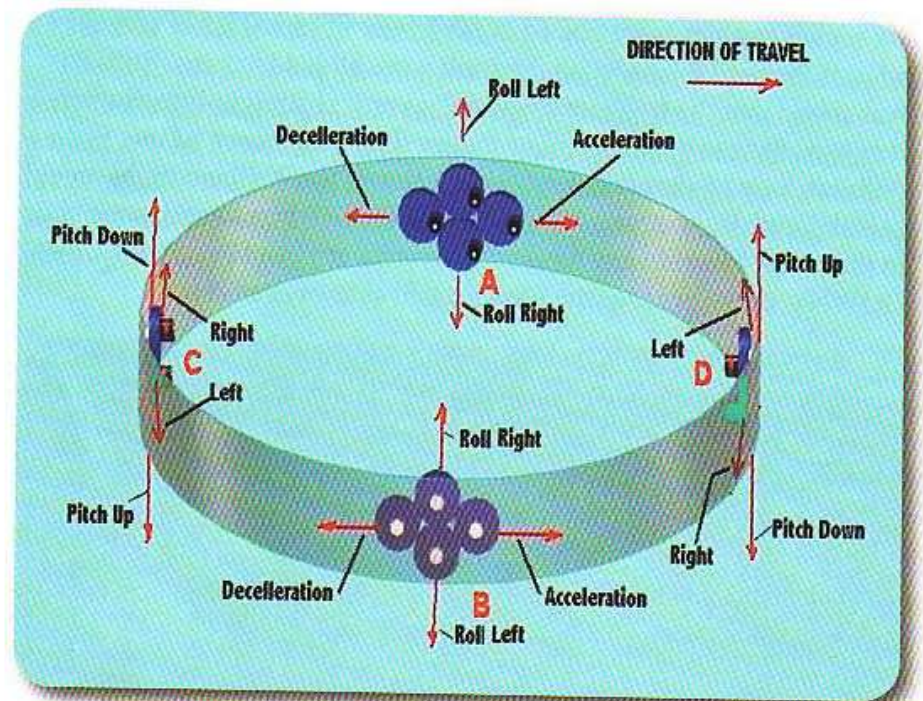
[http://english.pravda.ru/science/tech/07-05-2013/124500-nuclear\\_rocket-0/](http://english.pravda.ru/science/tech/07-05-2013/124500-nuclear_rocket-0/)

# Walden Inertial Propulsion System

The Walden inertial propulsion system converts centrifugal force to linear motion using two or more masses. The masses are connected to telescoping arms that rotate about a single axis. The rotating telescopic arms are guided along a closed path by a guide. The telescopic arms extend and retract as they rotate around the closed path changing the inertial moments of each of the telescopic arms. A resultant linear force from the rotating telescopic arms provides a propulsion force suitable for a vehicle. US 20080168862 A1. Inertial propulsion device.



THE WALDEN INERTIAL PROPULSION UNIT (WIP) CONSISTS OF FOUR MASSES ON THE ENDS OF TELESOPING ARMS ROTATING ON A CIRCLAR TRACK



EACH OF THE 16 WIP UNITS HAS ITS OWN DIRECTION OF THRUST WHICH CAN BE USED TO ACCELERATE OR CONTROL THE ATTITUDE OF THE SHIP. THE SHIP WILL YAW USING THE PROPER PAIRS OF UNITS WITH RIGHT AND LEFT THRUSTS



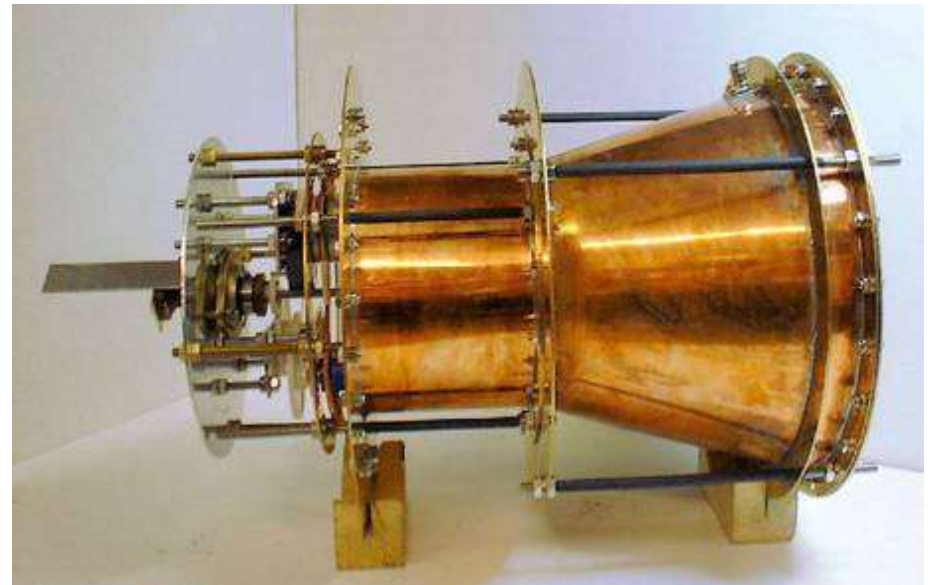
# Microwave Engine Could Revolutionize Space Travel

In an ordinary engine the rocket moves forward as fuel is flung backwards. NASA engineers have produced tiny amounts of thrust from an engine without propellant – an apparent violation of the conservation of momentum; the law of physics that states that every action must have an equal and opposite reaction.

The ‘Cannae drive’ uses electricity to generate microwaves, bouncing them around inside a specially designed container that *theoretically* creates a difference in radiation pressure and so results in directional thrust. The radio frequency resonant cavity thruster design, which is unique as an electric propulsion device, is producing a force that is *not attributable to any classical electromagnetic phenomenon* and therefore is potentially demonstrating an interaction with the quantum vacuum virtual plasma.

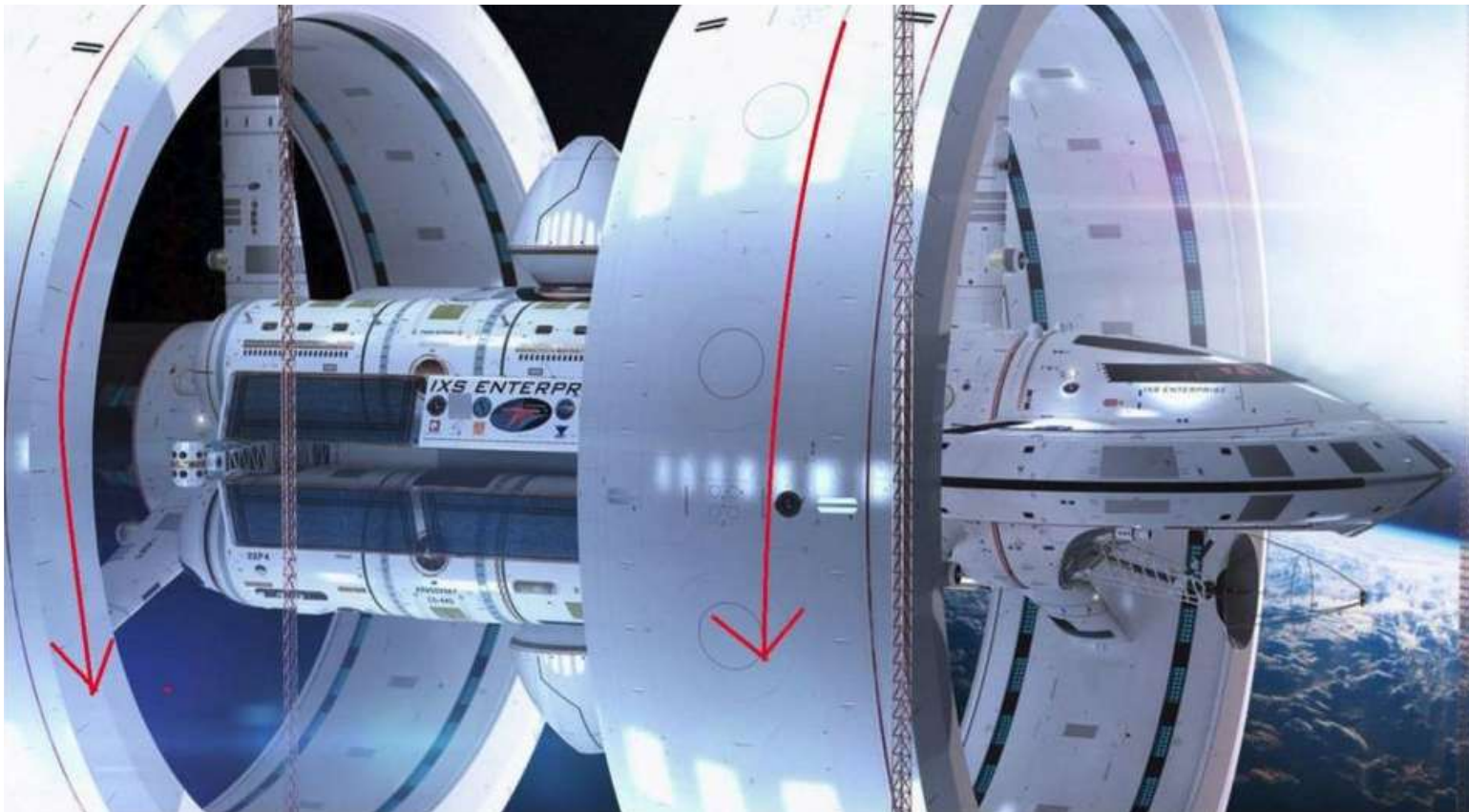
The Cannae Drive’s thrust is less than a thousandth of the thrust produced by a similar invention known as the EmDrive – another fuel-less thruster.

Shown is a model of the EmDrive. The shape of the engine (including numerous interior wells and channels) are intended to create directional thrust from microwaves.



# Internal Rotating Plasma Rings

Internal plasma rings rotating in the same direction as shown here by the red arrows will generate thrust. Counter rotating rings will generate warp. When at the point in space/time revert back to a thruster to get around. If we are going to travel to the stars in man's lifetime we need to use warp. Man is using the wrong assumptions – keeping him from true warp drives.

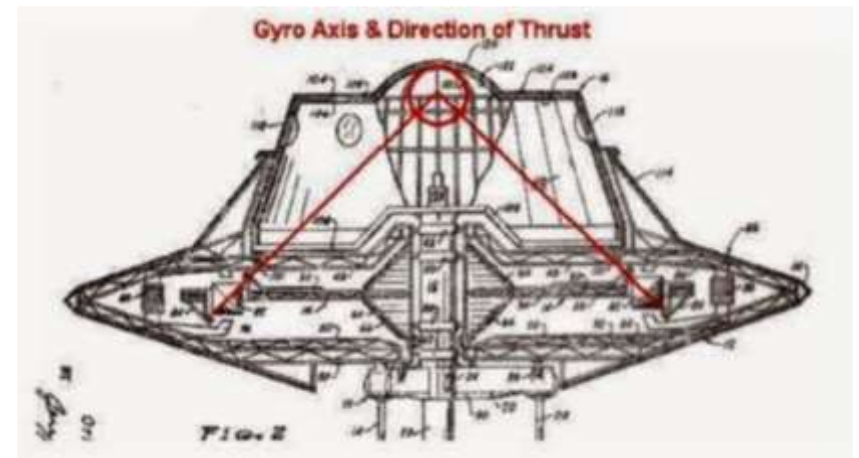




# Nikola Tesla's Flying Saucer

Nikola Tesla researched electromagnetic field lift-and-drive aircraft/space craft. His flying saucer's hull is best made double, of thin, machinable, slightly flexible ceramic which becomes a good electrical insulator. The inner hull is covered on its outside by wedge shaped thin metal sheets of copper or aluminum, bonded to the ceramic. Each sheet is separated on either side from the next sheet by 1 or 2 inches of uncovered ceramic hull. The top set of sheets and bottom set of sheets are separated by about 6 inches of uncovered ceramic hull around the horizontal rim of the hull.

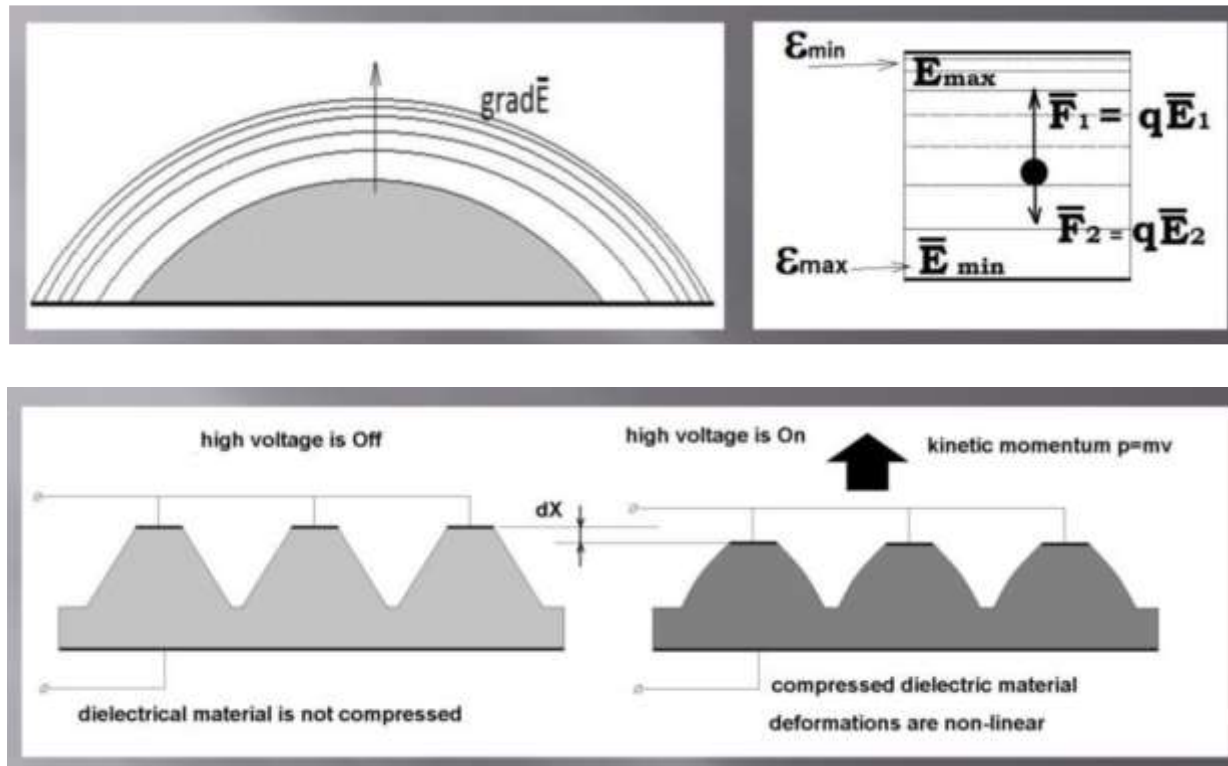
The greater the frequency of the electricity, the more it pushes against the earth's electrostatic and electromagnetic fields. Descending, landing or just starting to lift from the ground, the transformer primaries are near the secondary weak ends and therefore, the bottom set of sheets glow a misty red. Red may also appear at the front of the machine when it is moving forward fast, lessening resistance up front. Orange appears for slow speed.



# Electric Propulsion with Asymmetric Capacitors

Electric propulsion with asymmetric capacitors is based on Thomas Townsend Brown's patented discovery in 1927 that the positive electrode of a capacitor is attracted to the capacitor's negative electrode with more force than the negative electrode is attracted to the capacitor's positive electrode. The resulting net force can be increased by using many layers of dielectric between the two electrodes with the dielectric layers having different electrical properties (permittivity). When the capacitor is charged or discharged in pulse mode, the dielectric layers are elastic to allow non-linear compression/deformation when voltages are applied to the electrodes – resulting in net kinetic momentum.

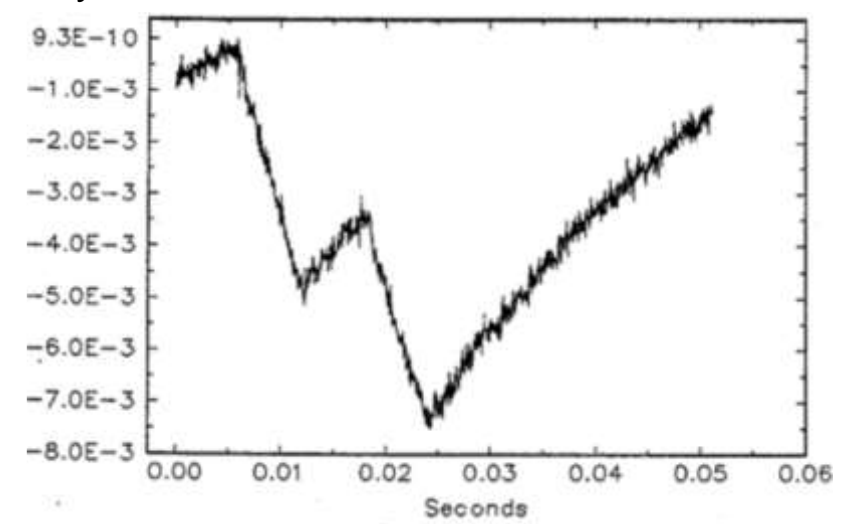
A 100 square meters capacitor, charged up to 10 kilovolts, could lift an estimated 80 tons. Theoretically, ionization losses could be minimized up to 1 ampere of current – requiring a 10 kilowatts on-board power supply to fly without reactive fuel. 100 separate 1-meter-square capacitors could be stacked into a 1-meter-cubed propulsion box.



# Gravity Control

Gravity control technology resembles a well-known cryogenic process, but operates on a subatomic level on random electrodynamic processes held to be responsible for gravitation. Essentially, it 'freezes' (lowers the energy level) of the gravitational field through cyclic application of microwave pulses, which orients the heavy nuclei of paramagnetic materials, such as aluminum. In combination with a constant magnetic field, microwave impulses induce a pumping action that is repeated thousands of times per second, depleting the energy in the gravitational field more and more until a 'cascade point' is reached and gravity and inertia vanish almost altogether (the endpoint is comparable to 1/10th of 1 degree Kelvin, by analogy). Since the pumping effects are cumulative, the total energy required to make a vehicle weightless and inertia free is very small.

The chart was computer-generated during the 1994 experiment. The vertical axis tracks weight and the horizontal axis tracks time. The weight began to plummet the moment the system was switched on. Initially we see a slight spike in weight. Then the weight drops. As the cycle repeats, the weight spikes again slightly, but the loss deepens even further after the second spike. When the power to the system is cut, the weight of the test object slowly and smoothly returns to normal. This occurs as the Earth's gravitational field, temporarily held in abeyance, returns to disorient the electrodynamic activity surrounding the nuclei of the sample. The weight loss is cumulative, not instantaneous. Weightless craft will be able to exit the Earth's gravitational field at any speed, even as slowly as a weather balloon, with very little fuel expenditure. The same technology can be applied to terrestrial transportation. Since inertia is also removed by gravity control, vehicles will be able to stop and start instantaneously, as well as turn on a dime (no g force).



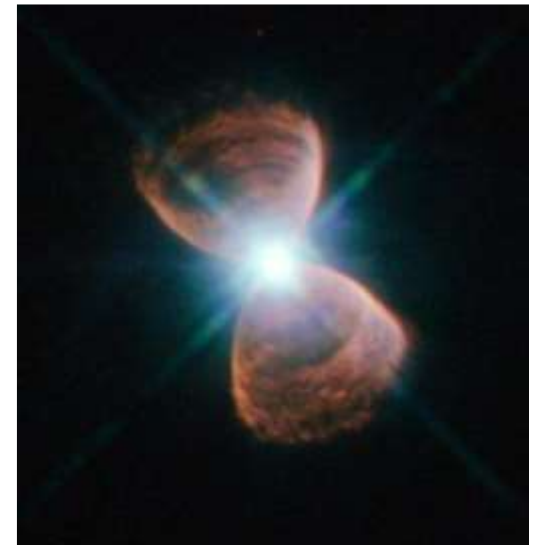


# Anti-Gravity Ether Shield

The International Symposium on New Energy was held in the Denver Hilton South, Denver, CO April 25 - 28, 1996. German physics professor Adolph Zielinski lectured on the 'anti-gravity ether shield'. Zielinski disclosed that his company has now developed and *is already shipping to other German companies* an anti-gravity ether shield. The anti-gravity ether shield operates at a very high voltage.

Imagine a block of iron hanging from a ceiling. If an ether shield is placed on the left side of the iron block, the ether shield would deflect the ether flowing into left side of the iron block. This creates a sort of force vacuum, and the iron block would swing up to the ceiling trying to fill the vacuum.

Ether shield segments can be placed around the nose cone of a rocket for forward propulsion. Ether shield segments can also be placed all around the sides of a circular vehicle mounted on wheels. Now the vehicle moves in the direction of turned-on ether shield segments. If additional ether shield segments are placed under the circular vehicle and on top of a curved roof, and there are windows between the body of the vehicle and the curved roof, the resemblance to the popular conception of a flying saucer is startling.



# Plasma Thruster

Magnetic reconnection on the surface of the sun occurs when magnetic field lines converge, suddenly separate, and then join together again, producing lots of energy and causing the sun's enormous flares. Plasma is the hot, charged state of matter composed of free electrons and atomic nuclei. The thruster produces and then ejects both plasma particles and magnetic bubbles known as plasmoids that move at 20 kilometers per second. Changing the strength of the magnetic fields allows varying the thrust for a particular mission for more precise maneuvering. Any type of gas can be used. The new plasma thruster rocket could transport humans to Mars 10 times faster.

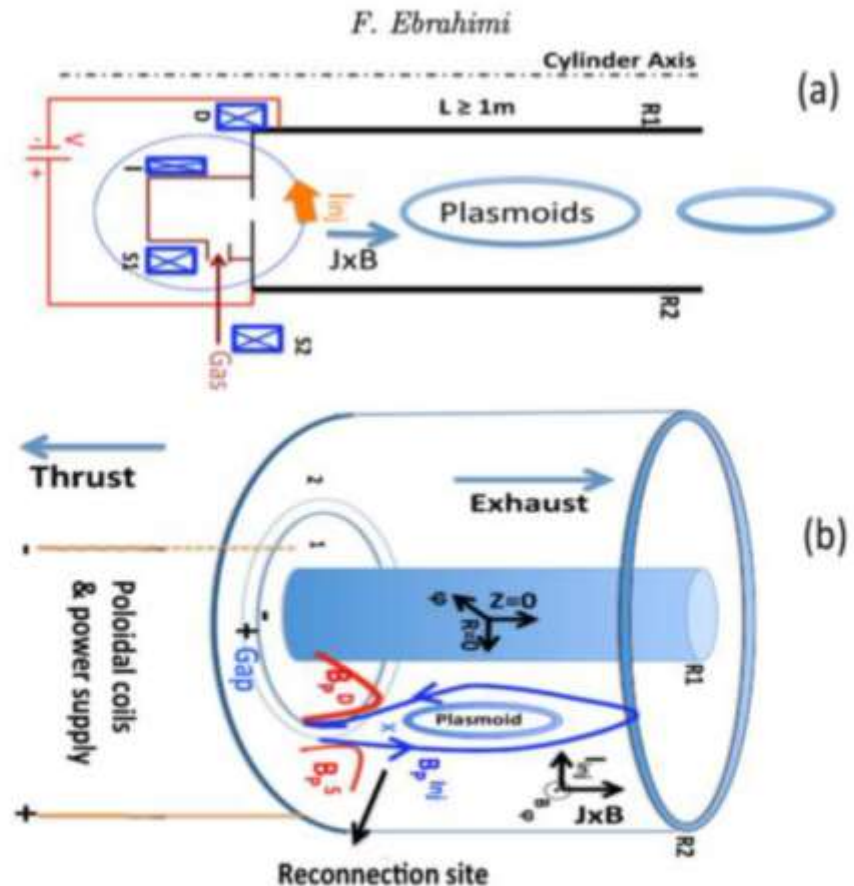
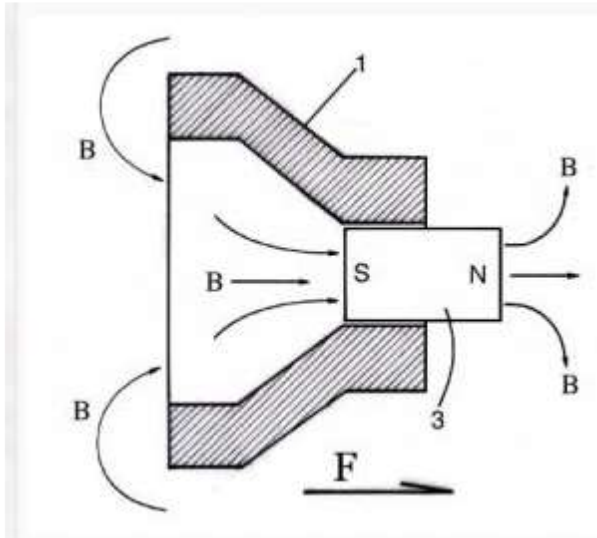


FIGURE 1. A schematic of (a) the vertical cross-section and (b) the entire domain of the reconnecting plasmoid thruster. In an annular configuration, injected poloidal field  $B_P^{inj}$  (blue circle) is generated by poloidal field injector coil (I), while current ( $I_{inj}$ ) is pulled along open field lines by applying  $V_{inj}$ . Numbers 1 and 2 show inner and outer injector biased disk plates, respectively, separated by the injector gap. All the axisymmetric poloidal coils (I, D, S1, S2) are located to the left of these plates. For formation of an elongated current sheet to induce spontaneous reconnection, the detachment coil D and shaping coils S1 and S2 are also energized to generate the poloidal fields  $B_P^D$  and  $B_P^S$ , (shown in red in (b)).

# Magnetic Propulsion Device Using Superconductors

The Nassikas superconducting thruster is propelled by unbalanced forces due to the effect of the magnetic field on the nozzle. Superconductors expel magnetic field lines and as a result an external magnetic field source will exert a force on the superconductor – the Meisner effect. The field lines are more concentrated within the throat of the nozzle which push the nozzle in the convergence direction, whereas the field lines impacting the outer surface of the nozzle and pushing in the opposite direction are much weaker. The net effect is that the nozzle has a net propulsion force. A 40-kilogram spacecraft propelled by a force of 1 kilogram would reach a speed of 79,000 km/s (0.26 c) after 10 years – fast enough to reach Alpha Centauri (4.4 light years) in 22 years. Telemetry and steering commands could be instantly transmitted via interstellar torsion field communications. U.S. Patent 8,952,773. Magnetic Propulsion Device Using Superconductors.



- 1) Conical High-Temperature YBCO Superconductor
- 3) Permanent Magnet with Magnetic Field Strength .5 Tesla





**Proxima Centauri, Nearest Star to Sun, 4 Light Years Distant**



# References:

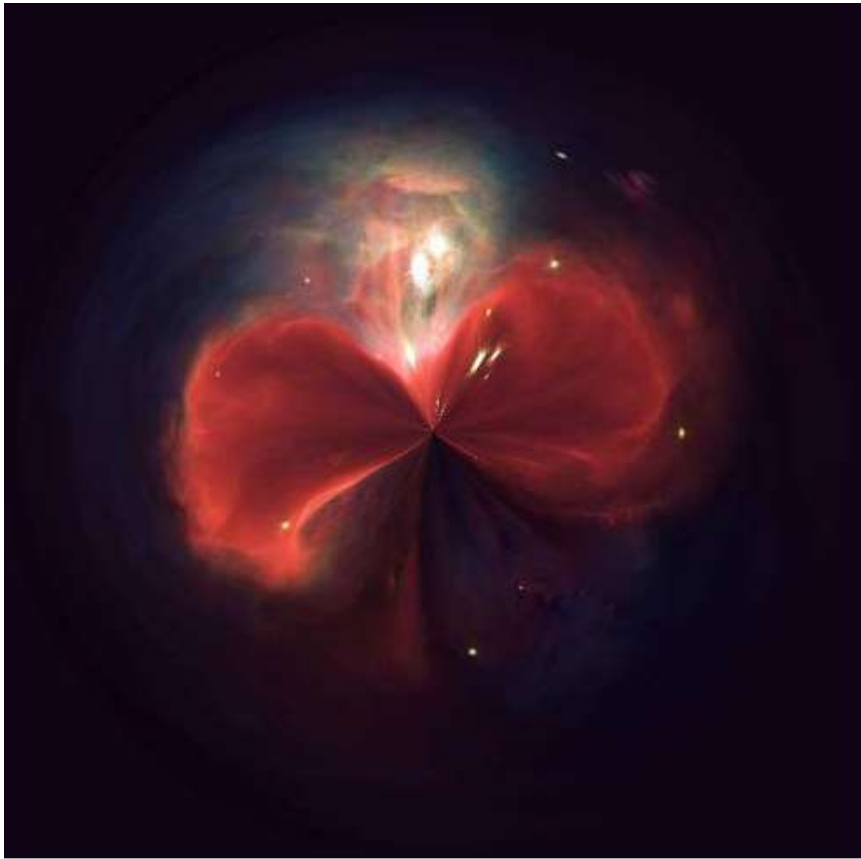
Two files, 262 pages of “Space Travel Innovations” and 34 pages of “Torsion Field and Interstellar Communication”, can be downloaded at [padrak.com/vesperman](http://padrak.com/vesperman) and [commutefaster.com/vesperman.html](http://commutefaster.com/vesperman.html).



























# Air Wells

Everywhere on Earth, even in deserts, the surrounding atmosphere contains at least some water. The quantity of water vapor contained within the air is commonly reported as a relative humidity, and this depends on temperature – warmer air can contain more water vapor than cooler air. When air is cooled to the dew point, it becomes saturated, and moisture will condense on a suitable surface. An air well is a structure or device that collects water by promoting the condensation of moisture from air.

Designs for air wells are many and varied as reflected in that at least five dozen patents have been issued. Active collectors collect water in the same way as a dehumidifier. Although the designs work well, they require an inexpensive source of electricity to be practical. New, innovative designs seek to minimize the energy requirements of active condensers or make use of renewable energy resources.

Kiev, Ukraine's I. N. Frantsevich Institute of Problems of Materials Sciences has developed specially designed capacitors which absorb energy when subjected to a flow of electrical current – producing a cooling effect. All other known materials generate heat from electric current. Temperatures of -259 degrees Fahrenheit have been produced. The leads from a 9-volt battery are attached to the corners of a tarot card-sized flat black sample of this material. Within 20 seconds, a layer of ice crystals covers the top surface. Within 30 seconds, a continuous cloud of frozen ice crystals begins to pour off the upper surface of the suspended card. This material could be used to extract abundant water from air with small amounts of electricity.



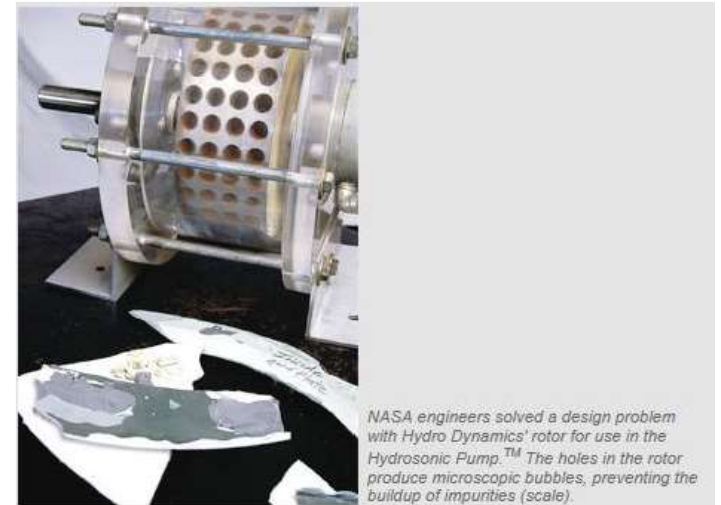
# Hydrosonic Pump

The hydrosonic pump is a mechanical rotating machine which converts plain water to steam at zero pressure without the need for hot surfaces and consequently without the buildup of scale. The process seems to be actually a form of fusion where collapsing microscopic bubbles momentarily create extremely high pressures and temperatures. This controlled cavitation generates shock waves. The effect is immediate when the shaft rotates in contrast to boilers which often take hours to reach boiling temperatures. The efficiency of conversion of mechanical energy into heat energy is around 130%.

One application is to use a windmill to turn the shaft. Out of the nozzle emanates steam which drives a steam turbine to produce electricity. The steam then enters a condenser from which can be obtained potable water and hot water for space heating. The hydrosonic pump can also desalinate sea water and mineralized underground water.



*The rotor inside the Hydrosonic Pump™ generates shock waves to provide the energy needed to heat various liquids, such as organic salt used by the petroleum industry.*



*NASA engineers solved a design problem with Hydro Dynamics' rotor for use in the Hydrosonic Pump.™ The holes in the rotor produce microscopic bubbles, preventing the buildup of impurities (scale).*



# Water Purification with Electrical Coils

Larry Woods' LinkedIn profile states: "I am driven toward the goal of free energy. I have the knowledge and ability to create it. If it takes power to operate we can provide that power without the need for input power. Our goal is to eliminate the use of fossil fuel, within the next 20 years.

LIMITLESS ENERGY TECHNOLOGIES is currently making molds for electrical coils. We now have proven designs for coils to be used worldwide for HHO production and ozone for water purification and (oddly enough) pest control." Water purification is enhanced by the polarization of the electrolyte making it separate with less amperage, creating a more efficient system.

Larry Woods has also designed a 'magnetic vortex drive engine' for space travel.

His fuel-less 5 kilowatts 'magnetic drive generator' may be for sale in 2018.



# Primary Water

Japanese laboratory experiments have shown that there may be up to five times more water deep underground than in all the oceans, lakes and rivers combined. Enormous quantities of pure virgin water can be located with the aid of dowsing and withdrawn from crystalline rocks – particularly hard desert rocks. Primary water originates through chemical processes deep within the earth.

Locating sources of primary water promising enough to justify the expense of drilling usually starts with dowsing and observation of geological and biological indicators generally associated with sources of primary water. Ground electrical resistivity measuring methods often help pinpoint narrow, conductive fractures in the underlying bedrock which serve as conduits for water generated at depth. A mining engineer has successfully located and drilled over 75 primary water wells in arid East Africa.

Near Damascus, Syria there is a spring which resembles an underground river several meters across which flows up and out of a limestone formation. **Its total flow has averaged about 132,000 gallons per minute at least since Roman times.**

Fifty miles northeast of Las Vegas the very short Muddy River apparently originates as beautifully clear primary water (shown in the photo).



# Etheric Weather Engineering

Some of America's native tribes were able to break up droughts by dancing counter-clockwise around a circle, or to stop rain by dancing clockwise around a circle. To illustrate, the summer of 1931 Nevada was suffering through a drought. An elderly Shoshone native American, Wagon Jack, suggested to the tribal members living in the vicinity of Austin, Nevada that they devote some time to a rain dance. Native Americans from all over central Nevada showed up beginning August 14 for continuous rain dancing. On August 19, the skies clouded over and rain began coming down in torrents. After four days of heavy rainfall, flooding caused extensive damage. (Nevada Historical Society)

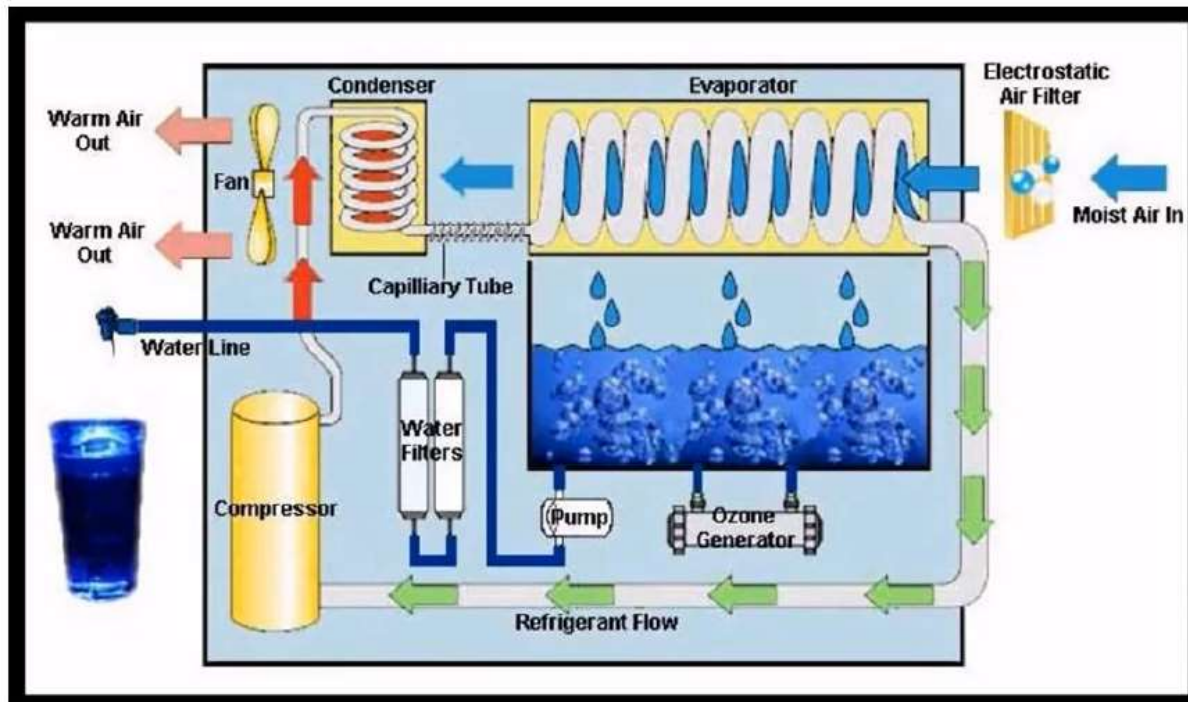
Etheric weather engineering researchers have demonstrated many times that weather control boxes or precisely machined metal objects can bore holes in the ether and cause weather upsets and changes. James DeMeo's 'cloudbuster' (in the left photo) on the Arizona banks of the Colorado River in 1989 doubled rainfall.





# Atmospheric Water Generation

An unlimited supply of fresh water in the form of water vapor is present in the atmosphere. The Atmospheric Water Generation (AWG) process comprises of adding post-processing units to existing air conditioners and refrigeration units to produce potable water. The AWG business uses refrigeration processes to cause water to condense onto cold surfaces. The water is collected and processed for human consumption. The AWG units are functionally identical to air conditioners, dehumidifiers, freezers, etc. These other systems that condense water vapor typically waste the collected water. The AWG process adds a post-processing unit to a typical air conditioner to produce clean water made acceptable for human consumption. The AWG process is better than other forms of producing potable water such as rivers, lakes, wells, processed sea water, etc.



# OASIS Machine

The OASIS Machine produces water by flowing air over a surface colder than the air's dew point temperature. A sketch and a list of components are shown below.

## Electric Power Unit

New technology, over-unity device, requires no external power or fuel.

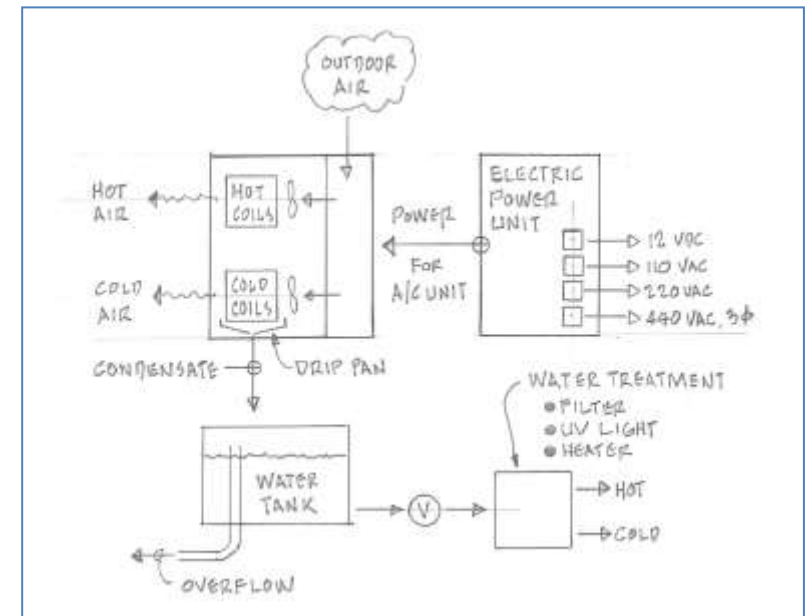
Power outputs 25-50 kilowatts, voltages as noted. Internally powers pumps, fans, UV unit, refrigeration unit, lights.

## Atmospheric water Generation (AWG) Unit

- Atmospheric water is condensed out of the air by a cold surface that is colder than the dew point temperature. Any commercially available refrigeration or air conditioning unit could work in this application.
- Filters, fans, cold coils, and condensate collection pan.

## Water processing unit

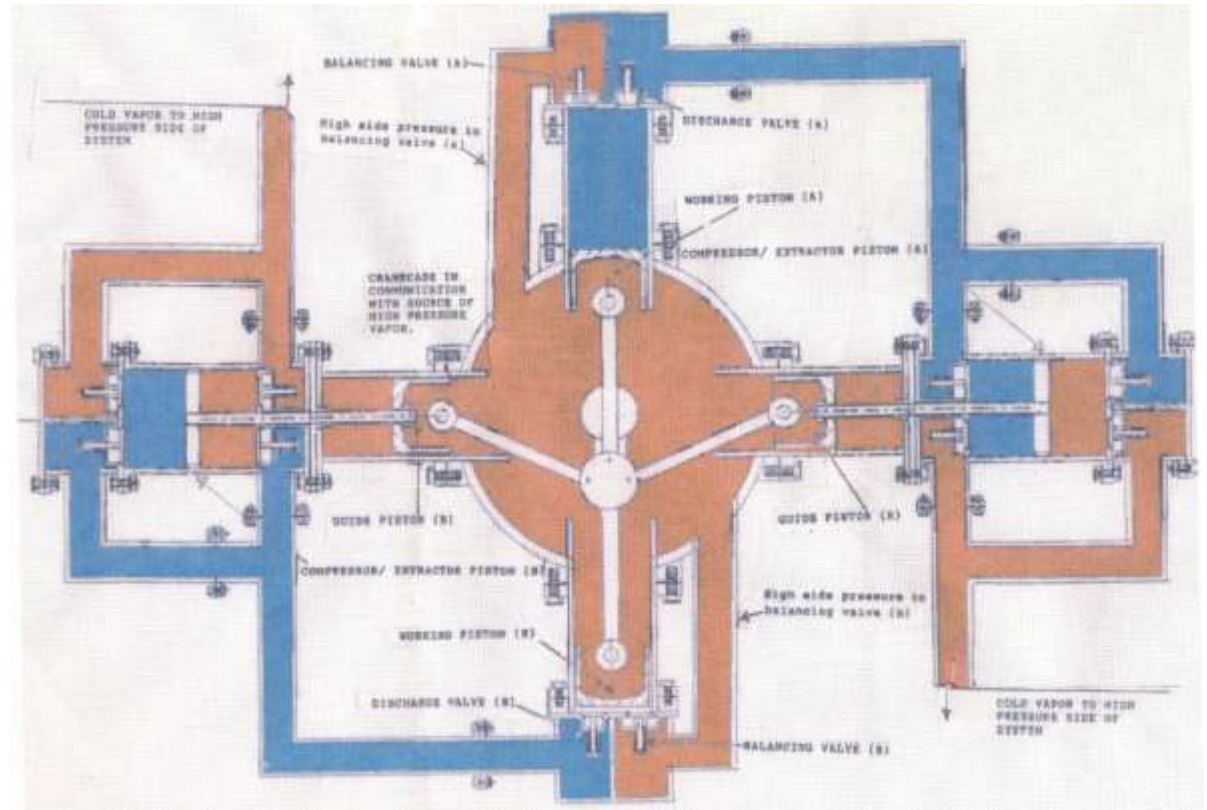
- Agricultural water does not require processing. It flows directly from the condensate collection pan into ponds and reservoirs.
- Potable water is filtered and treated with UV light.
- Hot and cold water is produced for cooking, drinking, washing, etc.



# Environmental Heat Engines

At least four different fuel-less environmental heat engines have been patented. These pollution-free engines absorb ambient heat to expand a working fluid such as Freon or ammonia and push pistons through sealed chambers – resulting in net rotary output power. When energy to make electricity is free, heat pumps can cheaply refrigerate the atmosphere and condense water from low humidity air – an air well. Ken Rauen's superclassical cycle environmental heat engine has U.S. Patent No. 6,698,200 for "Efficiency Thermodynamic Engine". Rauen also invented the Rauen cycle environmental heat engine. Ralph J. Lagow's "Method of Generating Power from a Vapor" has U.S. Patent No. 4,693,087. George Wiseman has invented his Wise cycle environmental heat engine.

Robert Stewart developed his 'Stewart cycle' environmental heat engine (shown) for transportation vehicles, electricity generators, and large-scale water lifters. US Patent 4,033,136 "Vapor Actuated Power Generating Device". Stewart claimed that his fuel-less engine could lift Colorado River water from below Hoover Dam back up into Lake Mead, thereby increasing Hoover Dam's output of electricity. Stewart also proposed lifting water from the Columbia, Mississippi or Missouri rivers via a canal, generating electricity as the water flowed back downhill to the Colorado River.

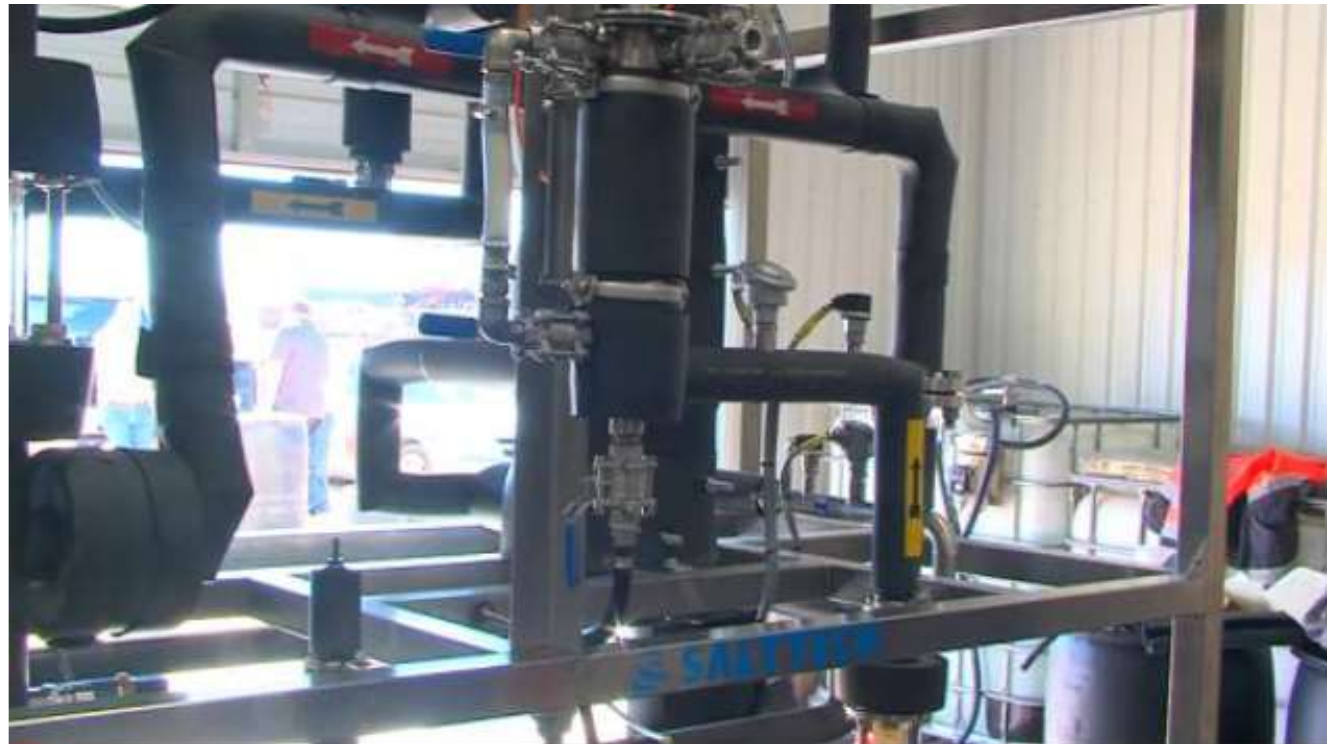




# Dynamic Vapor Recovery with Zero Discharge of Brine

Most ocean water desalination systems produce 35% fresh water at a cost of around \$8 per barrel. A 65% waste stream of highly concentrated brine ends up being discharged into the local waterways and oceans. Salttech's Dynamic Vapor Recovery (DyVaR) system can recover up to 97% clean water from any water containing dissolved salts and other solids and contaminants of up to and over 300,000 parts per million including ocean water. The remaining 3+% is discharged in the form of solid salts and minerals, thus no discharge or disposal problems. No filtration or chemicals are needed to clean the contaminated water.

Individual DyVaR units are non-metallic and will treat 50 liters/hour of saline water (or 7.5 barrels/day) – reaching capacities of up to 1,000's of barrels/day – at a cost of around \$1.50 to \$2 per barrel. The process is highly energy efficient and runs automatically 24/7 without fouling nor scaling.

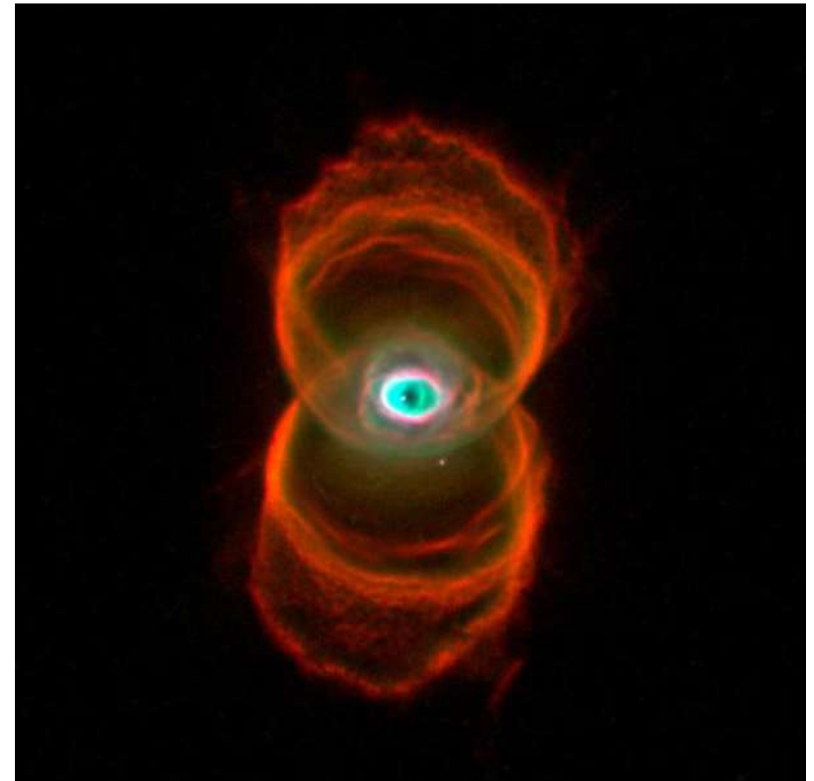


# Researchers Discover Massive Freshwater Reserves under the Ocean

Researchers claim to have found 500,000 cubic kilometers of low-salinity water hidden beneath the seabed on the continental shelves around the globe. The scientists claim that the fresh water has been discovered off Australia, China, North America, and South Africa. According to one of the researchers who discovered the fresh water, the volume of water found is a hundred times greater than the volume of water extracted from the sub-surface of the Earth since 1900.

Previously it was believed that freshwater aquifers under the seafloor only happened under special circumstances. The new research suggests that fresh water is common under the seafloor.

The team says that these massive freshwater reserves were developed over hundreds of thousands of years when the average sea level was much lower than it is now. The freshwater was shielded from the salty ocean water by layers of clay and sediment.



# Solar-Powered Watly Provides Internet, Energy, And Drinking Water For Ghana Residents

Watly is the world's first, and largest, solar-powered computer that uses solar thermal vacuum tube panels to provide clean water, electricity, and Internet connectivity to about 750 people. Measuring at about 131 feet (40 meters) long, this machine can sanitize up to 1,320 gallons (5,000 liters) of water a day, while generating electricity that can be used to charge external devices. Watly is also built with a 3G/4G router that gives people access to the Internet.

The system uses a vapor compression distillation process, can desalinate sea water and get rid of pathogens and pollutants. Photovoltaic panels on top of the machine are used to generate electricity. The excess electricity, stored in a 140-kilowatt-hours internal battery, can be used to charge up gadgets like smartphones, lamps, and laptops. The Watly offers up to 1,640 feet (500 meters) of Wi-Fi connectivity and can send any kind of data, such as texts, videos, and images. Its solar roof includes a drone landing pad and recharger.

Prototypes of the solar-powered machine have been tested in the last three years. The official trial took place in a village in Ghana – earning the company several awards and over \$2 million in funding.



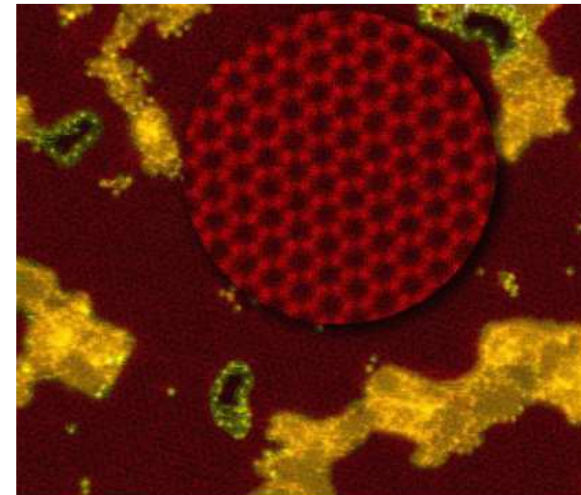
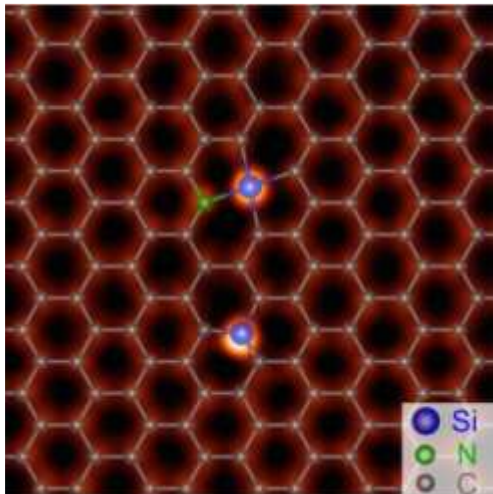


# Graphene Desalination Membrane

Conventional desalination involves a process called reverse osmosis, in which water is forced through a membrane. Despite recent improvements, reverse osmosis still sucks up huge amounts of energy, and part of the problem is the membrane. Conventional membranes are based on polymers (plastics). They tend to get clogged up during the process, and they have to be cleaned regularly.

Oak Ridge National Laboratory scientists seek to replace conventional polymer membranes with graphene. Graphene is a relatively new form of carbon, first discovered in 2004. The left figure is a schematic look at graphene, showing its unique hexagonal structure (the two blue areas show the chemical bonds of impurities in the graphene sheet). The figure to the right shows the red graphene membrane stabilized with yellow silicon atoms. The circular figure is an enlargement to show off the honeycomb structure. Ignore the orange areas — those are residual blotches of a polymer.

The graphene desalination membrane has successfully achieved almost 100 percent rejection of salt ions while allowing water to flow through at a rapid pace. The methane-based fabrication method could be scaled up to a commercial level.



# NanoCeram Water Purification Technology

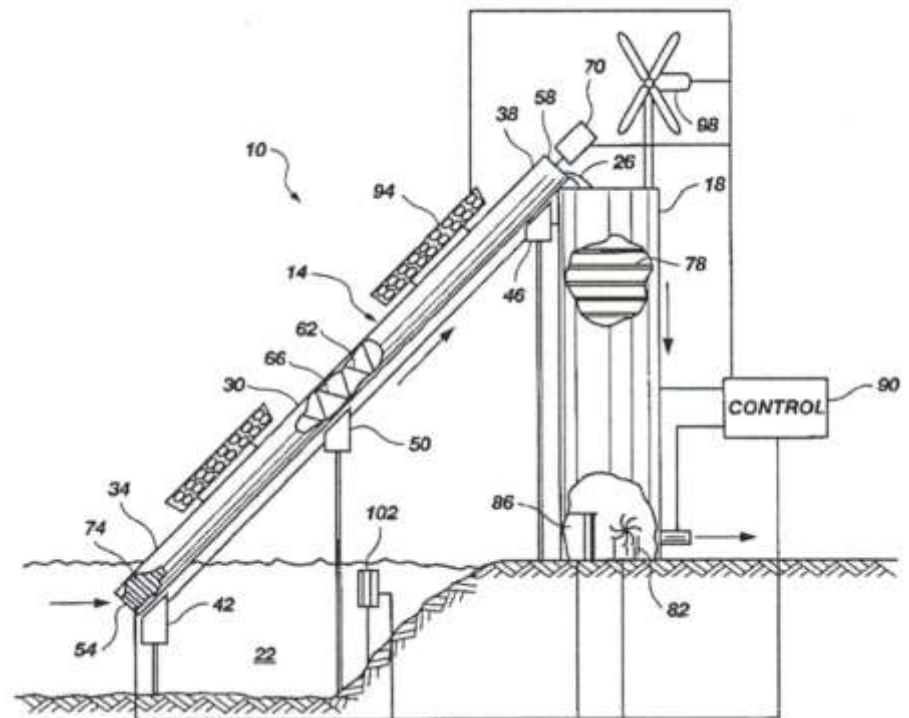
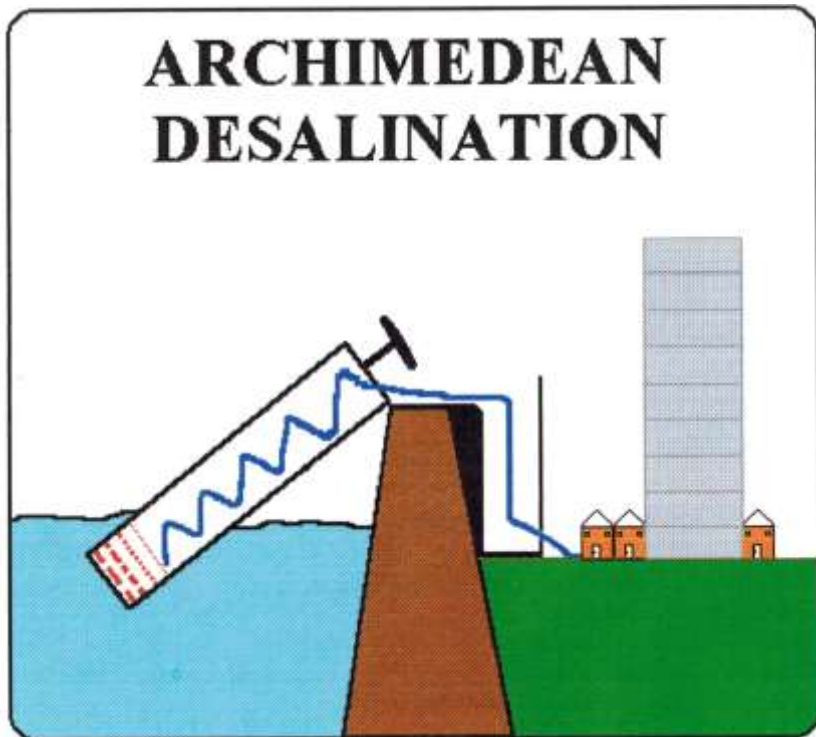
NASA supported the development of NanoCeram water purification technology for purifying water in manned space vehicles. NanoCeram eliminates multiple contaminants, including disease-causing microbes such as cryptosporidium and *E. coli*, while still maintaining a usefully high flow rate.

NanoCeram activates when in contact with water, creating an electro-adsorptive charge field that, in addition to the media's two-micron-wide pores, traps particles as the water is forced through. In a layer less than a millimeter thick, a bacterium would have to navigate through about 400 pores – called the 'tortuous path' – while eluding silver ions in the media that kill microbes.



# Archimedean Desalination

Archimedean desalination may reduce total seawater desalination costs more than 90% compared to conventional desalination. An Archimedean screw elevates water to the top of a vertical shaft. Gravity pulls the elevated water through a series of filters and membranes down through the shaft. Wind and solar power could turn the screw. The pressurized water at the bottom of the shaft could be used to rotate a turbine-generator and distribute water through pipes, canals, etc. Leftover brine can be sold for additional revenue. U.S. Patent 6,083,382. Water Desalination System.





# The Drinkable Book™

The Drinkable Book™ is the first-ever book that provides safe water, sanitation and hygiene education. Each page is implanted with silver or copper nanoparticles that kill bacteria when water passes through them. And each page is printed with a message in your local language; but each page of this book is a paper water filter that will make it safe to drink. The pages are put into a holding device that allows water to pass through. Each filter can be used to purify 100 liters of liquid – meaning each page could last for weeks, and each book could last for about a year.



Each page in the "drinkable book" is printed with instructions in local languages. (Brian Gartside/Courtesy of pAge Drinking Paper)



The pages are put into a holding device that allows water to pass through. (Brian Gartside/Courtesy of pAge Drinking Paper)

# Okeanos WaterChip™

The Okeanos WaterChip™ employs a newly characterized, patent-pending micro-electrochemical process to micro-desalinate, millionths of a liter at a time, with radical energy efficiency. Tiny microstructures are then massively paralleled to produce useful water flows. Operation without extreme hydraulic pressures, massive electrical currents or intense heat sources make for simple, compact installations with small system footprint. No membranes means minimal pretreatment required other than basic sedimentation. Elimination of the need for chemicals, filters, treatment ponds etc. results in massive capital and effective operational savings. Operating expense scales linearly with output rates.

No post treatment is required such as complete disinfection, de-boronation, and heavy metals removal without the use of chemicals, which have to be added and then removed with other technologies in expensive multi-stage processes. Bacteria, viruses and particulates are removed as efficiently as salt, without the use of expensive and cumbersome coagulants or chemicals.

Recent advances in microelectronics fabrication and proprietary designs translate into capital (e.g. system purchase) expenses on par with today's technologies.

# High-Tech Water Treatment

Engineers have developed a reusable bag that, when filled with non-potable water and set in the sun for several hours, activates a specially coated mesh that destroys organic chemicals or pathogens and adsorbs metals. Usable hundreds of times it can produce up to 10 liters of potable water per day. The same light-activated technology can be used to treat contaminants and pathogens present in small surface waters or water storage tanks via the disbursement of floating discs that are coated with the multi-functional technology.





# Desolenator

The patented Desolenator uses only solar power to purify water from any source, including sea water. The Desolenator has a lifespan of up to 20 years and requires very little maintenance; it uses no filters, no membranes, and no pre-treatment chemicals. With no moving parts a Desolenator can provide 15 liters of water daily at a lower cost per liter than any other small water purifier.

The Desolenator is a 120-cm by 90-cm solar panel that converts sunlight into electricity. The heat from the sun warms water to a high temperature. A boiler powered by the electricity produced from the solar panel then boils the now warm water to steam. A tube cools the steam back to clean water. The clean water and brine waste flow out via separate tubes.



# LifeSaver Inline Pump Water Filters

LifeSaver Liberty™ products are portable water filters that are pressurized with a hand pump. This air pressure forces water through the pores of an ultra-filtration cartridge and out through the exit nozzle leaving behind microbiological contamination including viruses, bacteria and cysts. No chemicals or electrical power is required. A unique and patented 'failsafe' technology ensures that the product stops working when the filter needs to be changed – protecting the user. The filter can't remove dissolved salts and metals.

The bottle's interchangeable filter can purify between 1,050 to 1,585 gallons before it stops working and needs to be replaced. The much larger blue LifeSaver Jerrycan can filter 2,650 to 5,300 gallons. The white LifeSaver Cube can hold 5 liters at a time while delivering 5000 liters for family use.



# SunSpring™ – A Solar-Powered Microbiological Water Purifier

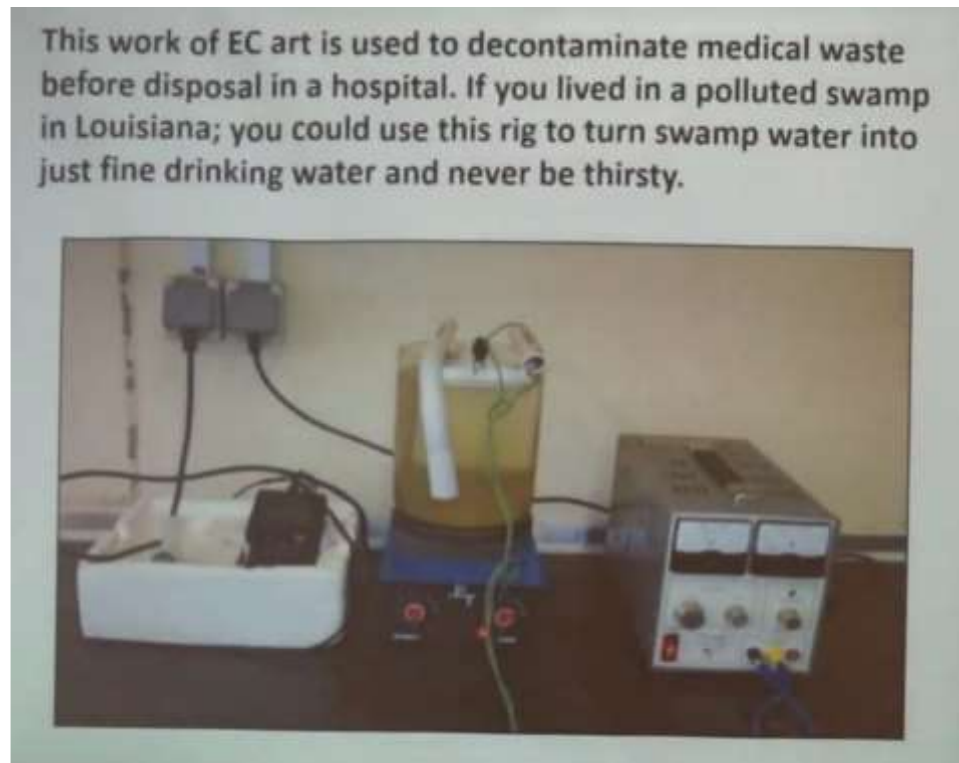
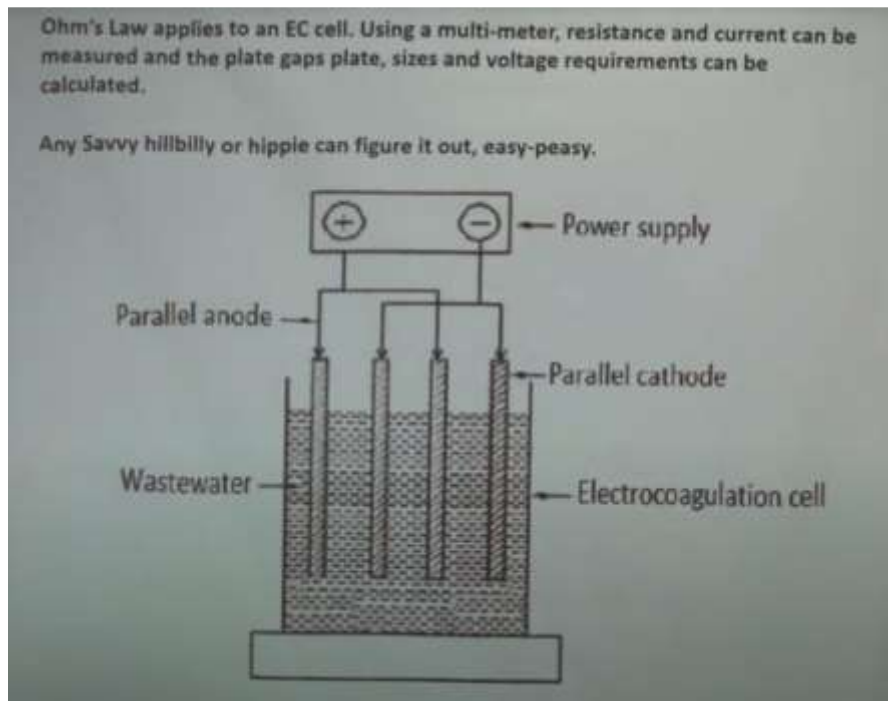
Each SunSpring™ provides 5,000 gallons per day of safe drinking water – enough for villages of 1,000-2,000 families. The SunSpring™ is solar and wind-powered and generates extra energy for the village to use for charging cell phones, lights, Wi-Fi access, etc. The SunSpring™ is WQA Gold Seal Certified to the U.S. EPA Standard for Microbiological Water Purifiers. The SunSpring™ physically removes particulate matter, turbidity, bacteria, viruses and cysts from virtually any water source, including rivers, lakes, streams, ponds, shallow wells, rain water, unsafe municipal supplies and springs. Its ultra-purification technology is self-contained, is designed for community-level water output, and has an automated self-cleaning maintenance system.





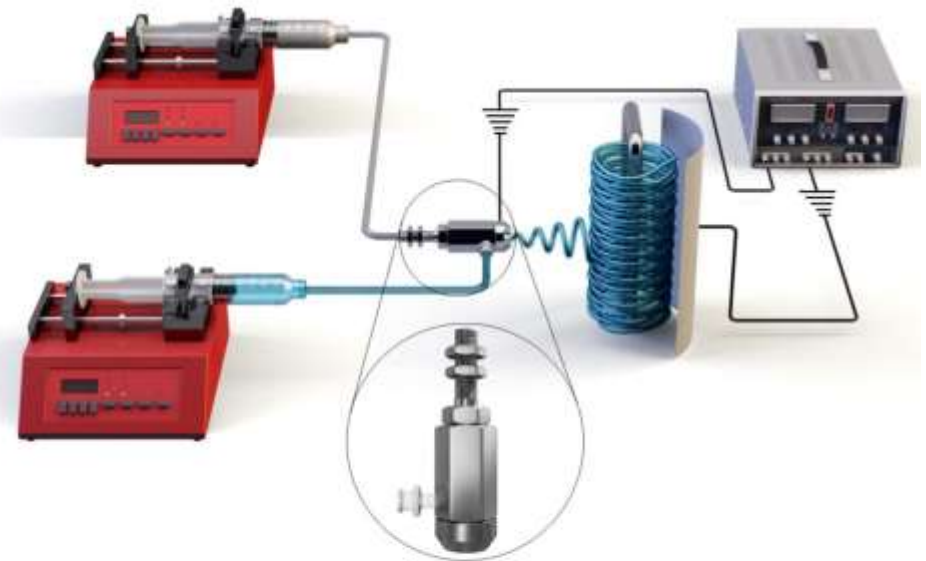
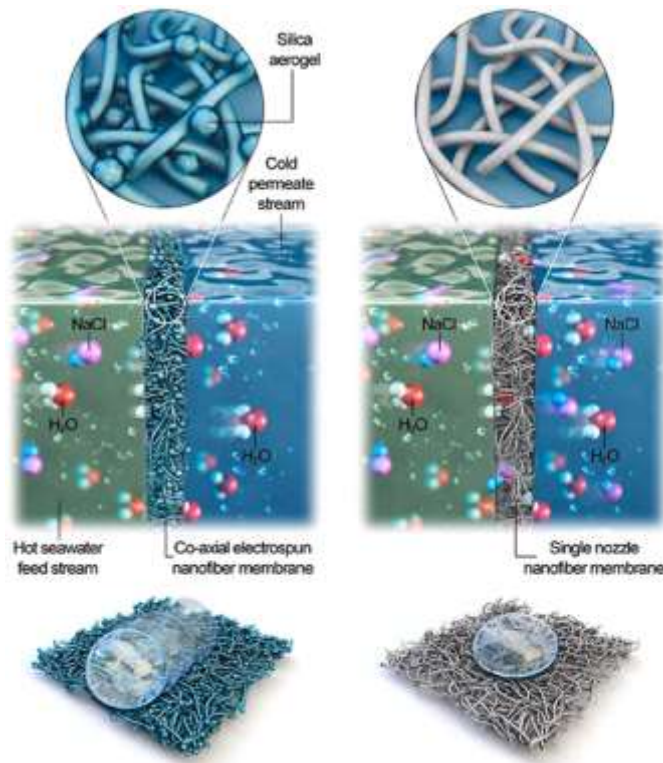
# Electrocoagulation

There are many water purification methods, but there are none that have the speed and effectiveness of electrocoagulation. Even in emergency situations, with a battery and some metal plates, the contaminants can literally be dropped out of the water rapidly with only one-third of the normally required electricity.



# Co-Axial Electrospun Nanofiber Membrane

Membrane desalination works by using pressure to force water through membranes. Co-axial electrospun nanofiber membranes last as long as a month before becoming too wet to work. Co-axial electrospinning allows one-step fabrication of non-woven superhydrophobic composite nanofiber membranes with core-sheath structures and improved wetting resistance. Poly (vinylidene fluoride-co-hexafluoropropylene) is the core and PH/silica aerogel is the sheath. By removing 99.99% of salt, seawater can be drinkable within minutes.



*Schematic of co-axial electrospinning device. (Credit: Elsevier)*

# Atmospheric Water Generator

Genesis Systems, LLC's patented "WaterCube" atmospheric water generator can produce thousands of gallons of water a day with minimal energy. Their demo unit produces 2,000 gallons (7,570 liters) of water a day in a 60% humidity environment, although it may have some limitations in environments under 8% humidity. The process uses condensers, cooling coils and a nanofluid to extract water from the air like a 'sponge', and then a 'tickle' of energy to wring it dry and start all over again. The entire machine and all supporting equipment (minus external power supply) fit comfortably inside a 20-foot shipping container, making it highly portable and usable in nearly all environments. It can be powered by any type of renewable energy or even off of waste heat. There are no pollution nor hazardous bi-products. Off-grid, automated, and sustainable, atmospheric water generators can be scaled from single-family houses up to industrial scale.

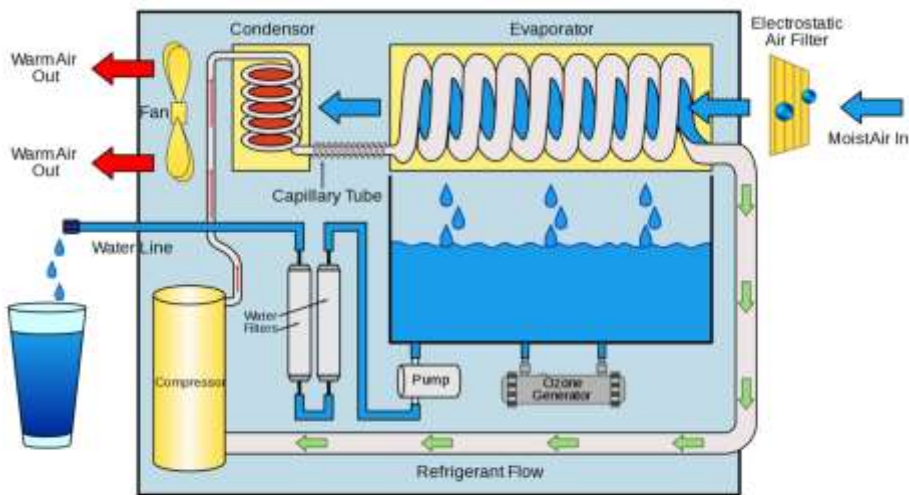


Diagram of an atmospheric water generator process. (Image: Wikimedia Commons)



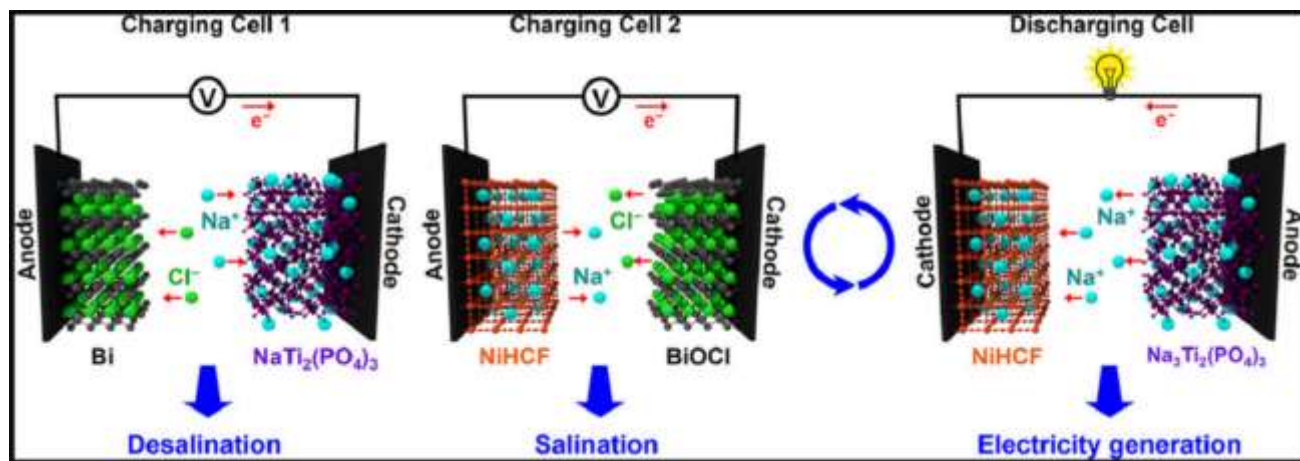
Dr. David Stuckenberg demonstrating the Genesis Systems technology. (Image: Genesis/Tim Ventura)



# Desalination Battery

The aqueous rechargeable sodium-ion desalination battery can store/release energy while operating in seawater. The energy storage and release processes are coupled with the removal and release of sodium and chlorine, enabling energy-efficient, membrane-free desalination. The discharging cell of this system is composed of a sodiated  $\text{NaTi}_2(\text{PO}_4)_3$  electrode and a desodiated nickel hexacyanoferrate (NiHCF) electrode in 0.6 M NaCl, and generates an average output voltage of 1.19 V.

The charging process is achieved in two separate cells that require low input voltages. In the first, a desodiated  $\text{NaTi}_2(\text{PO}_4)_3$  electrode is paired with bismuth (Bi) as a chlorine-storage electrode, and this cell performs desalination during charging. In the second, a sodiated NiHCF electrode is paired with a chlorinated bismuth electrode, and this cell performs salination during charging. As the energy consumed for desalination and salination processes is not truly consumed but rather stored in the system through the charging process, and the majority of the energy stored during charging is recovered during discharging.



# Wave Energy Powered Desalination

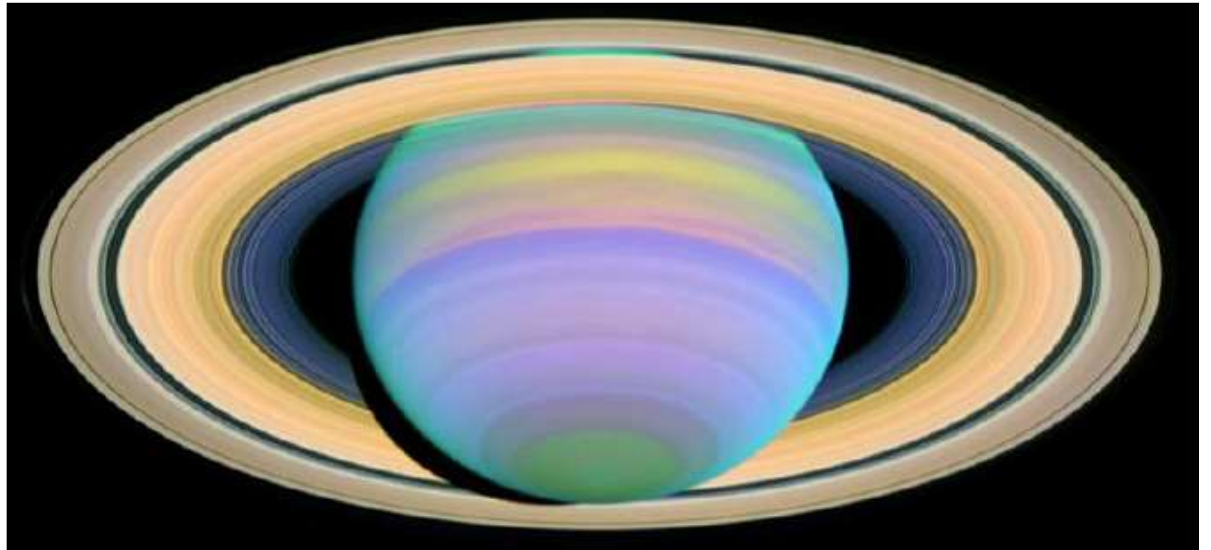
The wave energy powered desalination process can provide coastal areas with a drought-proof supply of fresh water. Desalination buoys are deployed off the coast where the movement of the water activates the process. From there a series of self-cleaning strainers and filters remove salt, bacteria, and other particles from the seawater to produce clean, drinkable water that can be piped to shore for storage and use. Water quality and performance are monitored by solar-powered sensors that provide data in real-time to ensure the water meets or exceeds local water standards.

Constructed with mostly recycled plastics desalination buoys improve upon previous desalination systems by producing no polluting emissions and requiring no dangerous chemicals, electricity, or land use. Mesh filters protect marine life and plants while the brine management system maintains proper salt levels in the surrounding seawater. The buoy anchors can even be used as artificial reefs to help restore damaged underwater ecosystems. The largest model is capable of producing 8,000-13,000 gallons a day, or enough to support up to 1,500 people. A utility-scale desalination model could provide enough clean water for large population centers.

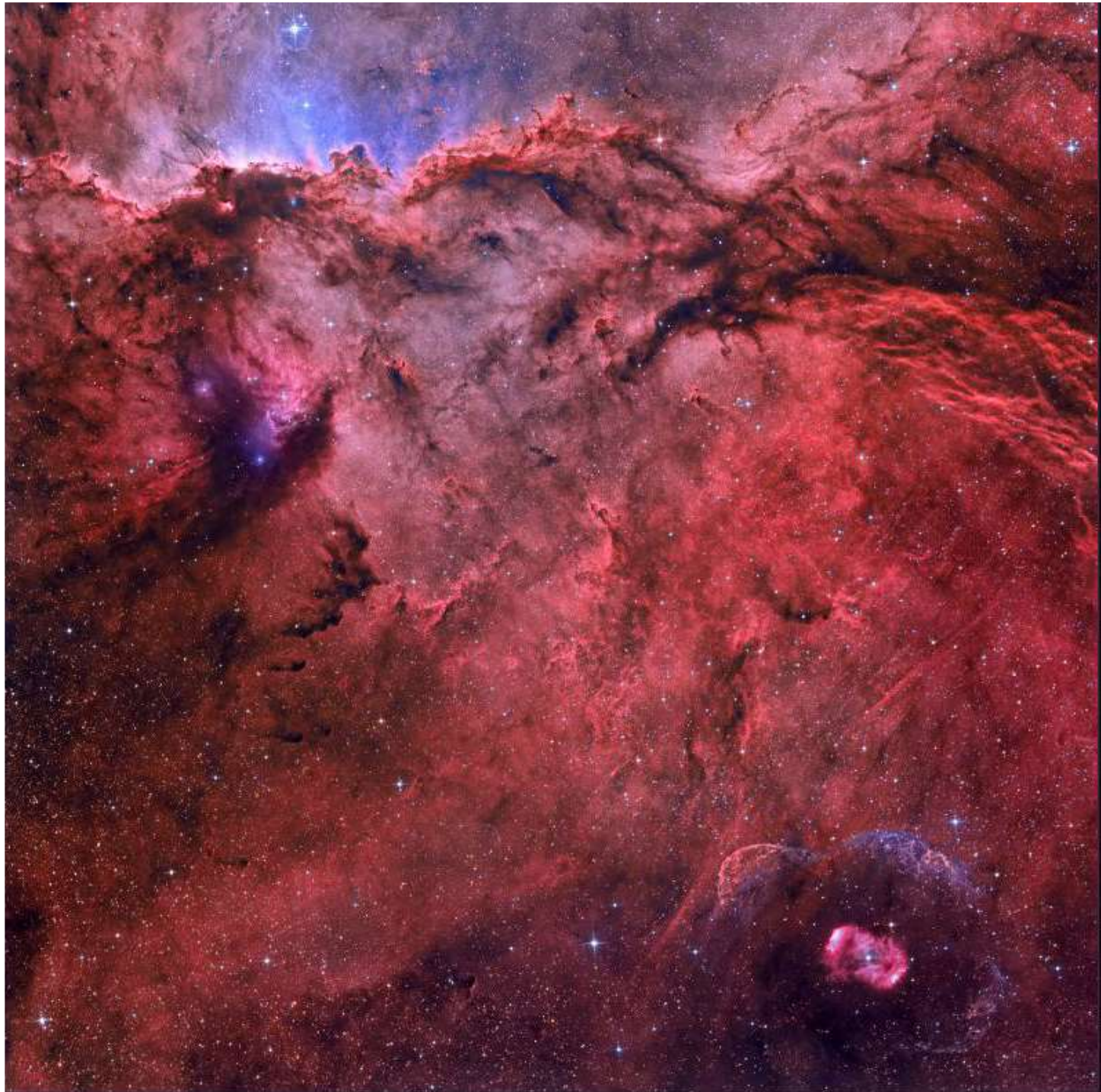


# References:

Three files – 153 pages of “102 Electrical Energy Innovations”, 42 pages of “Stewart Cycle Environmental Heat Engine”, and 69 pages of “Possible Technical Solutions to the Lake Mead Water Shortage” – can be downloaded at [padrak.com/vesperman](http://padrak.com/vesperman) and [commutefaster.com/vesperman.html](http://commutefaster.com/vesperman.html).





















# Overview

The conventional system teaches a semester of subject matter in serial sequence. The torsion field school network breaks up semester courses into pieces small enough so that all of these pieces can be taught in parallel all year long without seasonal constraints. In other words, the archaic conventional system turns out to be merely a small-scale, static version of the full-scale, dynamic version of the torsion field school network.

One dozen to four dozen schools are to be linked into a single network. The school network's three-layer computer system would comprise of a network coordinating and scheduling computer as the top layer, an administrative computer in each school as the middle layer, and personal computers as the bottom layer. The network's customized software would include network management and coordinating functions, two layers of software for the teachers to support 100 different functions, and 25 different functions for the students, only one of which is computer-assisted instruction. Each student's personal computer would have a monitor capable of also displaying televised or recorded classes.

Schools normally do not contain enough students to enable the new system to operate economically. High-performance torsion field communications and video equipment will link a number of schools into a single network large enough to achieve the required scale. To cope with the massive bookkeeping, new and efficient management techniques will be coupled with the marvelous computing machinery that is now available. Careful equipment configuring and reliable software should enable the synthesis of a smooth-running, modern educational system.



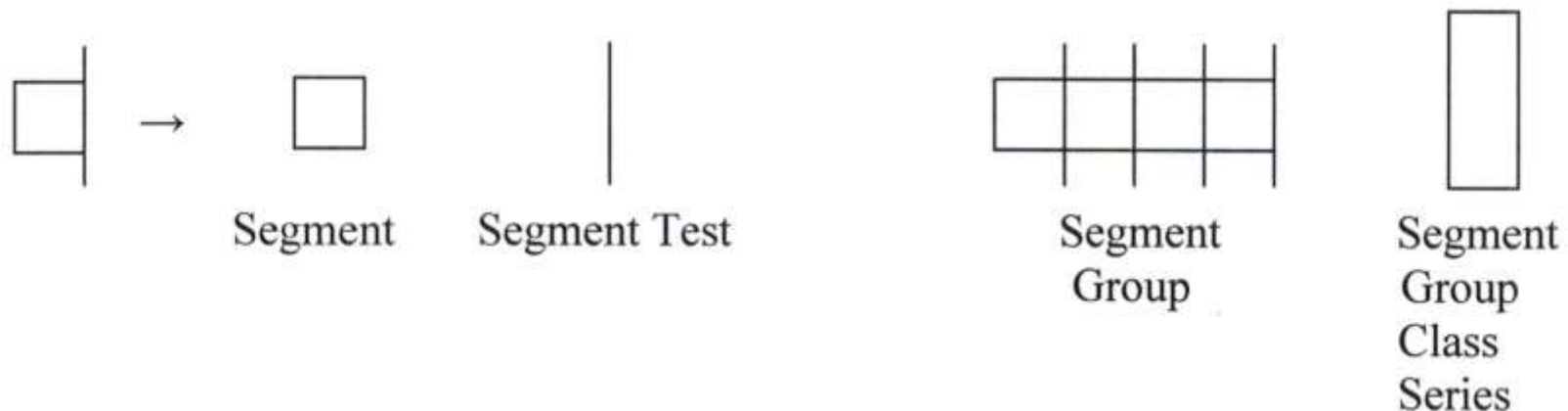
# Segment and Segment Test

A segment is the amount of subject matter covered in a week with a conventional course. After a student studies a segment, he/she is given a short segment test. If he/she does well, he/she may advance to the next segment in the course. If not, the student reviews and attempts to pass another test on the same segment.

The segment test allows the student to demonstrate his/her mastery of the material and to move on to the next segment without waiting for other students or his/her instructor. The segment test should also be a helpful homework supplement.

Most of the segment tests would be given and graded by the controlling software via a remote terminal. A few segment tests would be given and graded manually. In addition, one oral segment test could optionally be given on a key segment in the latter part of each course.

Segment tests may be given at any time. Segment test grades would NOT be recorded; but the fact that a student has successfully passed a segment test would become an input datum for several different software routines periodically processed by an electronic data processing system.

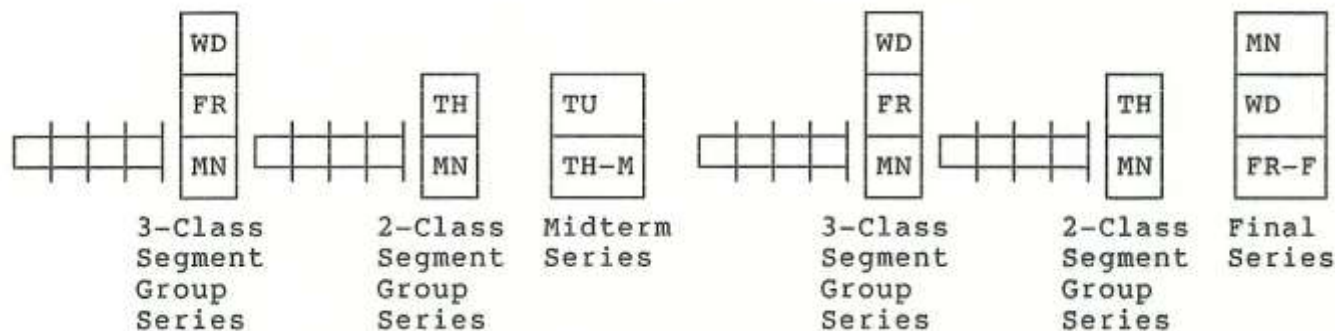


# Diagram of a Simplified Segmented Course

The diagram is of a simplified segmented course. Each box represents a segment, and each vertical line on the right side of a box represents a segment test. A segment group would usually consist of three or four segments. There may be as few as one segment in a segment group. Following each segment group, one or more segment group class series are held. A segment group class series consists of two or three small classes. The series consisting of two classes would be held on Thursday and Monday. The series consisting of three classes would be held on Wednesday, Friday and Monday.

Each series would be selected for machine scheduling no less often than once every several weeks. A large enough network of schools should be able to economically allow selection of each type of series at least once a week.

After one to several segment groups, either a midterm or a final series would be held. A midterm series would consist of one relatively large lecture and either another lecture or a one-hour examination. A final series would consist of two large lectures and either a third lecture or a final examination. Examination grades would be recorded. They would be unique and usually not graded by computer.

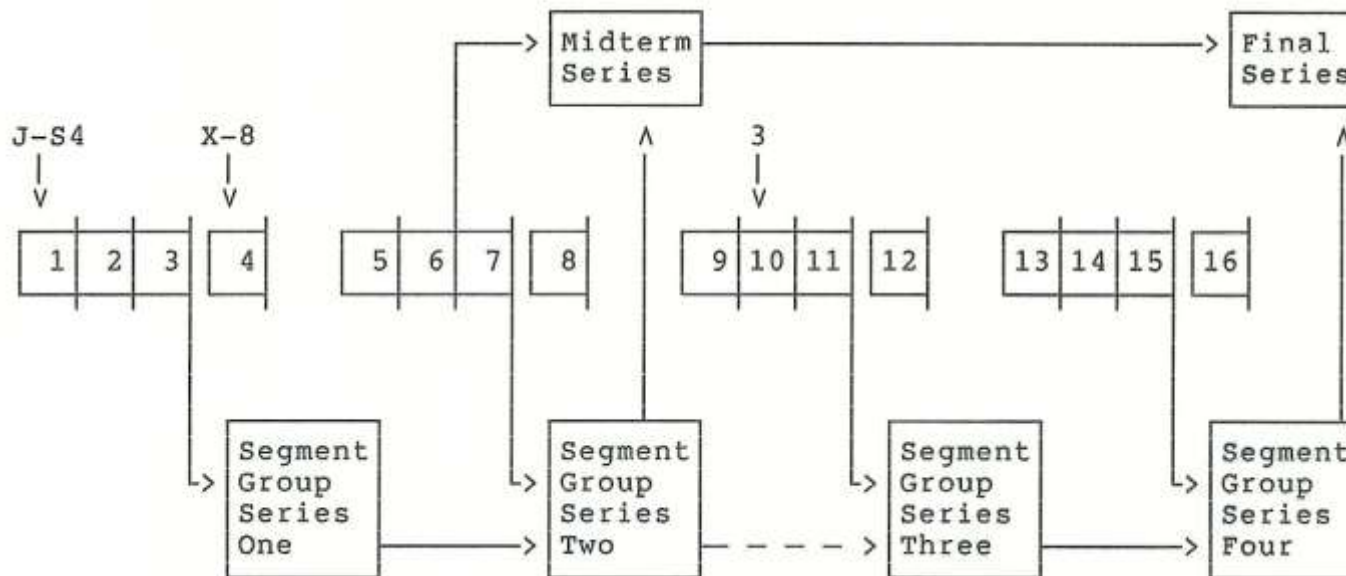


# Series Prerequisite Chart

The midterm series and the final series would be selected for scheduling not as often as segment group class series. The duration of the midterm and final series would be no longer than a week. The sequence of the various pieces shown in the diagram of a simplified segmented course follows the subject matter contained in the course. But the sequence is NOT necessarily chronological.

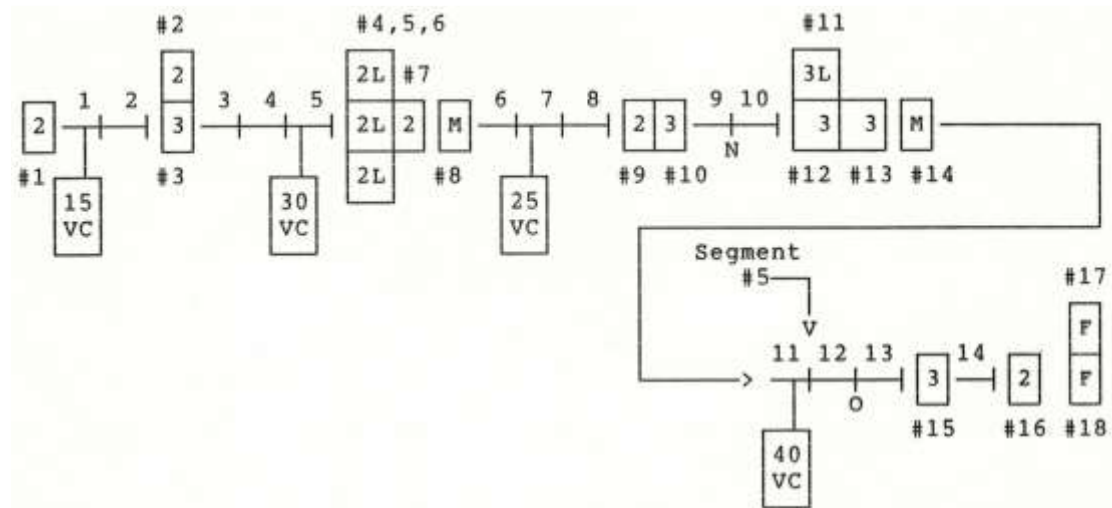
The chart shows one set of prerequisites for each of the series in the simplified segmented course. It is followed by the processor when it is determining the eligibility of students for the various segment group class and lecture-plus-examination series in the course.

Segment group class series #2 would always be scheduled a half-week before the midterm series. Likewise, segment group class series #4 would also always be scheduled before the final series. Because of class size differences, all segment group class series would be selected for scheduling more often than the midterm and final series.





# Possible Segmented Course Variations



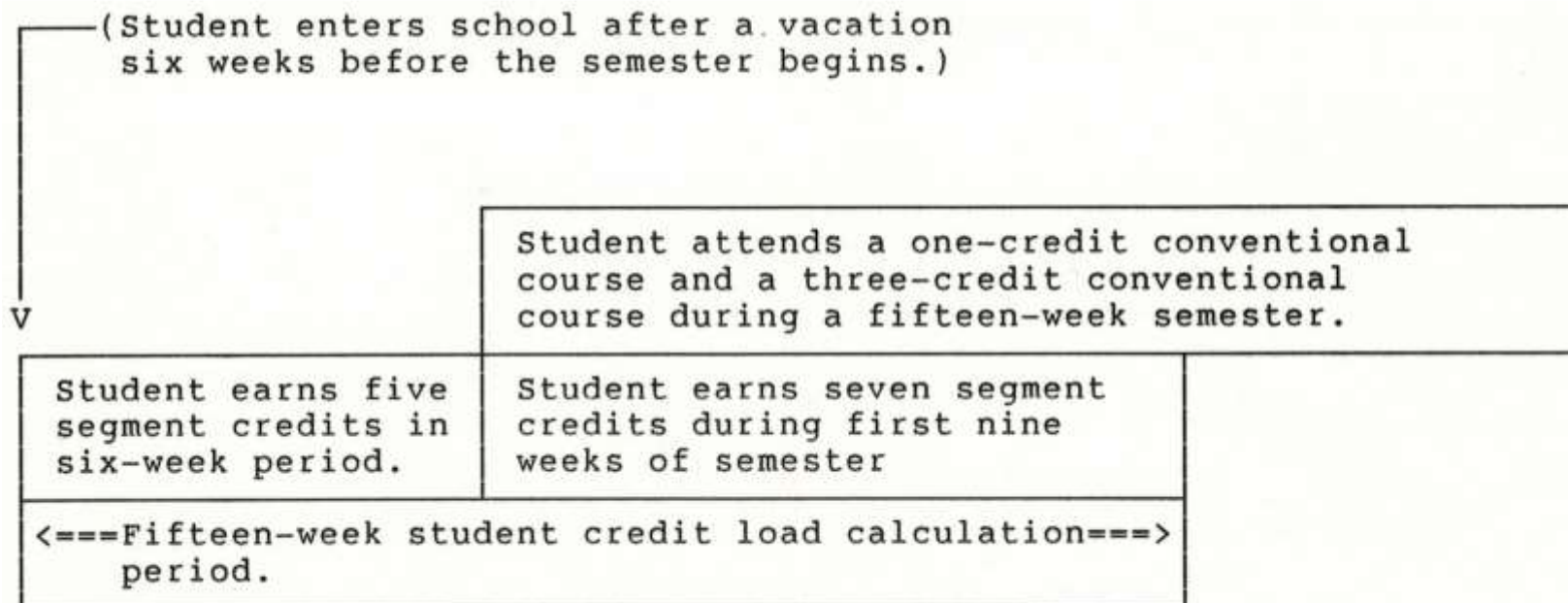
## Legend:

—	==>	Segment with Segment Test	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>2</td><td>3</td></tr></table>	2	3	==>	2-Class Segment Group Series in Week Before 3-Class Segment Group Series (Horizontal Stack)		
2	3								
<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>2</td></tr></table>	2	==>	2-Class Segment Group Series						
2									
<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>3</td></tr></table>	3	==>	3-Class Segment Group Series						
3									
<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>2L</td></tr></table>	2L	==>	2-Class Laboratory Segment Group Series	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>2</td></tr><tr><td>3</td></tr></table>	2	3	==>	2-Class Segment Group Series in Same Week with 3-Class Segment Group Series (Vertical Stack)	
2L									
2									
3									
<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>M</td></tr></table>	M	==>	Midterm Series	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>2L</td></tr><tr><td>2L 2</td></tr><tr><td>2L</td></tr></table>	2L	2L 2	2L	==>	Two Three-Hour Labs in Week Before 2-Class Segment Group Series (Vertical/Horizontal Stack)
M									
2L									
2L 2									
2L									
<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>F</td></tr></table>	F	==>	Final Series						
F									
—  N	==>	Segment with Non-Computer-Graded Segment Test	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>15</td></tr><tr><td>VC</td></tr></table>	15	VC	==>	15-Minute Lesson Prerecorded on Video Cassette		
15									
VC									
—  O	==>	Segment with Oral Segment Test							

# Student Credit Load Calculation

Credit load units would be a quantitative measure with which the controlling software could determine each and every week whether students should be placed on probation for not carrying a minimum academic load. The credit load unit for each of the segments in a segmented course would, on the average, be equal to the number of credits at which the course is rated divided by the number of segments contained in the course.

Calculating the credit load a student has carried during a specified number of weeks would take into consideration the amount of work accomplished in both his/her segmented and conventional courses. If a student's load was calculated for a semester or quarter, his/her load would be the sum of the number of credits earned by passing conventional courses and the credit load units earned by passing segment tests. The figure illustrates a student credit load calculation example.



# Series Selecting

The series scheduling procedure would consist of two basic steps: The first step would be to determine whether each series should be selected for computerized scheduling. The second step would be the actual scheduling. The entire procedure would be reinitialized every Thursday night. It would end two and one-half weeks later with the holding of the last classes and examinations of series that had been selected and then scheduled.

The procedure would begin with the computation of the series-selecting queues. Weekly progress reports would be prepared for distribution to the instructors monitoring each segmented course. Some of the series are then selected for scheduling by both the course monitors and the computer. The controlling software optimizes a schedule, which is then published.

Five types of series-selecting queues (with quotas) are recommended. The first two are simple; the number of weeks elapsed since a series was last held, and the number of students that have satisfied the prerequisites for each series. The prerequisites for a series are a segment for which a segment test has been passed, and one or more preceding series in the course series sequence which the student either has previously attended, or is presently attending as scheduled the previous week.

The third type of series-selecting queue (with quota) would be a composite of the number of students that have satisfied the prerequisites of a series, and the number of weeks each student has been eligible. When the controlling software is evaluating the possible selection of a series for computerized scheduling, a student that has been eligible to attend a series for three weeks, for example, should be given the same weight as three students that have been eligible for one week.



# Segmented Course Weekly Progress Reports

After the series-selecting queues have been calculated, the controlling software would prepare a weekly progress report for each segmented course. On Friday, the segmented course's monitor (a teacher assigned to monitoring the segmented course) would display the current report on a terminal. Temporary adjustments of series-selecting quotas could then be made. With such a report on the current status of the students and the series, the monitor could supplement computerized series-selection with human judgment.

When selecting a series for computerized scheduling the following weekend, the monitor would temporarily reduce one of the series-selecting quotas below its present queue. To postpone a series, the monitor would either temporarily increase all series-selecting quotas for the series, or directly select the series for scheduling.

The segmented course's monitor could also suggest future dates for holding series so that students could pace their studies accordingly. Current weekly progress reports would always be available to students to facilitate their course-work planning.

While all series would be selected by the controlling software for scheduling on the basis of pre-set series-selecting quotas, segmented course monitors would have the privilege of overriding the controlling software on the basis of weekly progress reports, personal requests from students and lecturers, or other considerations such as holidays.

# Example of a Segmented Course Weekly Progress Report

If the first segment has been closed by the pacing procedure, include the number of students who have registered their intent to attend the course with their academic advisor's consent. The students who have passed the segment test for each segment or are studying the first segment in the course should be included.

## Example:

<b>Segment Number</b>	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<b>Number of Students</b>	3	8	0	4	5	8	3	1	9	2	6	10	8	5	5	21

The students that are eligible for each segmented-group class series should be included. They would be all the students that have passed a segment test for a particular segment, usually the next-to-last segment in a group, and those students who did not attend the series when it was last held.

# Series Eligibility Table

Each series of smaller segment group classes or larger lectures with examinations would have its own eligibility table.

Example:

## Series Eligibility Table

---

One week      Number of students who have been eligible for the series for no more than one week.

Two weeks     Number of students who have been eligible for the series for no more than two weeks.

And so forth....

The segmented course's weekly progress report would include the numbers of students eligible for the midterm and final series. These numbers would include students that did not attend the series when they were last held. Also included would be eligibility tables similar to the segmented-group class series tables except that eligibility requirements would be more elaborate for the midterm and final series.



# Example of Series Eligibility Tables

Example:

Segment Group 1*	Segment Group 2	Other Midterm Series*	Segmented Groups	Final Series
1 – 3	1 – 6	1 – 42		1 – 37
2 – 6	2 – 4	2 – 19		2 – 23
3 – 3	3 – 5	3 – 8		3 – 14
5 – 2	10 – 1	4 – 21		
6 – 4		5 – 13		
		6 – 5		
		12 – 2		

\* One of the series-selecting queues exceeds its corresponding quota.

The first number in the pairs shown above is the number of weeks the students have been eligible for the series. The second number indicates the number of students that have been eligible that number of weeks. Unless it is overridden by a course monitor, the controlling software would include the series in the list of series to be scheduled.

The weekly progress report would include the current total series-selecting queues and quotas for each series in the segmented course. Queues and quotas would also be displayed for each school in the torsion field school network.

# Series Scheduling Schedule

The schedule is shown for selecting, scheduling, and publicizing segmented course series of classes, collecting series attendance reports, the normal weekday for each class of each type of series, and an examination schedule. The schedule is initialized every week. It begins in the first week with recording of lists of students not attending the first session of the each series that had been previously scheduled. These lists would also include the names of students that had attended and become eligible to attend by passing a segment test after the schedule had been published. These lists would be considered when the series-selecting queues are calculated.

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
First Week	First Sessions of Previously Scheduled Series Generate Lists of Non-Attending Scheduled Students and Lists of Eligible Attending Unscheduled Students				Course Monitors Review Reports; Select Some Series	Final Selection of Series; Schedules of Classes and Examinations
					-----   Compute Queues;   Prepare Reports	
Second Week	Class and Examination Schedules Distributed and/or Displayed on Terminals		First Class of 3-Class Segment Group Series	First Class of 2-Class Segment Group Series	Second Class of 3-Class Segment Group Series	
Third Week	Second Class of 2-Class Segment Group Series	Third Class of 3-Class Segment Group Series				
	----- First Lecture of Final Series	----- First Lecture of Midterm Series	Second Lecture of Final Series	Second Lecture/Exam of Midterm Series	Third Lecture/Exam of Final Series	

# **PACING GROUPS OF STUDENTS THROUGH UNPOPULAR COURSES**

Whenever a segmented course's economics dictate pacing groups of students through the course, students would be aperiodically denied admission to the course.

Whenever a segmented course is opened after enough students have registered for it, all of the course's segment tests would be re-entered in the repertory of segment tests by the segmented course's monitor. The monitor may or may not enter the series-selecting quotas.

Every few weeks, the first segment in the segment-group following the last closed segment-group in the course would have its segment test removed from the repertory. This would be done at the discretion of the course monitor who would monitor the progress of the students being paced through the weekly progress reports.

Tentative dates, and possibly reserved class periods, would be set by the segmented course's monitor and publicized. Two middle series could be tentatively scheduled two or three weeks apart two months after opening day. Likewise, two overview series could be tentatively scheduled three or four weeks apart three or four months after opening day. Such an arrangement would facilitate two different rates of progress for the students to ensure maximum understanding by learning at the optimum rate and to compensate for possible contingencies.

The student pacing procedure would be useful also when making a major revision of a course's subject matter.

# CRITICAL PATH METHOD

The structure of the segmented course evolved from a study of network planning, e.g., PERT/TIME (Program Evaluation and Review Technique – a management method of controlling and analyzing an engineering or construction program using periodic time reports to determine labor status at any given time). Another project management aid is the Critical Path Method. Perhaps the Critical Path Method could also be modified for more versatile educational administration.

Assume that a large university had converted to segmented courses in computer science, mathematics, biochemistry, engineering, neurophysiology, etc. Under conventional educational methods, students ordinarily choose courses to satisfy a major, take some elective courses, and receive their diploma after four years or so in college.

But there is also a need for graduates who are expert in several different fields. Unfortunately, the inflexible nature of the conventional college curriculum makes it almost impossible for one person to acquire, in a reasonable amount of time, such a broadly-based competence. If such a university were to modularize its courses by segmenting them and placing them under a computerized segmented course management system, it may be possible to combine bits and pieces of segmented and conventional courses into curricula that could train such people in a reasonable amount of time.

The key to efficient administration of such curricula seems to lie in a modification of the Critical Path Method. A committee of outside consultants from government and industry, as well as professors from the various departments involved, could outline an interdisciplinary critical path curriculum. Such a curriculum would contain all and only such material considered absolutely necessary for a reasonable degree of relevant competence in the several disciplines. A torsion field-connected network of universities and colleges would allow offering a much larger selection of course segments to choose from when assembling critical path subnetworks.



# Critical Path Sub-Networks

Another way of thinking about the segmented course is to consider it as if it were a standard linear sub-network of segments and series. Suppose a group of segmented courses, or standard sub-networks, is made available for use by students interested in following an interdisciplinary critical path curriculum. Since time is valuable, they should study only those parts of segmented courses that are likely to be helpful and relevant.

These segmented courses could be re-organized as CRITICAL PATH sub-NETWORKS (CRIPANETs). For example, if part of a CRIPANET should consist of a segment-group (including the corresponding segment-group series) offered as part of a segmented course, the critical path students could meet as a separate group during the series and take a one-hour final examination on the course's segment-group plus the remaining material in the CRIPANET. Other patterns in which a CRIPANET could be organized are as follows:

- A simple CRIPANET comprising of the first portion of a segmented course plus the midterm series.
- The first segment-group in a segmented course, a pair of special segments, a CRIPANET series of two lectures, and a final examination on the CRIPANET. The final examination would count 80% of the CRIPANET grade.
- An introductory special segment, a segment-group from a segmented course, another special segment, an oral segment test, and a CRIPANET series.
- A specially written group of segments, a one-hour panel discussion by some of the critical path curriculum professors, and a CRIPANET series.
- Three weeks of lectures in a conventional course and a final examination.

# Student Interest Groups

A solution to the problem of too many anonymous televised series of classes may be for the students to form 'student interest groups' who will try to remain a group for at least part of the course. Each student interest group would be defending itself against the attrition due to vacations, illness, and televised class series. Student interest group members could optionally formalize their relationship by adopting a name such as 'Eagles', 'Easy Street Sweepers', or 'Parity Errors'. The membership of the student interest group would probably be somewhat fluid.

A 'Weekly Student Interest Group Report', accessible at any terminal at any time, would enable student members to keep track of themselves. These reports would include the identification of the student interest group, the faculty advisor, the elected leader, a roster of members, a schedule of future series, social events, etc.

One important sociological consequence of replacing the conventional system with segmented courses is that students would not have any distinct group, particularly 'grades', to identify with, and, especially in the larger schools, would have increased difficulty in forming friendships since they would be part of a swirling mob with each student pursuing his/her own destiny. By forming student interest groups, students could try to cover more than one course together, and could adjust their work pace in courses not included in the student interest group list so slower members could keep up.

If a student didn't feel compatible with the student interest group he/she was in, he/she could speed-up or slow-down his/her pace to align himself/herself with a student interest group with which he/she felt more at ease. Student interest groups would be able to schedule themselves for short vacations, bus trips to ski slopes, beaches, or the mountains since they could take vacations whenever they wish. Student members not so inclined would simply switch to another student interest group which would more nearly reflect their work ethic.

# Advantages of Student Interest Groups

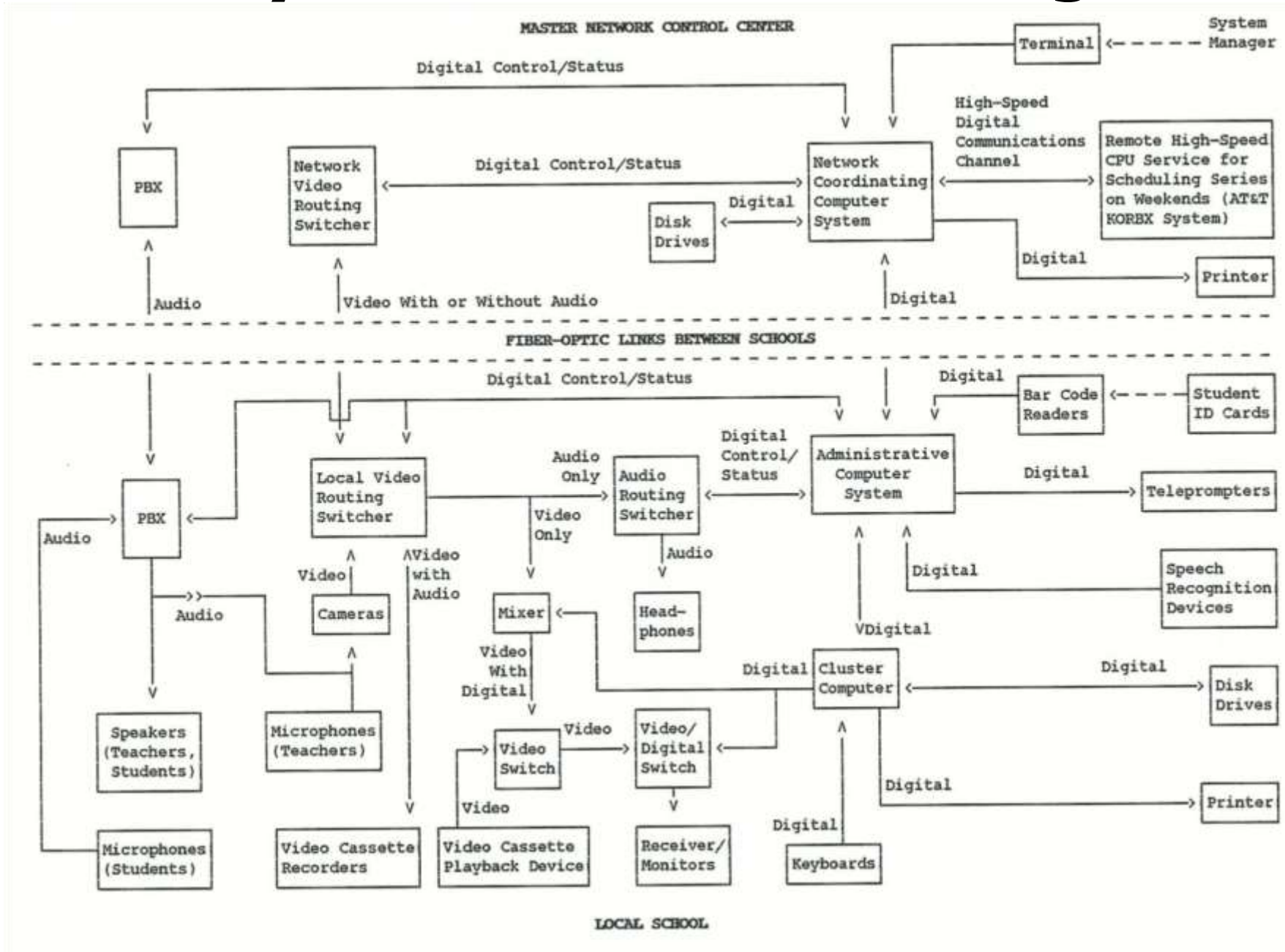
Forming student interest groups should be encouraged for economic reasons as well as the sociological benefit of the students. At the same time, we don't want to come full-circle and return to the disadvantages of the inflexible conventional system. A good time for a ceremonial party would be when all members of the student interest group have completed their degree requirements, and this could occur any time of the school year. This party, which could be scheduled in conjunction with others, should be an acceptable substitute for the conventional graduation ceremony. Instead of class reunions, there could be student interest group reunions.

Series containing competitive examinations, laboratory sessions, or other special requirements, would need the elaborate series-selecting procedures much more than segment-group series. Segment-group series requirements could often easily be satisfied with television series.

If the schools in a network have enrollments in a segmented course that are all about the same size, they will on the average all have an equal chance at holding live series. But if some of the schools have enrollments four or five times larger, for example, than the smaller schools, they will probably dominate the local classes. The smaller schools will then have to give greater emphasis to forming student interest groups than usual in order to hold local classes at least occasionally.

In a really large school network, series could be multiple-scheduled each week. If a student were faced with a long wait for a scheduled local series after passing a segment test, he/she might choose to apply for scheduling in a television series. If a television series is available and has an opening, he/she would be scheduled. If no opening exists, he/she would be placed into the series queue.

# Overall System Hardware Configuration

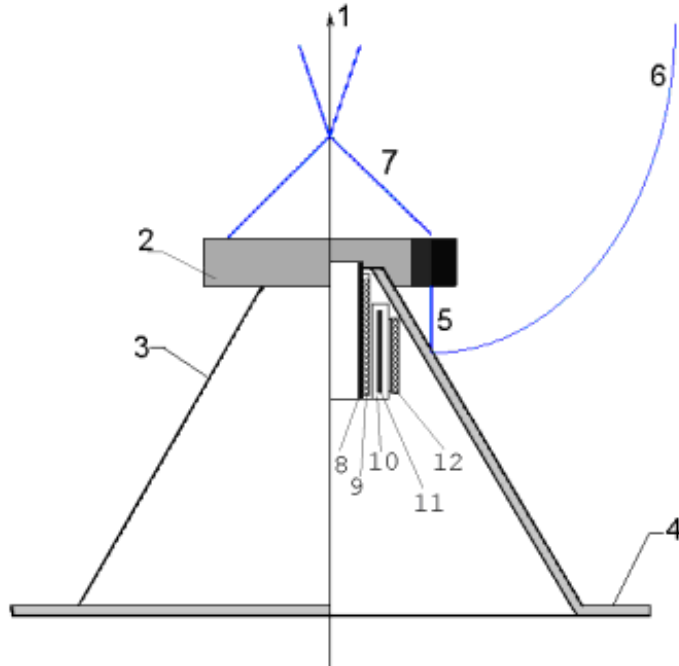




# Internet Plus

## Torsion Field Communications can Link Schools into a Single Network

The Internet offers unlimited capability to link together a school network with wideband data, audio and video channels. The theoretical maximum capacity of torsion field communications is apparently 40 billion channels of holographic television through the entire earth without attenuation at a speed of one billion times the speed of light. Torsion field communications is made possible with special crystalline lattice cells. Torsion field communications, with components only the size of coins or less, may eventually displace all forms of electronic communications including telephones, television, radio, fiber optic cable, microwave, and communications satellites, plus the entire Internet backbone.



Prototype Torsion Field Generator

# Master Network Control Center

The master network control center would provide the following services:

- Switch audio channels between the schools.
- Switch video channels between the schools.
- Switch digital channels between the schools.
- Switch audio, video, and digital channels within the school where the control room is located.
- Allocate capital equipment, such as video cameras and laboratory equipment, and schedule transfers of shared equipment between schools.
- For scheduling series, either link with an outside service center computer or house a local large-scale computer.
- Prepare, load, and validate segment tests.
- Train course monitors and instructors how to interact with the system.
- Select, prepare, and load course materials into the system. The instructors in the different schools would be encouraged to participate in this, but they would be governed by standards for each segmented course. There may be some provisions for exceptions to standardization, however, in local options.
- System software would provide the resident System Manager access to the entire network – including the computer-controlled switching equipment and the computerized class scheduling hardware and software.

# Teacher Input/Output Functions

Approximately 100 input/output functions, categorized as follows, would be performed by teachers, student counselors, segmented course monitors, and other staff members at computer terminals

- Segmented and conventional course registration
- Segment tests
- Credit load unit adjustment
- Segmented course structure
- Series selecting
- Series scheduling
- Student interest group management
- Video and audio channels assignments
- Student access disable
- Student status reports
- Weekly teacher supervision reports

# Student Input/Output Functions

Approximately 25 input/output functions, categorized as follows, would be performed by students at computer terminals. Immature students would be blocked from access to the more complicated student I/O functions unless they are being assisted by a teacher, a teacher's assistant, or a more mature student.

- Language choice
- Computer-assisted instruction
- Segment tests
- Student interest groups
- Schedules of week-long series of classes and examinations
- Video
- Credit load units
- Student status reports
- Network's electronic bulletin board



# Superlearning

Normally, the human brain is constantly bombarded with new signals from the five senses. To prevent itself from being overwhelmed, the brain employs a filter known as the Reticular Activating System (RAS). The RAS sorts out the deluge of signals, passes through signals that are at least vaguely familiar, and *blocks new information*.

Superlearning is a technique for bypassing the RAS. There are three aspects of superlearning – special music, deep breathing, and presentation of the material to be learned. The music is of the ‘baroque’ style at exactly 60 beats per minute. Out of over 25,000 compositions which have been tested, only 24 have the desired effect.

The deep, rhythmic breathing, which takes a little practice, is done in 8-second cycles – 4 seconds of inhaling, 4 seconds of holding, 4 seconds of exhaling, and 4 seconds of holding. Combined with the music, the body relaxes, bringing the heartbeat down to 60 beats per minute and dropping the brain waves down to 7 cycles per second (the borderline between alpha and theta). It is at this point that optimum learning occurs. The RAS is ‘bypassed’, and the filters that prevent new information from entering memory no longer function.

In the Bulgarian studies of superlearning, over 500 words of a foreign language per day were introduced. After 3 months, the learners were tested and found to retain 96% of the vocabulary.

# Crime, Substance Abuse, and Birth Defects

In 1996, 10,510 crimes in Atlantic City, New Jersey were reported. Of that total, the number of crimes that had occurred on the floors of the city's 12 casino hotels was 5,705 (Las Vegas Review-Journal December 22, 1997). Fortunately, once the root cause of crime and substance abuse is understood, a substantial reduction in social misbehavior could be surprisingly simple and inexpensive to achieve and require only moderate organizing. A relatively crime-free resort area should offer competitive advantages.

The book "RARE EARTHS: Forbidden Cures" claims that mineral deficiencies in food cause crime and substance abuse in addition to medical problems. The U.S. Department of Agriculture has been noticing with dismay statistical correlations between mineral depletion in soils and the combination of increased crime and declining mental and physical health among the U.S. population since at least the 1930's.

Veterinarians ensure nearly 100% healthy and strong livestock by adding trace elements to their feed. Research has found that humans also equally need trace elements. The tally so far is 60 minerals including many obscure elements such as gallium, 16 vitamins, 12 amino acids, and 3 essential fatty acids. 98% of birth defects are caused by nutritional deficiencies.

Decades of application of synthetic fertilizers have severely depleted agricultural soils of trace elements. Enriching agricultural soils with inexpensive finely ground rich mineral fertilizers so as to add trace elements to foodstuffs would help alleviate crime and substance abuse as well as birth defects. Chelated mineral supplements should be added to meals served in schools, colleges, prisons, mental hospitals and the military.

AN AFFIRMATIVE ACTION  
EQUAL OPPORTUNITY EMPLOYER

# CLARK COUNTY SCHOOL DISTRICT



2832 EAST FLAMINGO ROAD LAS VEGAS, NEVADA 89121 TELEPHONE (702) 799-5011  
FAX 799-5063

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FAX (702) 799-5505

February 12, 1992

TO WHOM IT MAY CONCERN:

Please be advised that we support Gary Vesperman's efforts to investigate the applicability of optic fiber telecommunications as it relates to classroom education.

Further, if this project is funded, it is our intent to explore the feasibility of piloting the project in several of our schools.

A handwritten signature in cursive script, appearing to read "Brian Cram".

Brian Cram  
Superintendent of Schools

# References:

A 125-page “Torsion Field School Network” file is linked at [padrak.com/vesperman](http://padrak.com/vesperman) and [commutefaster.com/vesperman.html](http://commutefaster.com/vesperman.html). For torsion field communications see pages 110-261 of “Space Travel Innovations”, “Torsion Field and Interstellar Communication”, and [https://www.researchgate.net/publication/340620739\\_Experimental\\_report\\_torsion\\_field\\_communication\\_attempts\\_in\\_5\\_km](https://www.researchgate.net/publication/340620739_Experimental_report_torsion_field_communication_attempts_in_5_km).











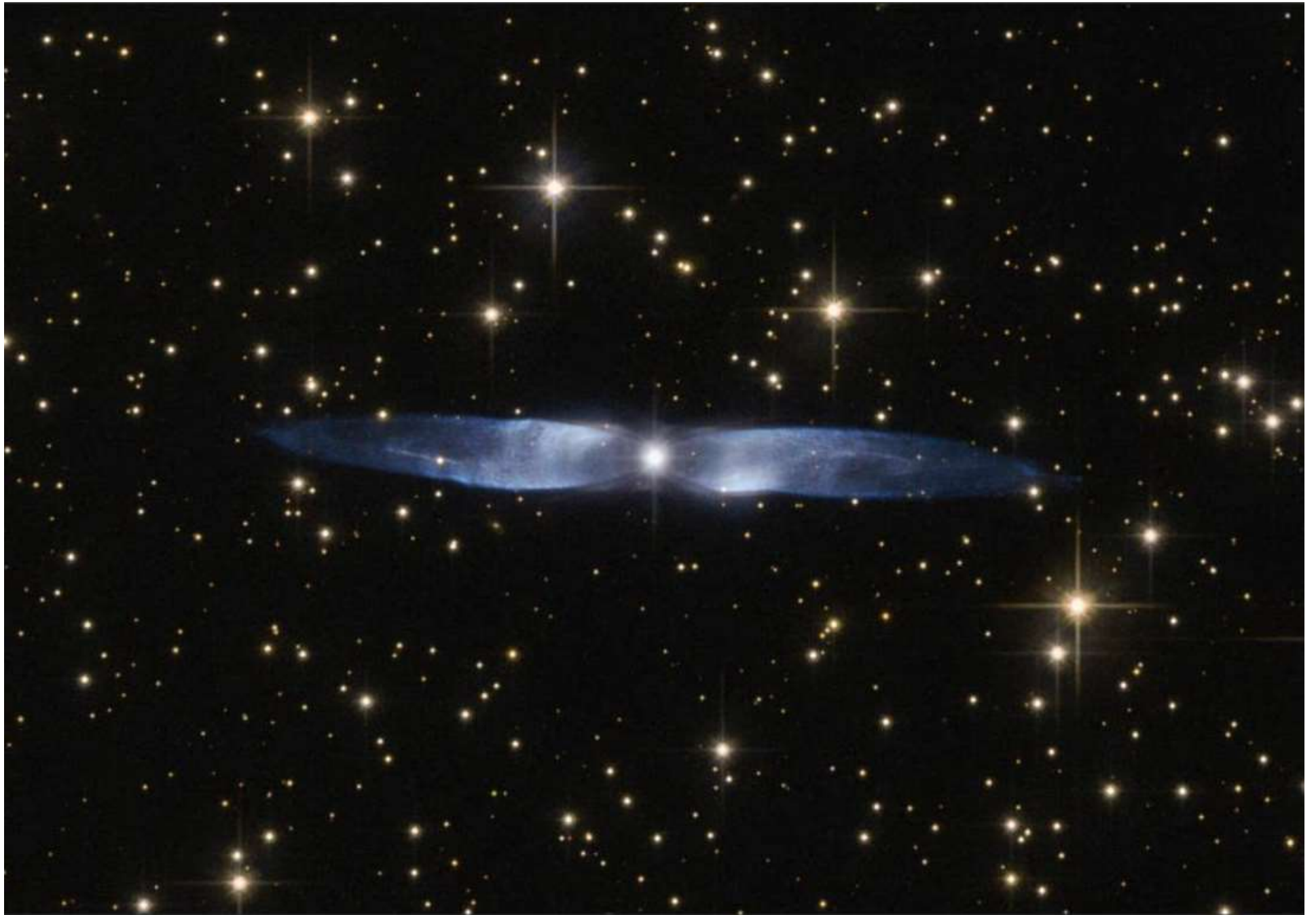
















## "Impossible Dream"

To dream the impossible dream  
To fight the unbeatable foe  
To bear with unbearable sorrow  
And to run where  
the brave dare not go  
To right the unrightable wrong  
And to love pure and chaste from afar  
To try when your arms are too weary  
To reach the unreachable star  
This is my quest  
To follow that star  
No matter how hopeless  
No matter how far  
To fight for the right  
Without question or pause  
To be willing to march,  
march into hell  
For that heavenly cause  
And I know  
If I'll only be true  
To this glorious quest  
That my heart  
Will lie peaceful and calm  
When I'm laid to my rest  
And the world will be  
better for this  
That one man, scorned  
and covered with scars,  
Still strove with his last  
ounce of courage  
To reach the unreachable,  
the unreachable,  
The unreachable star  
And I'll always dream  
The impossible dream  
Yes, and I'll reach  
The unreachable star

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# Inventions and Images Credits

(The following list of “Inventions and Images Credits” are to be duplex printed, 3-hole punched, and inserted in a 3-ring binder behind the “Guest Submitted Comments or Questions (with Answers)” below in the following section.)

The title of “Gallery of Clean Energy Inventions” was designed by Karen Elkins, [http://www.sciencetosage.com/?page\\_id=447](http://www.sciencetosage.com/?page_id=447).

Photograph of Gary Vesperman was taken by Ken Rasmussen, [commutefaster.com](http://commutefaster.com).

Metaphor for the Emergence of Clean Energy Inventions. The origin of the photograph, emailed to Gary Vesperman by Abby Mobasher on April 8, 2013, is unknown.

The title of Larger Generators was designed by Karen Elkins, [http://www.sciencetosage.com/?page\\_id=447](http://www.sciencetosage.com/?page_id=447).

Hydro-Magnetic Dynamo. The two hydro-magnetic images are slides 3 and 5 of the Hydro-Magnetic Dynamo Powerpoint in [www.padrak.com/vesperman](http://www.padrak.com/vesperman). The inventor was Oleg V. Gritskevitch, Vladivostok, Russia. The text is a summary of “Hydro-Magnetic Dynamo” in “102 Electrical Energy Innovations”, pages 12-26. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html).

Tesla’s Global Wireless Transmission of Electrical Power. The inventor was Nikola Tesla. The left bluish image is from <http://www.teslasociety.com/photos.htm>. The tower image is from <http://blog.world-mysteries.com/science/incredible-inventions-of-nikola-tesla/>. The text is a summary of “Tesla’s Global Wireless Transmission of Electrical Power” in “102 Electrical Energy Innovations”, pages 26-44. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). A different photo of the tower is shown in <https://www.facebook.com/photo.php?fbid=10208010930725147&set=a.10202977754178879.1073741827.1054795182&type=3&theater>. That Tesla’s tower transmitted electrical power from Long Island, New York to Los Angeles, California with less than 4% loss is from Dr. Andrew Michrowski’s May 7, 2018 email to Gary Vesperman and others. For more see Michael Riversong’s report “Nikola Tesla Universal Wireless System” linked at <http://www.teslaacademy.info/TeslaWireless.pdf>.

Hydrino Generator. The diagram on the left is shown in page 33 of [http://www.blacklightpower.com/wp-content/uploads/presentations/Business\\_Presentation.pdf](http://www.blacklightpower.com/wp-content/uploads/presentations/Business_Presentation.pdf). The diagram on the right is shown on page 36. The text is a summary of “BlackLight Power’s Hydrino Generator” in “102 Electrical Energy Innovations”, pages 40-42. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The inventor was Randall L. Mills, MD.

IPMS Thorium Energy Accumulator. The text is a summary of “IPMS: Thorium-227 Energy Accumulator” in “Energy Invention Suppression Cases”, page 42. Links include [www.byronwine.com](http://www.byronwine.com), [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). This device was invented at the I.N. Frantsevich Institute for Problems of Materials Science (IPMS), Kiev, Ukraine,

Thorium Power Pack. The diagram is from <http://bob-dratch.org/greenatoms.htm>. The inventor was Robert J. Dratch, USA. The text is a summary of “Thorium Power Pack” in “102 Electrical Energy Innovations”, pages 42-43. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html).

Searl Effect Generator. The inventor was John Searl. The left figure is from <https://www.youtube.com/watch?v=FG91h58JrHk>. The figure on the right is a printscreen of one moment of a video at <https://www.youtube.com/watch?v=vxMHgsmIEfs>. The text is a summary of “Magneto-Gravitational Converter (Searl Effect Generator)” in “102 Electrical Energy Innovations”, pages 43-45. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html).

Spintronic Generator. Inventor is Kirk Miller. Text and images are from [spintronicgenerator.com](http://spintronicgenerator.com).

Induction Coil Coating Increases Generator Output by One-Third. The text is a summary of “Induction Coil Coating Increases Generator Output by One-Third” in “102 Electrical Energy Innovations”, page 45. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The inventor was David G. Yurth. The Hubble Space Telescope’s image of a twin jet nebula is from <http://www.spacetelescope.org/static/archives/images/large/opo9738a.jpg>.

Wind Turbine Conversion. The text is a summary of “Wind Turbine Conversion” in “102 Electrical Energy Innovations”, page 46. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The inventor was David G. Yurth. The images are from Yurth’s October 8, 2014 email to Gary Vesperman.



Ball Lightning and Self-Confined Thermonuclear Reactions. The image is from page 34 of “Ball Lightning and Self-Confined Thermonuclear Reactions” – a chapter in “Ball Lightning Fusion Reactors”. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The text is a summary of “Ball Lightning and Self-Confined Thermonuclear Reactions”, pages 28-36. The inventor was Jack Dea.

High-Density Ions May Make Clean Fusion Energy a Reality. The image was attached to inventor Clint Seward’s September 24, 2014 email to Gary Vesperman. The text is a summary of “High-Density Ions May Make Clean Fusion Energy a Reality” – a chapter in “Ball Lightning Fusion Reactors”, pages 22-24. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html).

Direct Energy Conversion. The figure on the left is from Infinite Energy magazine, Issue 86, July-August 2009, page 2. The other figure is from Patent US8736085 - Method and apparatus for direct energy conversion. The text is a summary of “Direct Energy Conversion” in “102 Electrical Energy Innovations”, pages 46-52. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The inventor was Eddie Sines.

Electrino Fusion Power Reactor. The text is a summary of “Electrino Fusion Power Reactor” in “102 Electrical Energy Innovations”, pages 52-60. Links include [padrak.com/vesperman](http://padrak.com/vesperman) and [commutefaster.com/vesperman.html](http://commutefaster.com/vesperman.html). The inventor was Gordon L. Ziegler. Ken Colvin’s May 31, 2018 email to Gary Vesperman included a revision. The Hubble Space Telescope’s image of a star gone supernova is from <http://www.spacetelescope.org/static/archives/images/large/potw1317a.jpg>.

Plasma Biomass Gasification. The image is from <http://www.advancedplasmamapower.com/solutions/process-overview/>. The text is a summary of “Plasma Biomass Gasification” in “102 Electrical Energy Innovations”, pages 60-61. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The inventors include Dr. David Wallman [US 5,417,817], Dr. Ruggero Santilli, Dr. Randall Mills [US 6,024,935], and others.

Gas-Phase Catalytic Fusion. The text is a summary of “Gas-Phase Catalytic Fusion” in “102 Electrical Energy Innovations”, page 65. Links include [padrak.com/vesperman](http://padrak.com/vesperman) and [commutefaster.com/vesperman.html](http://commutefaster.com/vesperman.html). Another source is <http://www.infinite-energy.com/iemagazine/issue23/deviceupdate.html>. The inventor was Dr. Les Case. The Hubble Space Telescope’s image of stars and a stripe in celestial fireworks is from <http://www.spacetelescope.org/static/archives/images/large/opo0822a.jpg>.

Protein Nanowires Generate Electricity from Water Vapor in Air. The text and images are from <https://phys.org/news/2020-02-green-technology-electricity-thin-air.html>. Inventors are Jun Yao and Derek Lovley.

Super Steam Technology. The text is a summary of “Super Steam Technology” in “102 Electrical Energy Innovations”, pages 63-65. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The inventor was Leonard Dorsett. A more detailed report is linked at <http://astrosa.com/n95/n0595.htm>. The Hubble Space Telescope’s image is from <http://www.spacetelescope.org/static/archives/images/large/heic0820a.jpg>.

Focus Fusion. Various sources include <http://focusfusion.org/index.php/site/index2>, <http://lawrencevilleplasmaphysics.com/>, <http://www.extremetech.com/extreme/184280-focus-fusion-has-cheap-clean-earth-saving-fusion-power-been-right-under-our-noses-all-along>, [http://en.wikipedia.org/wiki/Dense\\_plasma\\_focus](http://en.wikipedia.org/wiki/Dense_plasma_focus), and [http://peswiki.com/index.php/Directory:Focus\\_Fusion](http://peswiki.com/index.php/Directory:Focus_Fusion).

Geothermal Atmospheric Liquified Thorium Chemical Reactor. Text and images from <http://osnetdaily.com/2018/11/galt-sciences-best-kept-free-energy-secret/>, <https://aim4truth.org/2018/04/15/thorium-energy-technology-can-free-the-world-from-nuclear-poisons-today/>, and <https://truthbits.blog/>.

Heat and Cool Buildings with Vortex Tubes. December 4, 2018 conversation between vortex tube inventor Alvin Snaper and reporter Gary Vesperman. Also see “Compressed Air-Driven Air Conditioner/Heater” in “102 Electrical Energy Innovations”, page 120. Links include [padrak.com/vesperman](http://www.padrak.com/vesperman) and [commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The Hubble Space Telescope image is from [https://www.google.com/search?q=new+hubble+images+2018&tbm=isch&tbs=rimg:CZTDKEnoyjUdljhEjVq12l5DOb11BzyXVIHvcYnnyovqH7xTnBEVFHI1WkhGayJ1AfG97smwvC5RapCvTRavrEvCXSoSCUSNWrXaXkM5EWMYm8Khk-7hKhIJvXUHPJdWUe8RCXbjSC-pXg8qEglxiefKi-ofvBHjCikrNNfp1CoSCVOcERUUcjVaEbHHvhBxOrAGKhIJSEZrInUB8b0RWLITbzkQ1VAqEgnuybC8LIFqkBHhW838713bXCSCa9NFq-sS8JdEZmpG2owRc6v&tbo=u&sa=X&ved=2ahUKEwjy2-WX573dAhUBJ3wKHYabBuUQ9C96BAgBEBg&biw=1024&bih=542&dpr=3.75#imgrc=Z-CM5I\\_\\_4MqFMM](https://www.google.com/search?q=new+hubble+images+2018&tbm=isch&tbs=rimg:CZTDKEnoyjUdljhEjVq12l5DOb11BzyXVIHvcYnnyovqH7xTnBEVFHI1WkhGayJ1AfG97smwvC5RapCvTRavrEvCXSoSCUSNWrXaXkM5EWMYm8Khk-7hKhIJvXUHPJdWUe8RCXbjSC-pXg8qEglxiefKi-ofvBHjCikrNNfp1CoSCVOcERUUcjVaEbHHvhBxOrAGKhIJSEZrInUB8b0RWLITbzkQ1VAqEgnuybC8LIFqkBHhW838713bXCSCa9NFq-sS8JdEZmpG2owRc6v&tbo=u&sa=X&ved=2ahUKEwjy2-WX573dAhUBJ3wKHYabBuUQ9C96BAgBEBg&biw=1024&bih=542&dpr=3.75#imgrc=Z-CM5I__4MqFMM).

Nano-Boxx™ thermionic converter. Inventors are with Birmingham Technologies, Inc. Text and images are from <https://www.youtube.com/watch?v=wFiW2lqdnIM> and <https://geospatial.blogs.com/geospatial/2018/11/innovative-electric-power-sources-for-a-sustainable-future-.html>.

Iron-Air Battery. The text and image are from [formenergy.com](http://formenergy.com).

Solar Radiant Energy. The text and images are from [zpower.com](http://zpower.com).

Portable Electromagnetic Generator. Inventor is Allen Schwartz, MD. Text and image are from <https://finance.yahoo.com/news/announcing-upcoming-launch-portable-electromagnetic-171000189.html>.

Diamond Nuclear Voltaic Battery. The text is from <https://ndb.technology/>, <https://phys.org/news/2016-11-diamond-age-power-nuclear-batteries.html>, <https://www.thehindu.com/sci-tech/technology/a-battery-made-from-nuclear-waste-that-can-last-28000-years/article32484905.ece>, <https://newatlas.com/energy/nano-diamond-self-charging-batteries-ndb/>, <https://www.energylivenews.com/2020/09/02/us-startup-unveils-battery-made-from-nuclear-waste-that-could-last-up-to-28000-years/>, <https://www.mining.com/nano-diamond-battery-that-lasts-for-28000-years-closer-to-becoming-commercial-product/>, and <https://www.bloomberg.com/news/articles/2020-06-07/a-million-mile-battery-from-china-could-power-your-electric-car?sref=jB82HHlm>. The image is from <https://medium.com/0xmachina/the-nano-diamond-battery-ndb-too-good-to-be-true-548066508c49>.

Fuel Free Magnetic Energy Generator. The inventor is Andrii Slobodyan. The text and images are from <https://infinitysav.com/magneticgenerator/>.

Self-Confined Low-Energy Fusion. The inventors are employees and associates of ISA Industries. <https://www.isaindustries.com>. The image is from [https://apod.nasa.gov/apod/image/1612/M8\\_Colombari\\_1824.jpg](https://apod.nasa.gov/apod/image/1612/M8_Colombari_1824.jpg).

Recirculating Heat Pump Turbine. The text and diagram are from [aetherdynamicpowersystemsllc.com](http://aetherdynamicpowersystemsllc.com). The photograph is from inventor Kim Zorzi's July 25, 2023 email to Gary Vesperman.

Urangara Cold Fusion Reactor. The inventors are Fulvio Fabiani, Roger Green and Elizabeth Donovan. The text is from <https://mailchi.mp/0315e42be0b3/dr-scott-olsen-golden-ratio-of-the-cosmos-196626?fbclid=IwAR1BvYMANWyh8luhqFGfgjiUC5OEtlFiYrAXHEhbtPvDMVJmRsGyAlHxSk> and <https://www.urangara.com/>.

Magneto-Inertial Fusion of Deuterium and Helium-3. The inventors are employees of Helion Energy, Inc. The text and image are from <https://www.helionenergy.com>. Also <https://www.helionenergy.com/articles/helion-nucor-collaboration-to-deploy-500-mw-fusion-power-plant/> and <https://www.yahoo.com/news/nucor-bets-silver-bullet-green-073000257.html>.

Global Wireless Electric Power Transmission Via Zenneck Surface Waves. Inventors are Brigadier General (Retired), USAF, Michael W. Miller and Randall Jean, Ph.D. Text and images are from <https://www.youtube.com/watch?v=wFiW2lqdnIM> and <https://geospatial.blogs.com/geospatial/2018/11/innovative-electric-power-sources-for-a-sustainable-future-.html> and <http://vizivtechnologies.com/>.

The “Pillars of Creation” images in the References page for the Larger Generators are from <http://time.com/3644785/space-most-beautiful-photos-2014/> and <http://www.spacetelescope.org/static/archives/images/large/heic1501d.jpg>.

The title of “Smaller Generators” was designed by Karen Elkins, [http://www.sciencetosage.com/?page\\_id=447](http://www.sciencetosage.com/?page_id=447).

Magnetic Drive Generator. June 5, 2014 email to Gary Vesperman from inventor Larry B. Woods, Ph.D. The Hubble Telescope’s image of a planetary nebula is from <http://www.spacetelescope.org/static/archives/images/large/opo9738g.jpg>.

Self-Recharging Energy Generating Gel Cells. The text is a summary of “Self-Recharging Energy Generating Gel Cells” in “102 Electrical Energy Innovations”, page 69. Links include [padrak.com/vesperman](http://padrak.com/vesperman) and [commutefaster.com/vesperman.html](http://commutefaster.com/vesperman.html). The inventor was David G. Yurth. The Hubble Space Telescope’s image of Arp 87 is from <http://www.spacetelescope.org/static/archives/images/large/heic0717a.jpg>.

MulTask Dome Multiple Output Omni-Directional Solar Power Generator. The image came from inventor Abby Charden Mobasher’s October 12, 2014 email to Gary Vesperman. The text is a summary of “MulTask Dome Multiple Output Omni-Directional Solar Power Generator” in “102 Electrical Energy Innovations”, pages 70-71. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html).

Ceramic Electrodynamic Wafer. The text is a summary of “Ceramic Electrodynamic Wafer” in “102 Electrical Energy Innovations”, page 75. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The inventor was David G. Yurth. Hubble’s image of the expansion of Eta Carinae debris is from <http://www.spacetelescope.org/static/archives/images/large/opo9623a.jpg>.

Advanced solar photo-voltaic crystal lattice cells. The text is a summary of “Advanced Solar Photo-Voltaic Crystal Lattice Cells” in “102 Electrical Energy Innovations”, pages 72-74. Links include [padrak.com/vesperman](http://padrak.com/vesperman) and [commutefaster.com/vesperman.html](http://commutefaster.com/vesperman.html). The inventors were employed by Kiev, Ukraine’s I.N. Frantsevich Institute of Problems of Materials Science. The Hubble Space Telescope’s image of the Red Spider Nebula is from <http://www.spacetelescope.org/static/archives/images/large/heic0109a.jpg>.

Self-recharging capacitive discharge thermal generator. The text is a summary of “Self-Recharging Capacitive Discharge Thermal Generator” in “102 Electrical Energy Innovations”, page 75. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The inventor was David G. Yurth. The image is from [http://www.simonsfoundation.org/wp-content/uploads/2013/09/amplutihedron\\_span.jpg](http://www.simonsfoundation.org/wp-content/uploads/2013/09/amplutihedron_span.jpg).



Casimir-layered electrodynamic generator. The text is a summary of “Casimir-Layered Electrodynamic Generator” in “102 Electrical Energy Innovations”, page 66. Links include [padrak.com/vesperman](http://padrak.com/vesperman) and [commutefaster.com/vesperman.html](http://commutefaster.com/vesperman.html). The inventor was David G. Yurth. The image is from [http://media.cns-snc.ca/uploads/branch\\_data/branches/ChalkRiver/past\\_speak/ZIPP\\_CNS\\_Blue.pdf](http://media.cns-snc.ca/uploads/branch_data/branches/ChalkRiver/past_speak/ZIPP_CNS_Blue.pdf).

Thin film power generating disks. The text is a summary of “Thin Film Power Generating Disks” in “102 Electrical Energy Innovations”, page 66. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The inventor was David G. Yurth. The Hubble image of an erupting star is from <http://www.spacetelescope.org/static/archives/images/large/heic0304c.jpg>.

Hybrid cold fusion hydrogen reactor. The text is a summary of “Hybrid Cold Fusion Hydrogen Reactor” in “102 Electrical Energy Innovations”, page 67. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The inventor was Hans Becker. The Hubble Space Telescope image of inside the Orion Nebula is from <http://apod.nasa.gov/apod/ap130320.html>.

Electronically shaded photo-voltaic glass. The text is a summary of “Electronically Shaded Photo-Voltaic Glass” in “102 Electrical Energy Innovations”, pages 69-70. Links include [padrak.com/vesperman](http://padrak.com/vesperman) and [commutefaster.com/vesperman.html](http://commutefaster.com/vesperman.html). The inventor was David G. Yurth. The Hubble Space Telescope image of the Waterfall Nebula is from <http://apod.nasa.gov/apod/ap111024.html>.

LUMELOID™ light-polarizing photovoltaic film. The text is a summary of “LUMELOID™ Light-Polarizing Photovoltaic Film” in “102 Electrical Energy Innovations”, pages 88-89. Links include [padrak.com/vesperman](http://padrak.com/vesperman) and [commutefaster.com/vesperman.html](http://commutefaster.com/vesperman.html). The inventor was Alvin Marks. The Hubble Space Telescope’s image of the Crab Nebula is from [http://hubblesite.org/gallery/album/nebula/pr2005037a/large\\_web/npp/all/](http://hubblesite.org/gallery/album/nebula/pr2005037a/large_web/npp/all/).

Hendershot magnetic motor. The text is a summary of “Hendershot Magnetic Motor” in “102 Electrical Energy Innovations”, pages 85-86. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The inventor was Lester J. Hendershot. Both images came from the Hendershot Archives.

N-1 homopolar generator. The text is a summary of “N-1 Homopolar Generator” in “102 Electrical Energy Innovations”, page 86. The inventor was Bruce DePalma. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). Additional text and the image came from <http://depalma.pair.com/>.

Closed path homopolar generator. The text is a summary of “Trombly-Kahn Closed Path Homopolar Generator” in “102 Electrical Energy Innovations”, page 86. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The inventors were Adam Trombly and Joseph Kahn, Pd.D. The image is from [https://web.archive.org/web/20120311175607/https://www.globalenergysys.net/AdamTrombly\\_Thrive\\_homopolargenerator.html](https://web.archive.org/web/20120311175607/https://www.globalenergysys.net/AdamTrombly_Thrive_homopolargenerator.html).

Switched Energy Resonant Power Supply. The text and images are from “The Secret of Tesla's Power Magnification” by Jim Murray & Paul Babcock. See <http://teslaspowermagnification.com/>.

Fossil-fueled generator combo of Moe-Joe orgone energy cell, induction coil coating, and Fuel Mule. The Moe-Joe orgone energy cell text is a summary of “Moe-Joe Orgone Energy Cell” in “102 Electrical Energy Innovations”, pages 145-147. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The inventors are Moshe Daniel Block and “Joe” of Australia. The induction coil coating text is a summary of “Induction Coil Coating” in “102 Electrical Energy Innovations”, page 45. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The inventor was David G. Yurth. The Fuel Mule text is a summary of telephone conversations between Gary Vesperman, inventor Scott Machuta, and Carlos Aliaga Uria, the owner of the 1999 Ford Expedition. Both photographs were taken by Gary Vesperman.

Maximum velocity turbine. The text and images are from <http://world-harmony.com/max-velocity-turbine/>. The inventor was Michael Waters.

PowerPod Circular Wind Turbine Generator. The inventor is Nick Hodges. The image of the PowerPod’s outer shell is from [halcium.com](http://halcium.com). The image of the internal circular blade is a freeze-frame of a video linked in <https://www.intelligentliving.co/powerpod-compact-wind-turbine>.

Nova-Neal compression engine. The text and image came from inventor David G. Yurth’s Nova-Neal Compression Engine pdf that Yurth emailed to Gary Vesperman September 20, 2014.

Nova phase change engine. The text and image came from inventor David G. Yurth’s Nova Phase Change Engine summary that Yurth emailed to Gary Vesperman September 20, 2014.

Multifactorial hydrogen reactor. The text and image came from [http://peswiki.com/index.php/Directory:Solar\\_Hydrogen\\_Trends,\\_Inc.'s\\_Overunity\\_Hydrogen](http://peswiki.com/index.php/Directory:Solar_Hydrogen_Trends,_Inc.'s_Overunity_Hydrogen). The several co-inventors are associated with Solar Hydrogen Trends, Inc.

Neutrinovoltaic generator. The images are print screens of a video in <https://neutrino-wiki.com/physicists-just-found-a-loophole-in-graphene-that-could-unlock-clean-limitless-energy/>. Other text are from <http://ritzherald.com/neutrino-energy-an-ideal-power-source-for-self-driving-taxis/> and <https://neutrino-wiki.com/neutrinovoltaic/>. Patent number WO2016142056A1. The inventor was Holger Thorsten Schubart.

Energy catalyzer. The text and the originals for the left two photographs in the "Energy Catalyzer" panel are in the first few pages of <http://www.sifferkoll.se/sifferkoll/wp-content/uploads/2014/10/LuganoReportSubmit.pdf>. The inventor was Andrea Rossi. The original for the rightmost image in the "Energy Catalyzer" panel is in [http://www.extremetech.com/wp-content/uploads/2013/11/E.Cat5\\_-1030x858.jpg](http://www.extremetech.com/wp-content/uploads/2013/11/E.Cat5_-1030x858.jpg).

Bedini SG battery charger. The text and photograph are from the Bedini SG pdf attached to A & P Electronic Media's October 26, 2014 email to Gary Vesperman. The schematic is from <http://www.keelynet.com/bedmot/dualbatt.jpg>. The inventor is John Bedini.

Thermoelectric generator. The text is a summary of <http://www.alphabet.com>. The photograph is from <http://www.alphabetenergy.com/thermoelectric-advances/>. The several co-inventors are associated with Alphabet Energy.

Preloaded  $ZrO_2$ -PdNi-D Nanostructured Cold Fusion/Lattice Assisted Nuclear Reaction Quantum Electronic Devices. The text and figures came from two files that had been emailed to Gary Vesperman on November 3, 2014 by inventor Mitchell Swartz.

ReactionLess AC Synchronous Generator. The inventor was Paramahansa Tewari. The text is a summary of <http://www.collective-evolution.com/2015/04/15/breaking-news-over-unity-reactionless-generator-invented-in-india/> and [tewari.org](http://tewari.org). Toby Grotz's January 25, 2016 email to Gary Vesperman corrected the physics theory of the generator. The image is from <http://www.collective-evolution.com/2015/02/18/why-there-will-be-no-suppression-of-new-energy-technology/>.

Spiteri water pump. The text is a summary of "Spiteri Water Pump" in "Technical Solutions to Lake Mead Water Shortages", page 5. Links include [padrak.com/vesperman](http://padrak.com/vesperman) and [commutefaster.com/vesperman.html](http://commutefaster.com/vesperman.html). The image source is <http://www.rexresearch.com/spiteri/spiteri.htm>. The inventor was Joe Spiteri Sargent

Laser induced fusion in ultra-dense deuterium. Text sources include <http://atom-ecology.russgeorge.net/2016/04/03/cold-fusion-real-revolutionary-ready/>, <https://www.asme.org/engineering-topics/articles/energy/small-reactor-with-big-potential>, and <http://revolution-green.com/small-scale-nuclear-fusion-may-be-a-new-energy-source-2/>. The image is from [http://atom-ecology.russgeorge.net/wp-content/uploads/2016/04/Holmlid\\_reactor\\_schematic1.png](http://atom-ecology.russgeorge.net/wp-content/uploads/2016/04/Holmlid_reactor_schematic1.png). The inventor is Leif Holmlid.

Airthium's High-Temperature Heat Pump. The inventors are employees of Airthium. Text is from <https://airthium.com/> and <https://finance.yahoo.com/news/y-combinator-backed-airthiums-breakthrough-201942587.html>.

Localized Solar Steam Generator. The inventors are Hadi Ghasemi, George Ni, Amy Marie Marconnet, James Loomis, Selcuk Yerci, Nenad Miljkovic, and Gang Chen. The text and images are from <http://rexresearch.com/ghasemi/ghasemi.html>.

Controlled Electron Capture Reaction. The inventor is Robert Godes. US patent application US 20110122984A1 "Energy Generation Apparatus and Method". The text and image are from <https://brillouinenergy.com/>.

Gravity Force Generator. The text and image are from <http://www.faraday.ru/amarasingam2019.pdf>. The inventor is Bobby Amarasingam.

Magnetic Propulsion Engine. The text is from <https://ie.energy/about.html>. The video is from [https://www.youtube.com/watch?v=XZkuteW\\_Q9k](https://www.youtube.com/watch?v=XZkuteW_Q9k). The inventor is Dennis M. Danzik.

Thermal Energy Battery. The text and images are from <https://www.cctenergystorage.com/contact-us/> and [https://newatlas.com/cct-silicon-energy-battery-thermal-energy-storage/59098/?utm\\_medium=email&utm\\_campaign=2019-04-01%20143615%20USA%20Daily%20Basic%202019-04-01%20144247%20Fossil%20site%20is%20first%20ever%20to%20show%20deaths%20from%20mass%20extinction%20asteroid%20impact&utm\\_content=2019-04-01%20143615%20USA%20Daily%20Basic%202019-04-01%20144247%20Fossil%20site%20is%20first%20ever%20to%20show%20deaths%20from%20mass%20extinction%20asteroid%20impact+CID\\_aae9c0c4bcb91b4e55440fa038216aa3&utm\\_source=Campaign%20Monitor&utm\\_term=Worlds%20first%20working%20thermal%20battery%20promises%20cheap%20eco-friendly%20grid-scalable%20energy%20storage](https://newatlas.com/cct-silicon-energy-battery-thermal-energy-storage/59098/?utm_medium=email&utm_campaign=2019-04-01%20143615%20USA%20Daily%20Basic%202019-04-01%20144247%20Fossil%20site%20is%20first%20ever%20to%20show%20deaths%20from%20mass%20extinction%20asteroid%20impact&utm_content=2019-04-01%20143615%20USA%20Daily%20Basic%202019-04-01%20144247%20Fossil%20site%20is%20first%20ever%20to%20show%20deaths%20from%20mass%20extinction%20asteroid%20impact+CID_aae9c0c4bcb91b4e55440fa038216aa3&utm_source=Campaign%20Monitor&utm_term=Worlds%20first%20working%20thermal%20battery%20promises%20cheap%20eco-friendly%20grid-scalable%20energy%20storage).

Hybrid Solid Fuel Battery with Reduced Power Generation Costs. The text and drawings are from US Patent No. 10,826,077. Inventor is Christopher M. Goggin.



The Jet in Carina image that is in the References page for the Smaller Generators is from <http://tattoos.fansshare.com/gallery/photos/12757961/heic/>.

<http://i.imgur.com/Jde5H9h.jpg>

Star Cluster Westerlund Vin.

[http://pmdvod.nationalgeographic.com/NG\\_Video/157/119/150424-news-hubble-star-cluster-westerlund-vin.jpg](http://pmdvod.nationalgeographic.com/NG_Video/157/119/150424-news-hubble-star-cluster-westerlund-vin.jpg).

<http://www.arorallc.com/hubble-space-wallpapers-high-resolution/hubble-space-wallpapers-high-resolution-with-high-definition-wallpaper-resolution/>

The title of “Advanced Self-Powered Electric Vehicles” was designed by Karen Elkins, [http://www.sciencetosage.com/?page\\_id=447](http://www.sciencetosage.com/?page_id=447).

Richardson fuel-less electrical generator. The text is a summary of “Richardson Fuel-Less Electrical Generator” and “Richardson Blade-Less Tesla-Type Steam Turbine” in “102 Electrical Energy Innovations”, pages 111-112. Links include [padrak.com/vesperman](http://padrak.com/vesperman) and [commutefaster.com/vesperman.html](http://commutefaster.com/vesperman.html). The inventor was Frank Richardson. The Hubble Space Telescope’s image of the Orion Nebula is from [http://www.nasa.gov/multimedia/imagegallery/image\\_feature\\_2442.html](http://www.nasa.gov/multimedia/imagegallery/image_feature_2442.html).

Conical vortex heat exchange engine. The text is a summary of “Clem Over-Unity Vegetable Oil Engine” and “Conical Vortex Heat Exchange Engine” in “102 Electrical Energy Innovations”, page 113. Links include [commutefaster.com/vesperman.html](http://commutefaster.com/vesperman.html) and [padrak.com/vesperman](http://padrak.com/vesperman). The inventors were Richard Clem and David G. Yurth. The Clem engine diagram is from <http://www.faraday.ru/report2.pdf>.

Volcheck: Engine powered by gas with unusual expansion properties. The text is a summary of “Engine Powered by Gas with Unusual Expansion Properties” in “102 Electrical Energy Innovations”, page 114. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The inventor was Volcheck. The Hubble Space Telescope’s image of the center of the Milky Way Galaxy is from <http://www.spacetelescope.org/static/archives/images/publicationjpg/ann0912a.jpg>.

Torsion field radio. The text is a summary of “Torsion Field Radio” in “102 Electrical Energy Innovations”, page 118. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The inventors include David G. Yurth, Gary Vesperman, and Kiev, Ukraine’s I.N. Frantsevich Institute of Problems of Materials Science. The photograph is slide 13 of David G. Yurth’s “Faster Than Light Communications” PowerPoint presentation. The diagram is slide 18 of David G. Yurth’s “Faster Than Light Communications” PowerPoint presentation.

Torsion field energy applications. The text is a summary of “Torsion Field Energy Applications” in “102 Electrical Energy Innovations”, pages 147-153. Links include [padrak.com/vesperman](http://padrak.com/vesperman) and [commutefaster.com/vesperman.html](http://commutefaster.com/vesperman.html). Numerous torsion field researchers include David G. Yurth, Gary Vesperman, and Kiev, Ukraine’s I.N. Frantsevich Institute of Problems of Materials Science. The Hubble Space Telescope’s image of the Antennae Galaxies is from [http://www.nasa.gov/multimedia/imagegallery/image\\_feature\\_1771.html](http://www.nasa.gov/multimedia/imagegallery/image_feature_1771.html).

Nickel-iron battery. The text is a summary of “Nickel-Iron Battery” in “102 Electrical Energy Innovations”, pages 136-137. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The inventor was Alvin Snaper. The Hubble Space Telescope’s image of the Swan and the Butterfly nebula is from <http://www.spacetelescope.org/static/archives/images/large/potw1222a.jpg>.

Compressed air-driven air conditioner/heater. The text is a summary of “Compressed Air-Driven Air Conditioner/Heater” in “102 Electrical Energy Innovations”, page 120. Links include [padrak.com/vesperman](http://padrak.com/vesperman) and [commutefaster.com/vesperman.html](http://commutefaster.com/vesperman.html). The inventor was Alvin Snaper. Hubble’s image of the Eskimo Nebula is from <http://time.com/3772495/see-hubble-best-photos-25th-anniversary/>.

Low-temperature diamond or titanium nitride coating of vehicle parts. The text is a summary of “Low-Temperature Diamond or Titanium Nitride Coating of Vehicle Parts” in “102 Electrical Energy Innovations”, page 120. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The inventor was Alvin Snaper. The Hubble Telescope peers inside a celestial geode – <http://www.spacetelescope.org/static/archives/images/large/heic0413a.jpg>.

Advanced computer-controlled suspension systems. The text is a summary of “Advanced Computer-Controlled Suspension Systems” in “102 Electrical Energy Innovations”, pages 120-121. Links include [padrak.com/vesperman](http://padrak.com/vesperman) and [commutefaster.com/vesperman.html](http://commutefaster.com/vesperman.html). The several co-inventors were associated with Aimrite Systems International, Inc.

IPMS high-temperature gas plasma detonator. The text is a summary of “IPMS High-Temperature Gas Plasma Detonator” in “102 Electrical Energy Innovations”, pages 122-124. Links include [padrak.com/vesperman](http://padrak.com/vesperman) and [commutefaster.com/vesperman.html](http://commutefaster.com/vesperman.html). The researchers include David G. Yurth and Kiev, Ukraine’s I.N. Frantsevich Institute of Problems of Materials Science. The Hubble Space Telescope’s image of cometary knots around a dying star is from <http://www.spacetelescope.org/static/archives/images/large/opo9613b.jpg>.

Hutchison self-charged battery. The text is a summary of “Hutchison Self-Charged Battery” in “102 Electrical Energy Innovations”, page 139. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The inventor was John Hutchison. The “Mystic Mountain” Hubble image is from <http://www.spacetelescope.org/static/archives/images/large/heic1007a.jpg>.

Salt water flow cell car. The text and image are from [www.nanoflowcell.com](http://www.nanoflowcell.com). The inventor was Nunzio La Vecchia.

Endless electric field generator. The text is a summary of “Endless Electric Field Generator” in “102 Electrical Energy Innovations”, pages 140-141. Links include [padrak.com/vesperman](http://padrak.com/vesperman) and [commutefaster.com/vesperman.html](http://commutefaster.com/vesperman.html). The inventors prefer to remain anonymous. The Hubble Space Telescope’s image of the Sombrero Galaxy is from <http://time.com/3772495/see-hubble-best-photos-25th-anniversary/>.

IPMS crystal lattice energy storage/battery device. The text is a summary of “IPMS Crystal Lattice Energy Storage/Battery Device” in “102 Electrical Energy Innovations”, pages 126-136. Links include [padrak.com/vesperman](http://padrak.com/vesperman) and [commutefaster.com/vesperman.html](http://commutefaster.com/vesperman.html). The researchers include David G. Yurth and Kiev, Ukraine’s I.N. Frantsevich Institute of Problems of Materials Science. The Hubble Space Telescope’s image of the Butterfly Nebula is from [https://www.nasa.gov/images/content/384572main\\_ero\\_ngc6302\\_full\\_full.jpg](https://www.nasa.gov/images/content/384572main_ero_ngc6302_full_full.jpg).

Quantum high energy density storage or retrieval device. The text is a summary of “Quantum High-Energy Density Storage or Retrieval Device” in “102 Electrical Energy Innovations”, page 124. Links include [commutefaster.com/vesperman.html](http://commutefaster.com/vesperman.html) and [padrak.com/vesperman](http://padrak.com/vesperman). The inventor was Alvin Marks. The Hubble Space Telescope’s image of a rose made of galaxies is from <http://www.spacetelescope.org/static/archives/images/publicationjpg/heic1107a.jpg>.

Catalyst induced hydrino transition cell. The text and images are from [http://www.blacklightpower.com/wp-content/uploads/presentations/Business\\_Presentation.pdf](http://www.blacklightpower.com/wp-content/uploads/presentations/Business_Presentation.pdf). The inventor was Dr. Randall L. Mills.

Melanin battery-generator. The text and image are from <http://rexresearch.com/herrera/herrera.html> and <http://patents.justia.com/inventor/arturo-solis-herrera>. The inventor was Arturo Solís Herrera.

Walden amplified magnetic motor. The text is from Michael Walden’s Walden Amplified Magnetic Motor Status and Development Plan 2011-2012 that was attached to his May 7, 2016 email to Gary Vesperman. Both diagrams are from Michael Walden’s May 7, 2016 email to Gary Vesperman.

Graphene polymer battery. The text is from <http://revolution-green.com/grabat-energy-graphene-polymer-battery-breakthrough/>. The graph is a printscreen of <https://vimeo.com/154169394?width=1080>.

Sky Train. The text is based on “The Rewards and Benefits of Sky Train”, page 30 of [http://skytraincorp.com/pp/stc\\_t\\_and\\_f.pdf](http://skytraincorp.com/pp/stc_t_and_f.pdf). The left image is from page 5 of a Sky Train Corporation PowerPoint Presentation emailed by Karl Guenther to Gary Vesperman, April 9, 2017. The right image is from the last page of <http://skytraincorp.com/mission.htm>.

Sirius Ultra-Capacitor Battery. The text and photos are from <http://wrltech.com/singal.php?id=2>, <http://wrltech.com/singal.php?id=7>, <http://www.microtronotec.com/innovations.php?innovID=9>, <http://revolution-green.com/holy-grail-already-super-capacitor-battery/>, and <http://www.khaleejtimes.com/a-solar-inspired-visionary>.

Electrostatic Motor. The inventor is Dan Ludois, Ph.D. The image and some of the text are from <https://news.wisc.edu/dan-ludois-inventor-of-new-electrostatic-motor-named-moore-inventor-fellow/>. Other sources include <http://www.rotary.co.uk/news/could-electrostatic-motors-be-the-future>, [http://drivesncontrols.com/news/fullstory.php/aid/4556/Electrostatic\\_motor\\_\\_91outperforms\\_standard\\_designs\\_92.html?current\\_page=NO\\_PAGE](http://drivesncontrols.com/news/fullstory.php/aid/4556/Electrostatic_motor__91outperforms_standard_designs_92.html?current_page=NO_PAGE), and <http://midwestenergynews.com/2017/11/15/qa-wisconsin-inventor-wants-to-help-electric-motors-lose-weight/>.

Manelas Battery Charger. The inventor was Arthur Manelas. The source of the text and images is <https://www.integrityresearchinstitute.org/Ahern-Valone-ManelasCOFE10.pdf>.

Fisker Flexible Solid-State Battery. Inventor is Henrik Fisker, Chairman and CEO of Fisker Inc. The image and text are from <https://www.fiskerinc.com/blog/ces-debut>.

Graphene Magnesium Battery. The battery’s inventor is unknown. Developers of the car include New Technologies of Siberia, the Bakulin Motors Group, and the universities of Kazan, St. Petersburg, and Novosibirsk. Alexander Frolov’s December 10, 2019 to Gary Vesperman claims that Monarch electric cars will have on-board free-energy generators beginning in 2021. Image and text are from <https://newsbeezer.com/ukraineeng/the-russian-electric-car-monarch-can-be-charged-in-3-minutes-but-will-they-ever-release-him/> and <https://www.elauto.one/en/main>. <https://i.ytimg.com/vi/1lfzleHQ8dU/maxresdefault.jpg>.

High Rotor Pole Switched Reluctance Motor Driven by a Software Controlled Inverter. Inventor was Plyush Desai. Images and text are from <https://turntide.com>.



Solid-State Lithium-Metal Battery. The founder of QuantumScape was Jagdeep Singh. The text and image are from <https://www.quantumscape.com/>.

Casimer Self-Propulsion. The inventor is William Scott Smith. The image and text are from the pdf file attached to Smith's August 3, 2009 email to Gary Vesperman.

Axial-Flux Electric Motor. The inventor is Dr. Tim Woolmer. The text and images are from [www.yasa.com](http://www.yasa.com). Also see <https://www.yahoo.com/2021/09/03/acquired-by-mercedes-benz-yasas-revolutionary-electric-motor-is-set-for-big-things/>.

Sodium-Air or Lithium-Air Battery. The inventors are employees of Argonne National Laboratory and Illinois Institute of Technology. <https://finance.yahoo.com/news/coming-ev-batteries-sweep-away-140709581.html>

The bluish image of the Cat's Eye Nebula's intricate layers in the References page for Advanced Self-Powered Electric Vehicle Innovations is from [http://hubblesite.org/gallery/album/entire/pr2005012t/web\\_print/](http://hubblesite.org/gallery/album/entire/pr2005012t/web_print/). The greenish image of the Cat's Eye Nebula that is also in the References page is from <http://tattoos.fansshare.com/gallery/photos/10802940/hubble-telescope-cats-eye-nebula-telescope/?loadimage>.

[https://apod.nasa.gov/apod/image/1206/simeis188\\_willasch\\_2200.jpg](https://apod.nasa.gov/apod/image/1206/simeis188_willasch_2200.jpg)

Twisting with NG3718. <http://apod.nasa.gov/apod/ap130803.html>.

Blinded to the Future. From <http://www.keelynet.com/shoulders/>. The quotation "Well informed people know that it is impossible to transmit a human voice over wires." Boston newspaper re Joshua Coppersmith's invention of his 'telephone', 1865, is from Nick Kraakman's video presentation of "The Robert Adams Pulsed Electric Motor/Generator" in <https://emediapress.com/shop/the-robert-adams-pulsed-electric-motor-generator/ref/4/>.

Trinity – Test of first atomic bomb. The photograph came from [http://en.wikipedia.org/wiki/Plutonium#mediaviewer/File:Plutonium\\_ring.jpg](http://en.wikipedia.org/wiki/Plutonium#mediaviewer/File:Plutonium_ring.jpg).

The title of "Radioactivity Neutralization Methods" was designed by Karen Elkins, [http://www.sciencetosage.com/?page\\_id=447](http://www.sciencetosage.com/?page_id=447).

Dr. Radha Roy's transmutation process. The text is a summary of "Dr. Radha Roy's Transmutation Process was Viciously Suppressed" in "Radioactivity Neutralization Methods", pages 21-30. Links include [commutefaster.com/vesperman.html](http://commutefaster.com/vesperman.html) and [padrak.com/vesperman](http://padrak.com/vesperman). The diagram came from [http://media.cns-snc.ca/uploads/branch\\_data/branches/ChalkRiver/past\\_speak/ZIPP\\_CNS\\_Blue.pdf](http://media.cns-snc.ca/uploads/branch_data/branches/ChalkRiver/past_speak/ZIPP_CNS_Blue.pdf).

Deep underground burial of radioactive waste. The text is a summary of “Deep Underground Burial of Radioactive Waste” in “Radioactivity Neutralization Methods”, pages 30-31. Links include [commutefaster.com/vesperman.html](http://commutefaster.com/vesperman.html) and [padrak.com/vesperman](http://padrak.com/vesperman). The Yucca Mountain map was provided by the U.S. Department of Defense. The researchers include employees of the U.S. Department of Energy.

Remediating nuclear waste with electron-captured protons results in significant net energy gain. The text is a summary of “Remediating Nuclear Waste with Electron-Captured Protons Results in Significant Net Energy Gain” in “Radioactivity Neutralization Methods”, pages 121-145. The two diagrams are from the same article. Links include [padrak.com/vesperman](http://padrak.com/vesperman) and [commutefaster.com/vesperman.html](http://commutefaster.com/vesperman.html). The inventors include David G. Yurth, Kenneth Shoulders, Dr. Hal Puthoff, Shang\_Xian Jin, Prof. Illyanuch, Prof. Mesyats, and others.

Methods of influencing radioactivity decay. The text is a summary of “Methods of Influencing Radioactivity Decay” in “Radioactivity Neutralization Methods”, pages 107-109. The two diagrams are from the same article. The inventor was Alexander Frolov. Links include [padrak.com/vesperman](http://padrak.com/vesperman) and [commutefaster.com/vesperman.html](http://commutefaster.com/vesperman.html).

Hawkings’ generator of cold electricity. The text is a summary of “Hawkings’ Generator of Cold Electricity” in “Radioactivity Neutralization Methods”, pages 120-121. Links include [padrak.com/vesperman](http://padrak.com/vesperman) and [commutefaster.com/vesperman.html](http://commutefaster.com/vesperman.html). The inventor was Ken Hawkings. The image of the prototype Hawkings’ generator circuit is a freeze-frame of Gary Vesperman’s videotape received from an associate of Ken Hawkings. For more on cold electricity theory see [https://1stmuse.com/atlas/cold\\_electricity/?fbclid=IwAR1wu-17978xeS7wGt9BAOfhLcHiJWoCuGK9Sh2liW13qXszSoYkh0cYR-U](https://1stmuse.com/atlas/cold_electricity/?fbclid=IwAR1wu-17978xeS7wGt9BAOfhLcHiJWoCuGK9Sh2liW13qXszSoYkh0cYR-U).

Piezonuclear reactions in solutions cavitated by ultrasound. The text is a summary of “Piezonuclear Reactions in Solutions Cavitated by Ultrasound” in “Radioactivity Neutralization Methods”, pages 221-226. Links include [padrak.com/vesperman](http://padrak.com/vesperman) and [commutefaster.com/vesperman.html](http://commutefaster.com/vesperman.html). Inventors included Fabio Cardone, Giovanni Cherubini, Roberto Mignani, Walter Perconti, Aelianus Pessa, Andrea Petrucci, and Francesca Rosetto. The Hubble Space Telescope’s image of the Cone Nebula is from <http://www.skyimagelab.com/hubconneb.html>.

Dematerialization devices A, B, C and D using highest powered positive ions ever. The text is a summary of “Dematerialization Devices A, B, C and D Using Highest Powered Positive Ions Ever” in “Radioactivity Neutralization Methods”, pages 146-175. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The two figures are from the same article. The inventor was Mike Hanson.

Combining Brown's gas with bucking magnetic fields inside a plasma ball. The text is a summary of "Combining Brown's Gas with Bucking Magnetic Fields Inside a Plasma Ball" in "Radioactivity Neutralization Methods", pages 216-217. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The inventor was Hans Becker. The Hubble Space Telescope's image of the Ant Nebula is from <http://www.spacetelescope.org/static/archives/images/large/heic0101a.jpg>.

Flame-free incineration of radioactive waste in a catalyzer, The text is a summary of "Flame-Free Incineration of Radioactive Waste in a Catalyzer" in "Radioactivity Neutralization Methods", page 177. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The photograph came from [http://www.en.catalysis.ru/block/?print\\_version=yes&ID=19&ELEMENT\\_ID=1568](http://www.en.catalysis.ru/block/?print_version=yes&ID=19&ELEMENT_ID=1568). The inventors were employees of Boreskov Institute of Catalysis in Novosibirsk, Russia.

Barker's radioactivity remediation method. The text is a summary of "Barker's Patented Radioactivity Remediation Method" in "Radioactivity Neutralization Methods", pages 198-200. Links include [commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html) and [padrak.com/vesperman](http://www.padrak.com/vesperman). The inventor was William Barker. The Hubble's image is from [http://www.spacewallpapers.net/wallpapers/albums/Widescreen/normal\\_cg-quasar.jpg](http://www.spacewallpapers.net/wallpapers/albums/Widescreen/normal_cg-quasar.jpg).

DOE in 1992 witnessed 96% reduction of radioactivity of cobalt-60 with Brown's gas. The text is a summary of "DOE in 1992 Witnessed 96% Reduction of Radioactivity of Cobalt-60 with Brown's Gas" in "Radioactivity Neutralization Methods", pages 200-216. Links include [padrak.com/vesperman](http://www.padrak.com/vesperman) and [commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The Hubble Space Telescope's image of part of the Veil Nebula is from <http://www.spacetelescope.org/static/archives/images/large/heic0712c.jpg>.

'Hutchison effect' for neutralizing both radioactive waste and dispersed radioactivity. The text is a summary of "'Hutchison Effect' For Neutralizing Both Radioactive Waste And Dispersed Radioactivity" in "Radioactivity Neutralization Methods", pages 219-220. The inventors were John and Nancy Hutchison. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The photographs were taken by Gary Vesperman.

ZIPP fusion. The text is a summary of "ZIPP Fusion" in "Radioactivity Neutralization Methods", page 234. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The diagram came from [http://media.cns-snc.ca/uploads/branch\\_data/branches/ChalkRiver/past\\_speak/ZIPP\\_CNS\\_Blue.pdf](http://media.cns-snc.ca/uploads/branch_data/branches/ChalkRiver/past_speak/ZIPP_CNS_Blue.pdf). RIPPLE fission. The text is a summary of "RIPPLE Fission" in "Radioactivity Neutralization Methods", page 234. Links include [padrak.com/vesperman](http://www.padrak.com/vesperman) and [commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). Shocked region around Supernova 1987A is from <http://www.spacetelescope.org/static/archives/images/large/opo1030a.jpg>.

Nuclear fusion-fission hybrid could contribute to carbon-free energy future. The text is a summary of “Nuclear Fusion-Fission Hybrid Could Contribute to Carbon-Free Energy Future” in “Radioactivity Neutralization Methods”, pages 229-231. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The photograph came from <http://www.theengineer.co.uk/energy/news/super-compact-fusion-reactor-secures-funding/1007426.article>.

AmoTerra Process. The text came from attachments to Taffy Anderson’s October 1 and 8, 2014 emails to Gary Vesperman. The figures were attached to Eddie’s October 2, 2014 email to Gary Vesperman. Eddie is an associate of Taffy Anderson.

Higher group symmetry electrodynamics. The text is a summary of “Higher Group Symmetry Electrodynamics” in “Radioactivity Neutralization Methods”, page 235. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The inventors include Glen Rein, M.W. Evans, and Lt. Col. (retired) Thomas E. Bearden. The Hubble Telescope’s image of Giant 'Twisters' in the Lagoon Nebula is from <http://www.spacetelescope.org/static/archives/images/large/opo9638b.jpg>.

Photo-remediation. The text is a summary of “Photo-Remediation” in “Radioactivity Neutralization Methods”, pages 232-233, and “Radioactivity Neutralization with Paul Brown’s Gamma Ray Method”. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The inventor was Paul Brown, Ph.D.

Implosion machine can annihilate high-level nuclear waste. The text is a summary of “Implosion Machine can Annihilate High-Level Nuclear Waste” in “Radioactivity Neutralization Methods”, pages 177-180. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The photographs were attached to Ken Rasmussen’s July 9, 2014 email to Gary Vesperman. The inventor was Sonne Ward.

Refresher-regenerator. The text is a summary of “Refresher-Regenerator” in “Radioactivity Neutralization Methods”, pages 217-219. Links include [padrak.com/vesperman](http://www.padrak.com/vesperman) and [commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The inventor was Gordon L. Ziegler. The Hubble Space Telescope’s image is from [http://universe-beauty.com/albums/userpics/2014y/10/22/22/38/2896-Jenny\\_Dick\\_3\\_galaxy.jpg](http://universe-beauty.com/albums/userpics/2014y/10/22/22/38/2896-Jenny_Dick_3_galaxy.jpg).

Entombments of the Fukushima reactors. The text is a summary of “Entombments of the Fukushima Reactors” in “Radioactivity Neutralization Methods”, pages 80-83. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The photograph came from <https://www.radcast.org/wp-content/uploads/2014/03/3-spent-fuel-rods-in-pool1.jpg>.



Method, system and apparatus for conditioning electromagnetic potentials, fields and waves to treat and alter matter. The text is a summary of “Method, System and Apparatus for Conditioning Electromagnetic Potentials, Fields and Waves to Treat and Alter Matter” in “Radioactivity Neutralization Methods”, pages 193-198. Links include [padrak.com/vesperman](http://padrak.com/vesperman) and [commutefaster.com/vesperman.html](http://commutefaster.com/vesperman.html). The inventor was Lt. Col. (retired) Thomas E. Bearden. Hubble’s image of the Large Magellanic Cloud is from <http://www.spacetelescope.org/static/archives/images/large/heic1301a.jpg>.

Kervran reactions. The text is a summary of “Kervran Reactions” in “Radioactivity Neutralization Methods”, page 235. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The discoverer was Dr. Louis Kervran. The Cartwheel Galaxy image taken by the Hubble Space Telescope is from <http://www.spacetelescope.org/static/archives/images/large/opo9636a1.jpg>.

Geomelting of radioactive waste. The text is a summary of “Geomelting of Radioactive Waste” in “Radioactivity Neutralization Methods”, pages 102-103. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The original for the left planar diagram is at [http://infohouse.p2ric.org/ref/14/0\\_initiatives/init/fall99/images/Planar.gif](http://infohouse.p2ric.org/ref/14/0_initiatives/init/fall99/images/Planar.gif). The original for MVS figure in the center is at <http://www.kurion.com/technology/stabilization/mvs>. The original image for the glass block is at [http://www.kurion.com/media/site\\_images/Geomelt\\_Tech\\_3.jpg](http://www.kurion.com/media/site_images/Geomelt_Tech_3.jpg). The company is Kurion, Inc.

Wilhelm Reich’s oranur effect method can denaturize radiation sources. The text is a summary of “Wilhelm Reich’s Oranur Effect Method can Denaturize Radiation Sources” in “Radioactivity Neutralization with Paul Brown’s Gamma Ray Method”, pages 88-89. Links include [padrak.com/vesperman](http://padrak.com/vesperman) and [commutefaster.com/vesperman.html](http://commutefaster.com/vesperman.html). The inventor was Wilhelm Reich. The original for the figure is in [http://nexusilluminati.blogspot.com/2013/08/the-oranur-experiment-reichs-radiation\\_29.html](http://nexusilluminati.blogspot.com/2013/08/the-oranur-experiment-reichs-radiation_29.html).

Graphene oxide can decontaminate radioactive fluids. Both text and photo are from <http://www.gizmag.com/graphene-oxide-radioactive-water/25767/>.

Thorium Reactor. Both text and photo are from [https://newatlas.com/thorium-reactor-recycle-plutonium/53078/?utm\\_source=Gizmag+Subscribers&utm\\_campaign=f0cbe081b2-UA-2235360-4&utm\\_medium=email&utm\\_term=0\\_65b67362bd-f0cbe081b2-76675299](https://newatlas.com/thorium-reactor-recycle-plutonium/53078/?utm_source=Gizmag+Subscribers&utm_campaign=f0cbe081b2-UA-2235360-4&utm_medium=email&utm_term=0_65b67362bd-f0cbe081b2-76675299)

Bacteria Neutralizes Liquid Nuclear Waste. The text is from [https://galacticconnection.com/russian-scientists-discover-bacteria-that-neutralizes-nuclear-waste/?utm\\_source=Newsletter&utm\\_campaign=f610231136-The+Daily+Alternative+News+Source+Jan+6%2C+2018\\_COPY&utm\\_medium=email&utm\\_term=0\\_aebd2bb672-f610231136-147625645&goal=0\\_aebd2bb672-f610231136-147625645&mc\\_cid=f610231136&mc\\_eid=9e670644f2](https://galacticconnection.com/russian-scientists-discover-bacteria-that-neutralizes-nuclear-waste/?utm_source=Newsletter&utm_campaign=f610231136-The+Daily+Alternative+News+Source+Jan+6%2C+2018_COPY&utm_medium=email&utm_term=0_aebd2bb672-f610231136-147625645&goal=0_aebd2bb672-f610231136-147625645&mc_cid=f610231136&mc_eid=9e670644f2).

Bioremediation of Radioactive Wastewaters with Algae. Inventor is Gail Busch. The two photos of algae are from <https://hal.archives-ouvertes.fr/hal-00796855/document>. The photo of an algae pond cover is from <http://algepower.com/technology.php>.

The Spiral Galaxy M83 image in the References page of Radioactivity Neutralization Methods is from <http://imgsrc.hubblesite.org/hu/db/images/hs-2014-04-a-pdf.pdf>.

This galaxy's image is from <http://cdn.spacetelescope.org/archives/images/screen/heic0512d.jpg>. The image of the star cluster Pismis 24 is from <http://time.com/3772495/see-hubble-best-photos-25th-anniversary/>.

Image is from [https://www.google.com/search?q=new+hubble+images+2018&tbm=isch&tbs=rimg:CZTDKEnoyjUdljhEjVq12l5DOb11BzyXVIHvcYnnyovqH7xTnBEVFHI1WkhGayJ1AfG97smwvC5RapCvTRavrEvCXSoSCUSNWrxAXkM5EWMYm8Khk-7hKhIjvXUHPJdWUe8RCXbjSC-pXg8qEglxiefKi-ofvBHjCikrNNfp1CoSCVOcERUUcjVaEbHHvhBxOrAGKhIjSEZrInUB8b0RWLITbzkQ1VAqEgnuybC8LIFqkBHhW838713bXCSCa9NFq-sS8JdEZmpG2owRc6v&tbo=u&sa=X&ved=2ahUKEwjy2-WX573dAhUBJ3wKHYabBuUQ9C96BAgBEBg&biw=1024&bih=542&dpr=3.75#imgdii=7YaX0UIdRIh\\_EM:&imgsrc=AXro2Alk580GCM](https://www.google.com/search?q=new+hubble+images+2018&tbm=isch&tbs=rimg:CZTDKEnoyjUdljhEjVq12l5DOb11BzyXVIHvcYnnyovqH7xTnBEVFHI1WkhGayJ1AfG97smwvC5RapCvTRavrEvCXSoSCUSNWrxAXkM5EWMYm8Khk-7hKhIjvXUHPJdWUe8RCXbjSC-pXg8qEglxiefKi-ofvBHjCikrNNfp1CoSCVOcERUUcjVaEbHHvhBxOrAGKhIjSEZrInUB8b0RWLITbzkQ1VAqEgnuybC8LIFqkBHhW838713bXCSCa9NFq-sS8JdEZmpG2owRc6v&tbo=u&sa=X&ved=2ahUKEwjy2-WX573dAhUBJ3wKHYabBuUQ9C96BAgBEBg&biw=1024&bih=542&dpr=3.75#imgdii=7YaX0UIdRIh_EM:&imgsrc=AXro2Alk580GCM):

<https://hubblesite.org/contents/media/images/2020/16/4646-Image?Collection=Hubble%20Favorites>

The title of "Space Travel Innovations" was designed by Karen Elkins, [http://www.sciencetosage.com/?page\\_id=447](http://www.sciencetosage.com/?page_id=447).

Colliding plasma toroid fusion reactors could lift payloads into orbit with 99% cost savings. The text is a summary of "New Space Propulsion Technology to Lift Payloads into Orbit with 99% Cost Savings per Kilogram" in "Ball Lightning Fusion Reactors", pages 25-28. Links include [padrak.com/vesperman](http://padrak.com/vesperman) and [commutefaster.com/vesperman.html](http://commutefaster.com/vesperman.html). The two colliding plasma toroid photographs were attached to inventor Clint Seward's September 23, 2014 email to Gary Vesperman.

Magneto-gravitational converter (Searl effect generator). The text is a summary of “Magneto-Gravitational Converter (Searl Effect Generator)” in “Space Travel Innovations”, pages 12-14. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The original for the SEG figure on the left is at <https://www.youtube.com/watch?v=FG91h58JrHk>. The figure on the right is at <https://www.youtube.com/watch?v=vxMHgsmIEfs>. The inventor was John Searl.

David Hamel’s gravito magnetic device. The text is a summary of “David Hamel’s Gravito Magnetic Device” in “Space Travel Innovations”, pages 14-15. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The David Hamel flying saucer rendering is from [http://peswiki.com/index.php/Directory:David\\_Hamel\\_Motor](http://peswiki.com/index.php/Directory:David_Hamel_Motor).

David Burns’ anti-gravity flying saucer. The text is a summary of “David Burns’ Anti-Gravity Flying Saucer” in “Space Travel Innovations”, page 15. Links include [padrak.com/vesperman](http://www.padrak.com/vesperman) and [commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The Earthrise photo is from <https://s.yimg.com/aah/skyimage/earthrise-1-10.jpg>.

Orgone energy accumulators may impart anti-gravity to a rocket. The text is a summary of “Orgone Energy Accumulators for Anti-Gravity” in “Space Travel Innovations”, pages 52-60. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The photograph was taken by Gary Vesperman. The inventors were Moshe Daniel Block and “Joe” of Australia.

Inertia reduction, and possible impulsion by conditioning electromagnetic fields. The text is a summary of “Inertia Reduction, and Possible Impulsion by Conditioning Electromagnetic Fields” in “Space Travel Innovations”, pages 50-51. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The inventors were H. David Froning and T.W. Barret. The image of a cometary globule is from [http://www.huffingtonpost.com/2015/01/31/space-globule-very-large-telescope\\_n\\_6581042.html?ncid=txtlnkusaolp00000592](http://www.huffingtonpost.com/2015/01/31/space-globule-very-large-telescope_n_6581042.html?ncid=txtlnkusaolp00000592).

Mike Hanson’s flying saucer engine. The text is a summary of “Mike Hanson’s Flying Saucer Engine” in “Space Travel Innovations”, pages 16-47. The diagrams are from the same article. Links include [padrak.com/vesperman](http://www.padrak.com/vesperman) and [commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). For another interpretation of the crop circle see pages 13-15 of “The Harmonic Sphere Flux Resonator” <https://sunshinelighthouse.files.wordpress.com/2013/03/the-harmonic-sphere-flux-resonator.pdf>.

Inertia-less craft and artificial gravity. Invented by Gordon L. Ziegler who also invented the electrino fusion power reactor. The details are currently proprietary. The art was designed by Karen Elkins, [http://www.sciencetosage.com/?page\\_id=447](http://www.sciencetosage.com/?page_id=447).

Domestic Lens. The text is a summary of “Domestic Lens” in “Space Travel Innovations”, page 71. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The illustration was attached to inventor Abby Mobasher’s October 13, 2014 email to Gary Vesperman.

Double magnetic fields plasma reactor. The text is a summary of space-related pages in [www.keshefoundation.org](http://www.keshefoundation.org). The original for the figure on the left is in <http://www.keshefoundation.org/applications/space/gravitational-technology/140-gravitational-positioning-spacecrafts-propulsion-systems.html>. The inventor was Mehran Tavakoli Keshe. The original for the figure on the right is on page 123 of <http://open-source-energy.org/files/rwg42985/geert8550/EP1770717A1.pdf>.

Magnetic vortex drive engine. The text is a summary of “Magnetic Vortex Drive Engine” in “Space Travel Innovations”, pages 48-49. The diagram is from the same article. Links include [padrak.com/vesperman](http://www.padrak.com/vesperman) and [commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The inventor was Larry B. Woods, Ph.D. (electrical engineering).

Meta-stable helium as rocket propellant. The text is a summary of “Meta-Stable Helium As Rocket Propellant” in “Space Travel Innovations”, page 71. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The diagram is from page 17 of inventor Dr. Robert W. Bass’ “*Metastable Helium & Hydrogen Crystals* (MSH, MSP, MSD) via Liquid Metallic Plasmod (LMP) Precursors”.

Space drive engine. The text is a summary of “Space Drive Engine” in “Space Travel Innovations”, pages 74-82. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The originals for the two Space Drive figures are in <http://depalma.pair.com/GenerationOfUnidirectionalForce.html>. The inventor was Bruce DePalma.

Torsion field communications. The text is a summary of numerous torsion field articles pages 110-261 of “Space Travel Innovations”. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The photograph is slide 13 of David G. Yurth’s “Faster Than Light Communications” PowerPoint presentation. The inventors were David G. Yurth, Gary Vesperman, and Kiev, Ukraine’s I.N. Frantsevich Institute of Problems of Materials Science.

Ground transportation for colonies on Mars and Earth’s moon. The text is a summary of “Ground Transportation for Colonies on Mars and Earth’s Moon” in “Space Travel Innovations”, pages 72-74. Links include [padrak.com/vesperman](http://www.padrak.com/vesperman) and [commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The illustration is included in this same article.



Warp drive would travel faster than light. The text is a summary of “Warp Drive Would Travel Faster than Light” in “Space Travel Innovations”, pages 68-69. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). First proposed by Michael Alcubierre. The illustration is from page 10 of <http://members.shaw.ca/mike.anderton/WarpDrive.pdf>.

Torsion field may ‘uncurve’ space and enable advanced propulsion devices. The text is a summary of “Torsion Physics: A View from the Trenches” in “Space Travel Innovations”, pages 150-154. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The illustrations are included in this same article. The inventors were mostly Russian physicists plus Albert Einstein.

IPMS-Chernovitsky super ceramics. The text is a summary of “IPMS-Chernovitsky Super Ceramics” in “102 Electrical Energy Innovations”, pages 106-107. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The inventors were employees of the Chernovitsky branch of Kiev, Ukraine’s I.N. Frantsevich Institute of Problems of Materials Science.

Atomic powered plasma rocket engine. The text is a summary of inventor Thomas Hulon Jackson’s September 2, 2014 email to Gary Vesperman. The four rocket figures are actually appropriately timed snapshots of an animated gif also attached to Jackson’s email.

Tubular shaped interstellar space craft. The text is included in Thomas Hulon Jackson’s September 2, 2014 email to Gary Vesperman. The two illustrations for the tubular shaped space ship are from U.S. Patent 8,109,471. The inventor is Gary Gochnour. The Mars image is from <http://time.com/3772495/see-hubble-best-photos-25th-anniversary/>.

Nuclear electric rocket. The text is a summary of [http://english.pravda.ru/science/tech/07-05-2013/124500-nuclear\\_rocket-0/](http://english.pravda.ru/science/tech/07-05-2013/124500-nuclear_rocket-0/). The image is included in the website.

Walden inertial propulsion system. The text is the slightly edited abstract of <http://www.google.com/patents/US20080168862>. The two images are from Chuck Bodeen’s article “WIPing X-Plane Or Building the Walden Inertial Propulsion WIPcraft”. Bodeen’s article is at [http://secure.simmarket.com/computer-pilot-pdf-vol-13\\_iss-2-february-09.phtml](http://secure.simmarket.com/computer-pilot-pdf-vol-13_iss-2-february-09.phtml). Also visit <http://forums.x-plane.org/index.php?/forums/topic/54974-wiping-x-plane/>.

Microwave engine could revolutionize space travel. The text, including the EmDrive image, is a summary of <http://www.independent.co.uk/news/science/nasa-approves-impossible-space-engine-design-that-apparently-violates-the-laws-of-physics-9646865.html> and <http://www.cheniere.org/references/emdrive.htm>. Also see <http://www.nasaspaceflight.com/2015/04/evaluating-nasas-futuristic-em-drive/>.

Internal rotating plasma rings. Inventor is Warren E. York. <https://www.facebook.com/photo.php?fbid=10211992029210121&set=a.10202977754178879.1073741827.1054795182&type=3&theater>. For more on plasma see <https://www.facebook.com/photo.php?fbid=10208008238617846&set=a.10202977754178879.1073741827.1054795182&type=3&theater> and <https://www.facebook.com/photo.php?fbid=10206909518110520&set=a.10202977754178879.1073741827.1054795182&type=3&theater>.

Nikola Tesla's Flying Saucer. The text and images are from <https://fringeenergy.com/nikola-teslas-flying-saucer-electromagnetic-field-lift-experiments/>.

Electric Propulsion with Asymmetric Capacitors. Inventor is Alexander V. Frolov. Text and images are from <http://www.faraday.ru/ep.pdf>.

Gravity Control. Inventor was Dr. Frederick Alzofon. Text and image are from [http://emediapress.com/davidalzofon/gravitycontrol/?hop=robotai&mc\\_cid=28e9217051&mc\\_eid=81808a9ea2](http://emediapress.com/davidalzofon/gravitycontrol/?hop=robotai&mc_cid=28e9217051&mc_eid=81808a9ea2).

Anti-Gravity Ether Shield. Inventor was German physics professor Adolph Zielinski. The text is from Gary Vesperman's notes on Zielinski's lecture at the International Symposium on New Energy that was held in the Denver Hilton South April 25-28, 1996. Zielinski's websites were [www.ihahockey.com/scorpion](http://www.ihahockey.com/scorpion) and <http://www.viewzone.com/unified.field.html>. The Hubble Space Telescope image is from <http://cdn.spacetelescope.org/archives/images/screen/heic1316a.jpg>.

Plasma Thruster. The inventor is Fatima Ebrahimi, Ph.D. The text is from <https://www.dailymail.co.uk/sciencetech/article-9202081/Female-physicist-invents-new-fusion-rocket-humans-Mars.html>, <https://www.azoquantum.com/News.aspx?newsID=7735>, and <https://www.sciencedaily.com/releases/2021/01/210128134739.htm>. The image and more text are from <https://www.popularmechanics.com/space/rockets/a35393411/magnetic-rocket-thruster-spaceflight-mars/>.

Magnetic propulsion device using superconductors. The text, including the two images, is a summary of <http://etheric.com/nassikas-thruster-light-years-ahead-of-the-dawn-spacecraft-ion-propulsion-system/>. Gary Vesperman suggests that telemetry and steering commands could be instantly transmitted via interstellar torsion field communications. The inventor is Athanassios Nassikas.

Proxima Centauri, Nearest Star to Sun, 4 Light Years Distant. Image is from <http://www.space.com/23475-proxima-centauri-hubble-telescope-photo.html>.

The Horsehead Nebula image in the References page of Space Travel Innovations is from <https://i.ytimg.com/vi/e7CZcvMxup8/maxresdefault.jpg>.

NGC 6960 Witch's Broom Nebula. <http://apod.nasa.gov/apod/ap130529.html>.  
NGC 3231 Southern Ring Nebula. <http://apod.nasa.gov/apod/ap130409.html>.

In the Center of the Trifid Nebula. <http://apod.nasa.gov/apod/ap130128.html>.

[http://farm3.static.flickr.com/2284/1567165849\\_09a6d114ea.jpg](http://farm3.static.flickr.com/2284/1567165849_09a6d114ea.jpg)  
Bright Planetary Nebula NGC 7027. <http://apod.nasa.gov/apod/ap130826.html>

A Halo for NGC 6164. <http://apod.nasa.gov/apod/ap121027.html>.

An Annular Planetary Nebula. <http://apod.nasa.gov/apod/ap110816.html>.  
Cygnus Loop Supernova. <http://news.nationalgeographic.com/2015/03/150316-50-great-images-from-the-hubble-space-telescope/#/hubble-10-cygnus-loop-supernova-remnant-1080v.jpg>.  
[https://tessladapanda.tumblr.com/post/90686654327/from-an-explosion-to-these-breathtaking](https://tessladapanda.tumblr.com/post/90686654327/from-an-explosion-to-these-breathhtaking);  
<https://i.pinimg.com/736x/9d/9c/d0/9d9cd0c52c027237ff125ecb78647bbc--hubble-photos-hubble-pictures.jpg>

<https://localtvwghp.files.wordpress.com/2016/03/thinkstockphotos-497707356.jpg?quality=85&strip=all&w=770>

The title of "Technical Solutions to Water Shortages" was designed by Karen Elkins, [http://www.sciencetosage.com/?page\\_id=447](http://www.sciencetosage.com/?page_id=447).

Air wells. The text is a summary of “Air Wells” in “Technical Solutions to Lake Mead Water Shortages”, pages 1-2. Links include [padrak.com/vesperman](http://padrak.com/vesperman) and [commutefaster.com/vesperman.html](http://commutefaster.com/vesperman.html). Inventors are varied but do include the I.N. Frantsevich Institute of Problems of Materials Science, Kiev, Ukraine. “Source: a HydroPanel™” makes drinking water from sunlight and air. See <https://www.zeromasswater.com/>. The Hubble Space Telescope’s image of a supernova remnant is from <http://static.ddmcdn.com/gif/06-supernova-remnant-hubble-latest-greatest-670x500-130128.jpg>. For more see <http://rexresearch.com/sherairwell/sher.html>.

Hydrosonic pump. The text is a summary of “Hydrosonic Pump” in “Technical Solutions to Lake Mead Water Shortages”, pages 3-5. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The two hydrosonic pump photos are in <http://spinoff.nasa.gov/spinoff2000/ip3.htm>.

Water purification with electrical coils. The text is a summary of “Water Purification with Electrical Coils” in “Technical Solutions to Lake Mead Water Shortages”, page 5. Links include [padrak.com/vesperman](http://padrak.com/vesperman) and [commutefaster.com/vesperman.html](http://commutefaster.com/vesperman.html). The inventor was Larry B. Woods, Ph.D. Hubble’s image of the Glowing Eye nebula is from <http://www.spacetelescope.org/static/archives/images/large/opo0012a.jpg>.

Primary water. The text is a summary of “Primary Water” in “Technical Solutions to Lake Mead Water Shortages”, pages 7-9. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The photograph of the Muddy River (below the Warm Springs Road bridge) was taken by Gary Vesperman. For more see Karen Elkins’ Science to Sage e-magazine’s Water Solutions issue Pages 66-69 [https://issuu.com/sciencetosage/docs/water\\_solutions](https://issuu.com/sciencetosage/docs/water_solutions).

Etheric weather engineering. The text is a summary of “Etheric Weather Engineering” in “Technical Solutions to Lake Mead Water Shortages”, pages 9-12. Links include [padrak.com/vesperman](http://padrak.com/vesperman) and [commutefaster.com/vesperman.html](http://commutefaster.com/vesperman.html). The left photo of a cloudbuster is in <http://www.orgonelab.org/ResearchSummary2.htm>. The right photo of Trevor Constable is about a third the way down <http://panacea-bocaf.org/droughtrelief.htm>. For more see Karen Elkins’ Science to Sage e-magazine’s Water Solutions issue Pages 70-77 [https://issuu.com/sciencetosage/docs/water\\_solutions](https://issuu.com/sciencetosage/docs/water_solutions).



Atmospheric water generation. The text is a summary of “Atmospheric Water Generation” in “Technical Solutions to Lake Mead Water Shortages”, pages 13-14. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The inventors were Chuck Sprague and Kent Bingham. The two images are from Mark Shirk’s pdf sent to Gary Vesperman October 2, 2014. Also see <http://www.greentrainuniversity.org/>. For more see Karen Elkins’ Science to Sage e-magazine’s Water Solutions issue Pages 120-149 [https://issuu.com/sciencetosage/docs/water\\_solutions](https://issuu.com/sciencetosage/docs/water_solutions).

OASIS machine. The text is a summary of “OASIS Machine” in “Technical Solutions to Lake Mead Water Shortages”, pages 14-21. Links include [www.padrak.com/vesperman](http://www.padrak.com/vesperman) and [www.commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The inventor was Kent Bingham, Michael Walden, and others. The OASIS machine drawing was attached to Kent Bingham’s September 15 email to Gary Vesperman.

Environmental heat engines. The text is a summary of “Environmental Heat Engines” in “Technical Solutions to Lake Mead Water Shortages”, pages 6-7. Links include [padrak.com/vesperman](http://www.padrak.com/vesperman) and [commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The text is also a summary of 46 pages of “Stewart Cycle Environmental Heat Engine”. Its link is in [commutefaster.com/vesperman.html](http://www.commutefaster.com/vesperman.html). The image is a scan of the ‘Stewart Cycle’ environmental heat engine drawing provided to Gary Vesperman by inventor Robert Stewart.

Dynamic vapor recovery with zero discharge of brine. The inventor was Geert Jan Zanstra. The text is from <http://www.salttech.com/index.php>. The image is a snapshot of the video shown at <https://www.youtube.com/watch?v=Gn3RNzmLX2c>.

Researchers discover massive freshwater reserves under the ocean. <http://www.slashgear.com/researchers-discover-massive-freshwater-reserves-under-the-ocean-09308092/>. The Hubble Space Telescope’s image of the Hourglass Nebula is from <http://www.spacetelescope.org/static/archives/images/large/opo9607a.jpg>. For more see Karen Elkins’ Science to Sage e-magazine’s Water Solutions issue Pages 66-69 [https://issuu.com/sciencetosage/docs/water\\_solutions](https://issuu.com/sciencetosage/docs/water_solutions).

Solar-powered Watly provides internet, energy, and drinking water for Ghana residents. The text and the two left images are from <https://waty.co/watly/>. The right side image is from [https://www.yahoo.com/tech/massive-solar-powered-computer-could-221152651.html?soc\\_src=mail&soc\\_trk=ma](https://www.yahoo.com/tech/massive-solar-powered-computer-could-221152651.html?soc_src=mail&soc_trk=ma).

Graphene Desalination Membrane. The text and both images are from <http://cleantechnica.com/2015/04/03/methane-rescue-new-energy-efficient-graphene-desalination-membrane-99/>. The membrane was invented at Oak Ridge National Laboratory. For more see Karen Elkins’ Science to Sage e-magazine’s Water Solutions issue Page 64 [https://issuu.com/sciencetosage/docs/water\\_solutions](https://issuu.com/sciencetosage/docs/water_solutions).

NanoCeram water purification technology. The text is from [https://spinoff.nasa.gov/Spinoff2013/cg\\_1.html](https://spinoff.nasa.gov/Spinoff2013/cg_1.html) and <http://www.okoh2o.com/>. The technology originated from Argonide Corporation. The Hubble Space Telescope image of the Orion Nebula on the left is from <http://images.fineartamerica.com/images-medium-large-5/orion-nebula-close-up-1-3-14-nasa-hubble-space-telescope-l-brown.jpg>. The Hubble Space Telescope image on the right is from <http://www.whercoolthingshappen.com/wp-content/uploads/2012/07/Hubble05-640x480.jpg>.

Archimedean Desalination. The source for the text is inventor Mark Bird's newspaper article "Archimedean desalination wave of the future". The figure was mailed by Mark Bird to Gary Vesperman May 2016. The drawing is from U.S. Patent 6,083,382 "Water Desalination System".

The Drinkable Book™. The text and the two images on the right are from <http://waterislife.com/clean-water/new-technology>. The leftmost image is from Karen Elkins' Science to Sage e-magazine's Water Solutions issue Page 52 [https://issuu.com/sciencetosage/docs/water\\_solutions](https://issuu.com/sciencetosage/docs/water_solutions).

Okeanos WaterChip™. The text is from <http://www.okeanostech.com/technology/> and from Karen Elkins' Science to Sage e-magazine's Water Solutions issue Pages 60-61. [https://issuu.com/sciencetosage/docs/water\\_solutions](https://issuu.com/sciencetosage/docs/water_solutions).

High-Tech Water Treatment. The text is from Karen Elkins' Science to Sage e-magazine's Water Solutions issue Page 50 [https://issuu.com/sciencetosage/docs/water\\_solutions](https://issuu.com/sciencetosage/docs/water_solutions). The left Hubble image is The Blinking Planetary <http://www.astronomy.com/news/2017/04/best-of-hubble-images>. The Hubble Space Telescope image on the right is from [https://images-na.ssl-images-amazon.com/images/I/51K1YUSKHRL.\\_SX355\\_.jpg](https://images-na.ssl-images-amazon.com/images/I/51K1YUSKHRL._SX355_.jpg).

Desolenator. The inventor is William Janssen. The image and some of the text are from <http://desolenator.com/#features-off>. Other text is from <https://www.theguardian.com/business/2016/may/01/the-innovators-desalination-unit-brings-clean-water-on-wheels>, <https://www.indiegogo.com/projects/desolenator-transforming-sunshine-into-water#/>, and Karen Elkins' Science to Sage e-magazine's Water Solutions issue Pages 62-63 [https://issuu.com/sciencetosage/docs/water\\_solutions](https://issuu.com/sciencetosage/docs/water_solutions).

LifeSaver Inline Pump Water Filters. The inventor is Michael Pritchard. Much of the text is from <https://www.iconlifesaver.com/our-journey/our-technology/>. The bottle image is from [https://en.wikipedia.org/wiki/LifeSaver\\_bottle](https://en.wikipedia.org/wiki/LifeSaver_bottle). The Jerrycan image is from <https://www.iconlifesaver.com/product/lifesaver-jerrycan-10000uf/>. The LifeSaver Cube image is from <https://www.iconlifesaver.com/product/lifesaver-cube/>.

SunSpring™ – A Solar-Powered Microbiological Water Purifier. The text and images were from <http://waterislife.com/clean-water/new-technology>.

Electrocoagulation. The inventor is Paul Babcock. The text is from <https://emediapress.com/shop/electro-coagulation-pure-clean-water-anywhere-for-pennies/>. The images are from <https://www.youtube.com/watch?v=eNyoqV03dUI>.

Coaxial Electrospun Nanofiber Membrane. The inventors are with the Korean Institute of Civil Engineering and Building Technology. The text and images are from <https://www.studyfinds.org/drinking-water-device-makes-seawater-drinkable-freshwater-shortage/> and <https://www.sciencedirect.com/science/article/abs/pii/S0376738820316008?via%3Dihub>.

Atmospheric Water Generator. The primary inventor is Dr. David Stuckenberg. The text and images are from <https://genesissystems.global/about/>, <https://thedebrief.org/when-the-world-runs-out-of-water-will-this-inventor-save-us/>, and <https://www.washingtonexaminer.com/washington-secrets/bigger-than-the-moon-walk-new-system-pulls-water-from-thin-air>.

Desalination Battery. The inventors are Professor Kyoung-Shin Choi, Margaret Lumley and Dohwan Nam of University of Wisconsin-Madison. The text is from <https://news.wisc.edu/five-startups-from-uw-with-great-ideas-to-protect-the-earth/> and <https://www.chlobis.com/>. The image is from <https://www.sciencedirect.com/science/article/abs/pii/S2405829721000854>.

Wave Energy Powered Desalination. The inventors are employees of Oneka Technologies. The text and image are from <https://www.yahoo.com/news/company-develops-remarkable-technology-uses-190000448.html> and <https://www.onekawater.com/sea-water-desalination-technology/>.

The Star Forming Region NGC 2174 image in the References page for Technical Solutions to Water Shortages is from

<http://imgsrc.hubblesite.org/hu/db/images/hs-2014-18-a-print.jpg>.

The Saturn's Rings in Ultraviolet Light image is from

[http://hubblesite.org/gallery/album/solar\\_system/pr2003023b/large\\_web/](http://hubblesite.org/gallery/album/solar_system/pr2003023b/large_web/).

[http://farm3.static.flickr.com/2284/1567165849\\_09a6d114ea.jpg](http://farm3.static.flickr.com/2284/1567165849_09a6d114ea.jpg)

Bubble Nebula NGC 7635. The Hubble Space Telescope image is from

[http://hubblesite.org/newscenter/archive/releases/2016/13/image/a/format/web\\_print/](http://hubblesite.org/newscenter/archive/releases/2016/13/image/a/format/web_print/).

The title of "Torsion Field School Network" was designed by Karen Elkins,

[http://www.sciencetosage.com/?page\\_id=447](http://www.sciencetosage.com/?page_id=447).

The torsion field school network was designed by Gary Vesperman. The 125-page design document is linked at [padrak.com/vesperman](http://padrak.com/vesperman) and [commutefaster.com/vesperman.html](http://commutefaster.com/vesperman.html).

The Internet plus torsion field communications can link schools into a single network. To access the original of the left diagram go to [www.padrak.com/vesperman](http://www.padrak.com/vesperman). About half way down is a link to David Yurth's slide presentation "Torsion Fields and Communications". The diagram is slide 33. The original for the photograph is slide 34.

The reddish image in the References page for Torsion Field School Network is titled "Young Stars Sculpt Gas from Powerful Outflows" and is from <https://www.rocketstem.org/2015/04/23/the-top-100-images-of-the-universe-captured-by-the-hubble-space-telescope/2/>. The image on the right is from <http://astronomy-is-awesome.tumblr.com/post/134482320572/check-out-my-most-recent-article-featuring-20-blue>.

The image of star cluster NGC 602 is from <http://time.com/3772495/see-hubble-best-photos-25th-anniversary/>.

Both the image of the "Southern Pinwheel" and the image of the reflection nebula NGC 1999 are from <http://time.com/3772495/see-hubble-best-photos-25th-anniversary/>.

The image of the Sharpless 2-106 nebula is from <http://time.com/3772495/see-hubble-best-photos-25th-anniversary/>.

Icy blue wings of Hen 2-437

[https://www.nasa.gov/mission\\_pages/hubble/multimedia/index.html](https://www.nasa.gov/mission_pages/hubble/multimedia/index.html)

<https://lightsinthedark.files.wordpress.com/2015/01/eagle-nebula-crop.jpg?w=600&h=399>

"Impossible Dream" lyrics.

<http://www.azlyrics.com/lyrics/luthervandross/impossibledream.html>.



# Guest Submitted Comments or Questions (with Answers)

**Comment:** Going through the math, a 1,000 megawatt rated coal generator with a 75 percent capacity factor generates about 6.6 billion kilowatt-hours in a year – equivalent to the amount of power consumed by about 900,000 homes in the Northeast USA but only 460,000 homes in the South. In other words, each megawatt of rated capacity for a coal plant in the Northeast generates the equivalent amount of electricity consumed by 900 homes in the Northeast but only about 460 homes in the South.

By comparison, a 30 percent capacity factor, 100 megawatt wind farm would generate the equivalent amount of power consumed by about 35,000 homes in the Northeast USA and 18,000 homes in the South. In other words, each megawatt of rated capacity for a wind farm in the Northeast generates the equivalent amount of electricity consumed by 350 homes in the Northeast and 180 homes in the South.

But a non-polluting 1,880 megawatt rated Electrino Fusion Power Reactor with an astounding 100 percent capacity factor would generate about 16.469 billion kilowatt-hours in a year, equivalent to the amount of power consumed by about 2,245,000 homes in the Northeast USA but only 1,148,000 homes in the South – all over a year. In other words, each megawatt of rated capacity for the plant in the Northeast generates the equivalent amount of electricity consumed by 1,194 homes but only about 610 homes in the South, the difference largely due to the use of air conditioning year round in the South.

In 2012 the USA consumed 3.741 trillion kilowatt-hours of electricity, wherein a total of approximately 227 Electrino Fusion Power Reactors, at a total cost of estimated \$38 million each = \$8.626 billion + \$x billions for cost overruns, contingencies and ongoing maintenance would power the entire USA upon the grid/micro grid. Being that the now use of electricity would be so inexpensive and supply limitless, we can say that its use, over time, may increase up to ten fold [e.g., for snow/freeze proofing roads, sidewalks]. So we would need to build 2,270 Electrino Fusion Power Reactors, in total over time, and this presumes that each reactor's capacity will not increase above a net of 1,880 megawatts, but such assumption of megawatt size will likely be well surpassed over time, and eventually each Electrino Fusion Power Reactor could be the size of a filing cabinet.

Saying that, it may be possible to have tens of thousands of filing cabinet-sized localized Electrino Fusion Power Reactors, each with far lower megawatt power generation than 1880 megawatts, that also would then not be subject to massive ElectroMagnetic Pulse (EMP) blackouts for large population segments due to their decentralization and micro grid connections, and ability to Faraday cage each reactor.

**Comment:**

Sunday, November 9, 2014 6:16 PM

Hola Gary!

I hope you have your planned exhibits vetted by others...send out a list of what you plan to include and let a few of us let you know what we might know or can find out about them.

I could even post it as a list on Keelynet news and ask if everyone agrees it is a real, working tech...

Just to keep it on the up and up...just one fraudulent inclusion will make your entire effort appear half baked as well as gullible and reinforce what so many think about alternative science efforts in general...

These sites have lists of known scams;

<http://open4energy.com/directory-of-home-energy-saving-scams>

<http://open4energy.com/directory-of-free-energy-scams>

[http://u2.lege.net/newebmasters.com\\_\\_freeenergy/external\\_links\\_from\\_theverylastpageoftheinternet.com/menu/scams/scam\\_watch.htm](http://u2.lege.net/newebmasters.com__freeenergy/external_links_from_theverylastpageoftheinternet.com/menu/scams/scam_watch.htm)

<http://www.nlcpr.com/Deceptions15.php>

<http://www.skepticblog.org/2010/03/08/another-energy-scam/>

<http://www.mrericisir.com/blog/technology/anatomy-of-a-free-energy-scam/>

<http://aardvark.co.nz/savepowerscams.shtml>

<http://www.teslagenerator.com/tesla-generator-scam/>

<http://www.topsecretwriters.com/2010/10/three-examples-of-free-energy-scams/>

<http://kickfailure.com/tag/free-energy/>

and of course many more.

You know, that topic in itself might prove fascinating as its own exhibit since there are so many examples..."how to avoid being taken in by a free energy scam"...

Good luck!

**Comment:**

\*Water Powered Generator Update:\*

OK... Progress Report.

There's been a huge amount of interest in the 'GDS Water Powered Generator' that I notified you about in the previous eNews.

Evidently the 'company' was swamped with calls and some people even sent money hoping to be put on a queue list for the first machines. Obviously the interest is there, should anyone actually invent such a device.

While I cannot prove that the technology doesn't work as claimed, I now have \*many red flags\* that I feel a need to inform you about. It appears I jumped the gun, informing you about this technology before we checked it out, sorry about that. However, I think it is important to jump on these potentials ASAP, in case one does end up being real.

Free Energy technology HAS BEEN DEVELOPED \*many times\*, and suppressed every single time. Even solar cell technologies that exhibit better than 10% efficiencies are not allowed to be marketed. The Vested Interest use MANY suppression techniques – see

<http://www.eagle-research.com/cms/blog/suppression/vested-interest-suppression>.

The only way to break the monopolies that are preventing world prosperity and enslaving us is to bypass them by helping people implement personal energy and health solutions. That will only happen if we lose Greed and put our resources together to help each other.

07/21/14 - SERPS or another scam?

<http://www.keelynet.com/news/072114a.html>

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08/03/14 - Self-Charging Electric Scooter, yeah right!

<http://www.keelynet.com/news/080314h.html> which appears to be based on ultracapacitors where the Chinese have a patent on self charging capacitors;

11/06/14 - How To Make A Super Capacitor Seem To Self Charge

<http://www.keelynet.com/news/110614u.html>

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\*News that's NOT in the News\*

I include the section below in my eNews because \*it is my voice\*. If you don't want to know this stuff or my opinion of it, then just stop reading now.

I pass on the news I think should be known. I also express my opinions. Some of the news might be wrong and my opinions might be mistaken (based on erroneous information or assumptions... But I am trying to 'correct' the imbalance caused by Media propaganda.

\*I know I'm just one voice\*, but the 99% of US are made of individuals that collectively create our reality (as opposed to the 1% that have the means to change our reality by themselves).

\*I encourage you to use your voice too\*... It's more powerful than you think... and that's \*the ONE fact that Vested Interest fears \*more than anything else. The 1% can only play their games if the public is ignorant!

\*Confirm and SHARE THIS INFORMATION\*, because it's the only way we can bypass Vested Interest-owned media and get the truth known by those who can still hear.

"The-oppressors-greatest-weapon-is-the-mind-of-the-oppressed  
<http://www.zengardner.com/the-oppressors-greatest-weapon-is-the-mind-of-the-oppressed/>"

Who is "the culprit? <<http://www.zengardner.com/i-found-the-culprit/>>  
\*Messing with mail as a suppression technique\*. I've had it happen to me in the past (almost put me out of business) and it looks like \*it might be happening again now\*. It starts by being able to 'see' every single package and letter  
<<http://personalliberty.com/report-post-office-allowed-law-enforcement-scrutinize-50000-pieces-mail-last-year/>>.

Then they can choose what mail to mess with  
<http://www.newsweek.com/postal-service-photographs-every-piece-mail-us-shares-agencies-request-it-280614>.

In the past they 'lost' hundreds of my packages  
<<http://www.eagle-research.com/cms/blog/suppression/vested-interest-suppression>> (when I was selling HyCO 2A kits), until I started to insure them all; then they only delivered the packages after I submitted the insurance claims.

I haven't had any abnormal mail issues since the early 90's \*until now\*...

Recently several of my assembled \*ER50's have arrived to customers SMASHED\*! Since they are built strong enough to survive being run over by a light truck, it seems to me that this is some sort of deliberate harassment.

I've sent out dozens of them in the past, with no issue... Now 5 of them have been broken during transit...

This started happening after my 2014 'over-unity Brown's Gas' presentation in Albuquerque... Just like in the 90's, this is happening with BOTH the USA and Canadian postal services.

Coincidence or further evidence of international coordination? Are 'THEY' scared of my over-unity Brown's Gas electrolyzer technology?



So far the Canadian postal service is paying my insurance claims, because it's pretty obvious that the packages were subjected to extreme abuse... but the USPS has denied EVERY SINGLE CLAIM! It's a hassle to spend time going through the insurance claim process and my customers are understandably annoyed that it takes a couple of months to get their ER50.

Just letting you know what's going on and venting my frustration... I wish the world was a better place where people and environment mattered more than money; and I'm doing my part to make it so.

**Comment:**

Sunday, November 09, 2014 6:16 PM To: Gary Vesperman  
Subject: Re: Need actual clean energy devices to display at "Gallery of Clean Energy Inventions"

Hola Gary!

I hope you have your planned exhibits vetted by others...send out a list of what you plan to include and let a few of us let you know what we might know or can find out about them.

I could even post it as a list on Keelynet news and ask if everyone agrees it is a real, working tech...

**Comment:**

On 11/10/2014 12:02 AM, (name deleted) wrote:  
FANTASTIC!

Thank you ever so much for typing this up for Gary...

His heart is in the right place, and he is trying hard...

All it would take is one dumb mistake for him to lose his local credibility – there in the Las Vegas/Henderson NV area...

So when is the water level in Lake Mead going to drop enough so that LA will not have any electricity from Hoover Dam?...

**Comment:**

Tuesday, November 11, 2014 6:33 p.m.

Gary,

I start to wonder... Faced with 'draconian' water restrictions and loss of power...

Why don't they just promote solar panels like the utility serving Ontario, Canada did? Ontario Hydro had a severe issue with power shortages due to air conditioning. So they proposed to their customers a deal; if the customers would install solar panels, Ontario Hydro would pay \$0.82 per kWh for 20 years. The program was a resounding success! Ontario Hydro didn't have to build new power plants just to handle peak loads.

Google Ontario MicroFit Program.

The Nevada Utilities can get people to stand the cost to install their own systems and all they have to do is promise to pay for the electricity. Nevada gets lots of sunshine and 'The Vested Interest' don't need to get their panties in a knot because solar panels are 'off the shelf' ... so it seems like a win win to me.

In any case, people are always happy to help resolve a situation if you allow them to get involved. Nevada is not using their greatest resource to solve the problem... The people. Maybe they're scared to, because they'd lose control but that's the choice they're faced with. There's enough energy available, and it can be accessed in time, but are they willing to have a diversified grid?

**Comment:** I know Gary is trying to do what he can so we should all help him out. My pleasure to do whatever I can, and its unfortunately damn little.

Gary might want to include the Rossi e-cat cold fusion device (It is included with the Smaller Generators. GV) which appears to have been proven...

ALTHOUGH....he was a student and his profs were Focardi and Piantelli...Piantelli got the first LENR patent in January 2013 using hydrogen/nickel...makes it look like Rossi stole it from him and Focardi but didn't understand or know how to make it work.

Here is Rossi's APPLICATION which is blown out of the water by Piantelli's PATENT;

11/09/14 - Surprising Rossi (Industrial Heat) Patent Application: COP 11!  
<http://www.keelynet.com/news/110914b.html>

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Here is Piantelli's GRANTED patent...

11/09/14 - European Patent Granted for Francesco Piantelli's LENR Process  
<http://www.keelynet.com/news/110914a.html>

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And this juicy new bit about neutrino power...

11/09/14 - Neutrino Power: The New Energy Promise

<http://www.keelynet.com/news/110914c.html>

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About Lake Mead power....the lower the level drops the LESS THE PRESSURE so the less the power generated and the sooner Uhaul, the gas stations, Greyhound and the airlines will make a crapload of money...

Low water levels at Lake Mead impact power from Hoover Dam;

<http://www.8newsnow.com/story/25991640/low-water-levels-at-lake-mead-impact-power-from-hoover-dam>

"The level of Lake Mead is supposed to drop to an elevation of 1081.75 over the next few days, which is the lowest elevation it's ever been since the lake was filled when Hoover Dam was built," said Rose Davis, Bureau of Reclamation.

Lake Mead is not only the primary water source for Las Vegas, but it's also how Hoover Dam produces power. Simply put, the lower the lake, the less electricity.

"Our concern is the ability to generate power. We've seen a 23 percent reduction in our capacity to generate power since the lake continues to drop," Davis said.

The hydroelectric facility is taking steps so its current capacity of 1592 megawatts won't go down anymore.

"We've been proactive over the last five years in putting in new equipment that operates more efficiently at low lake levels," Davis said.

Three wide head turbines have been installed, and two more are on the way in the next couple years. It's hoped they will arrive before Lake Mead gets to catastrophic levels that could bring the dam to screeching halt.

"What we call the dead pool, which is the elevation of Lake Mead where Hoover Dam cannot generate any power is about 950 feet," Davis said.

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So there ya go...no more power at 950 feet, and it is currently about 1,081 feet...that's 131 feet left!!!

That is cutting it DAMN CLOSE!!! They need to get some rainmakers in there pretty quick or adios Las Vegas and that whole area as well that depends on tourism...plus a chunk of California...

[http://www.nytimes.com/2014/01/06/us/colorado-river-drought-forces-a-painful-reckoning-for-states.html?\\_r=0](http://www.nytimes.com/2014/01/06/us/colorado-river-drought-forces-a-painful-reckoning-for-states.html?_r=0)

Faced with the shortage, federal authorities this year will for the first time decrease the amount of water that flows into Lake Mead, the nation's largest reservoir, from Lake Powell 180 miles upstream. That will reduce even more the level of Lake Mead, a crucial source of water for cities from Las Vegas to Los Angeles and for millions of acres of farmland.

"If Lake Mead goes below elevation 1,000" — 1,000 feet above sea level — "we lose any capacity to pump water to serve the municipal needs of seven in 10 people in the state of Nevada," said John Entsminger, the senior deputy general manager of the Southern Nevada Water Authority.

Lake Mead currently stands about 1,106 feet above sea level, and is expected to drop 20 feet in 2014. A continued decline would introduce a new set of problems: At 1,075 feet, rationing begins; at 1,050 feet, a more drastic rationing regime kicks in, and the uppermost water intake for Las Vegas shuts down. At 1,025 feet, rationing grows more draconian; at 1,000 feet, a second Las Vegas intake runs dry.

Lake Powell is another story. There, a 100-foot drop would shut down generators that supply enough electricity to power 350,000 homes.

In the 1960s, California's legislators demanded first dibs on lower-basin water as a condition of supporting federal legislation to build the Central Arizona Project, a vast web of canals irrigating that state's farms and cities. Should rationing begin in 2015, Arizona would sacrifice a comparatively small fraction of its Colorado River allotment, while California's supply would remain intact.

Continue reading the main story

Painful as that would be, though, it could get worse: Should Lake Mead continue to fall, Arizona would lose more than half of its Colorado River water before California lost so much as a drop.

That would have a cascading effect. The Central Arizona Project would lose revenue it gets from selling water, which would raise the price of water to remaining customers, leading farmers to return to pumping groundwater for irrigation — exactly what the Central Arizona Project was supposed to prevent.

"By going back to the pumps, you'll have made the decision that agriculture will no longer be an industry in central Arizona," David Modeer, the project's general manager, said in an interview.



Even Californians doubt Arizona would stand for that, but no successor to the 1960's agreement is in place. And California has a vital interest in holding on to its full allotment of water. The Southern California region using Colorado water is expected to add six million people to the existing 19 million in the next 45 years, and its other water source — the Sierra Nevada to the north — is suffering the same drought and climate problems as the Colorado basin.

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The Rise and Fall of Las Vegas! - 07/28/14  
A Cause and Effect Scenario if the creek don't rise;

<http://www.keelynet.com/vegasghost.html>

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All those billions, check this out;

What is Las Vegas worth?;

<https://answers.yahoo.com/question/index?qid=20120222232013AAHqqYD>

The gross metropolitan product for Las Vegas is about 89 billion. That is basically an estimation of all the money that businesses make in sales.

As far as estimating all of the expenses, that would be impossible to determine. A lot of businesses are underwater, worth far less than the mortgages are.

But believe me, the city as a whole is profitable. The airport is the only major airport in the country that doesn't rely on tax dollars to operate or expand.

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Give me a few million and I'll camp out near there and do my damdest to make it rain bigtime, did it here so should be able to do it there and have some new methods to try as well and bring in some others who have experience with it and we split what they pay us;

<http://www.keelynet.com/mexico/>

...but I think Ken might be right, there are other forces, mostly political that might be involved in this using chemtrails and other geoengineering methods...so to do anything would need the utmost discretion.

And I understand you need permissions and such to do any weather engineering...

Laws of geo-engineering to mitigate global warming?

<http://www.sciencedaily.com/releases/2013/01/130102140521.htm>

Nevada/Global March Against Chemtrail And Geoengineering August 25 2013 in Reno and Las Vegas

<https://nevadastatepersonnelwatch.wordpress.com/tag/las-vegas-march-against-chemtrail-and-geoengineering-august-25-2013/>

I have a friend who lives about 30 miles from Vegas who would be willing to help if it comes to that...

Drought Update: Lake Mead is getting a boost; monsoon rain doesn't fill Utah reservoirs (August 2014);

<http://westgov.org/news/339-news-2014/drought-news/770-drought-update-lake-mead-getting-a-boost-monsoon-rain-doesn-t-fill-utah-reservoirs-california-to-vote-on-water-bond>

The wet year means Lake Mead will get 8.23 million acre feet from the Lake Powell reservoir. That's about 10 percent more than last year's allocation.

An acre foot is equal to about 326,000 gallons of water, the amount used by two average homes in a year.

But because Lake Mead pumps out 9 million acre feet a year to downstream water users, lake levels will continue to drop. The Bureau of Reclamation projects the lake elevation will fall from 1,080 feet to 1,073 feet over the next year.

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On drought, Desert, Water, Man, and Lake Mead in Particular...;  
(some really interesting thoughts on xeroscaping to produce moisture and explains part of the political problem cause they don't understand what causes rain...wonderful)  
<http://www.electronicstheory.com/html/epinion/drought.htm>

**Comment:** Massive Ivanpah solar thermal towers kill 28,000 birds per year.

Shady activists go scorched earth on public lands

BV WILL COGGIN

SPECIAL TO THE LAS VEGAS REVIEW-JOURNAL (November 10, 2014)

If a solar energy facility scorches a bird in the desert, do federal regulators and conservation groups make any noise?

It's a question Nevadans face as the U.S. Bureau of Land Management decides how to exercise its broad discretion over Nevada's federal lands. Nevadans should be alarmed to learn that some of the most active interest groups are actually pushing the BLM to adopt land-use policies for energy development that injure the public lands the BLM is sworn to protect – and the BLM strangely appears happy to oblige.

To their credit, some environmental groups have raised concerns about wind and solar development on federal lands, including threats to wildlife and land-use issues.

For instance, the Ivanpah solar facility in California's Mojave Desert is described as the "largest solar thermal power plant in the world". It is also among the most prolific bird slayer. Environmentalists expect the massive facility to incinerate about 28,000 birds per year. Meanwhile, wind turbines kill and injure hundreds of thousands of birds each year that are protected under federal law, including bald and golden eagles.

The environmental impacts don't end with bird deaths. Wind and solar facilities also take up wide swaths of land, as anyone who has seen the massive Ivanpah plant knows.

But while all forms of energy development require land, Nevadans get a raw deal from wind and solar. BLM requires all permittees to avoid, litigate and minimize their impact on the land. However, while oil and gas companies are required to reclaim and restore the land when drilling ends, wind and solar companies aren't. This double standard means wind and solar actually leave less land for recreational activities such as hunting and fishing.

One would think other groups, such as hunters and fishers, would raise similar objections to those of some environmentalists. However, some so-called 'sportsmen' groups hold hypocritical positions. They oppose oil and gas development on public lands, but encourage renewables despite clear drawbacks.

For instance, a coalition of activists including Trout Unlimited and the Theodore Roosevelt Conservation Partnership sent a letter to the BLM in September. In it, the groups detail numerous pages of concerns with oil and gas, stressing that such resources "should be developed to ensure conservation of other values on the public lands, including fish and wildlife, before specific drilling projects are proposed."

This might be a reasonable position, if also applied to wind and solar. Yet the letter makes only one passing reference to wind energy and even seems to encourage the BLM to expand solar development, noting, "The Western Solar Plan provides a blueprint for utility-scale solar energy permitting" in western states.

It seems strange that groups concerned about land use would push for alternative energy development that uses more land – until you look behind the rhetoric and into the finances. Both TU and TRCP are backed by liberal foundations that oppose fossil fuels and support renewables, including the Pew Charitable Trusts and Hewlett Foundation.

What they offer is a way to make it seem like grassroots sportsmen – a constituency not normally associated with San Francisco environmentalists – support certain land policies. It's all about politics, in other words.

This decoying and double standard harms Nevada. No energy source is without risk, but while the BLM scrutinizes oil and gas, the agency appears less interested in the threats wind and solar pose to public lands.

The evidence is clear: It takes the BLM 228 days, on average, to process permits to drill for oil and gas on federal lands, up from 154 days in 2005, according to the Institute for Energy Research. Meanwhile, the BLM has proposed 'solar energy zones' to speed up solar development in several western states, including Nevada, even as oil and gas permits languish in regulatory purgatory.

Unfortunately, not only does the BLM seem uninterested in doing what's best for Nevada, but the agency has camouflaged activists whispering in its ear. Nevadans deserve an honest steward of their lands, one beholden to the public interest – not political interests.

Will Coggin is a senior research analyst at the Environmental Policy Alliance, a project of the nonprofit Center for Organizational Research and Education.

**Comment:** \$2.2 billion Ivanpah solar thermal generator is unprofitable and inefficient. EDITORIAL IN LAS VEGAS REVIEW-JOURNAL (November 16, 2014)

## Solar Bailout

The bill for green energy keeps growing. First, you, the taxpayer, provide the federal loans needed to build expensive renewable projects. Then you pay higher power rates to consume the more expensive energy the government forces you to buy. Then you eat the losses when the loans aren't repaid.

But a corporate consortium has an all-new way to stick you with the costs: making you repay their loans to protect their balance sheets.

The Ivanpah Solar Electric Generating System, the giant \$2.2 billion solar plant south of Las Vegas off the Nevada California border, is a bust. Since opening in February amid great fanfare from its political supporters, the plant has produced only a quarter of the power it was supposed to. That's a big problem for its owners – NRG Energy, Google and BrightSource Energy – who took out a \$1.6 billion loan from the federal government to complete the project.

So, as reported by Forbes, they've asked for a \$539 million federal grant to help pay off their federal loan – while keeping their cash and whatever revenue the plant generates.



No more bailouts. Not for banks. Not for green energy. Not for any businesses.

**Comment:** It should make more sense to spend millions of dollars developing some clean energy inventions than hundreds of millions of public tax money developing massive solar and wind projects and even billions of dollars subsidizing nuclear power.

**Comment:** 33 electrino fusion power reactors would produce as much power as all of the existing wind turbines in the USA, being, as of September 2014, 46,600 wind turbines generating 62.3 gigawatts (GW) of energy. And over \$120 billion worth of U.S. wind projects installed since the year 2000, versus it would be \$1.254 billion for 33 electrino fusion power reactors, plus other overhead, to replicate the same energy.

Wind belongs in the Middle Ages alongside the Black Death Plague and witch burning. It's just political pork, now and always needing the USA Production Tax Credit to exist, wherein electrino, and likely dozens of other technologies, need not. And technology to advance the efficiency of wind is akin to inventing an advanced propeller while Germany was building the ME-262 ... STUPID!

**Question:** What are some of the purposes and themes of the Gallery of Clean Energy Inventions?

**Answer:** Las Vegas receives 40 million visitors per year. Hopefully the Gallery of Clean Energy Inventions will inspire some young visitors to consider inventive careers in science or engineering.

Many people, particularly the 'experts', tend to be highly skeptical of new ideas and devices. Possibly the greatest roadblock to allow any funding at all by governments, universities, companies, research institutes, and other institutions is fear of ridicule and failure. Practically all employees of technological organizations find themselves ostracized or even unemployed if they dare even suggest consideration of ideas considered out of the mainstream of prevailing thought.

The Gallery of Clean Energy Inventions intentionally offers an abundance of unconventional devices and concepts. For comparison the U.S. Government happily subsidizes the construction of new nuclear power plants with loans of billions of dollars. Yet the U.S. Government adamantly refuses to take reasonable chances with funding promising new energy technologies with relatively trivial millions or even only hundreds of thousands of dollars.

**Comment:** Sao Paulo, a city of 20 million people, could run dry within weeks.

Source: Thomson Reuters - Mon, 24 Nov 2014  
Author: Kevin Allison and Antony Currie

One of the world's biggest cities is running out of water. Sao Paulo, a city of 20 million people, could run dry within weeks. The humanitarian and economic cost would be immense. The fiasco should be a global wake-up call for other metropolises.

The immediate cause of the crisis is a year-long drought. The Cantareira reservoir system that supplies around a third of the city's population is so low that Sabesp, the local utility, has to dip into and treat sediment-heavy supplies and pipe water in from other sources.

It's the worst dry spell in the region since record-keeping began more than 80 years ago. Other parts of Sao Paulo state and Brazil have been hit, too, though not as harshly. It may look like an aberration, but the planning for the disaster has been poor – and offers important lessons.

Sabesp has not introduced any rationing – at least not formally. It has slashed reservoir extraction by a third, cut pump pressure at night and offered discounts to frugal customers. But, regrettably, the "R" word remains taboo.

The government, meanwhile, shied away from suggesting mandatory rationing during last month's presidential elections. That turned the shortage into a political battleground, which is no way to solve a crisis.

Longer-term planning has fallen short, too. Some of the infrastructure is creaky. Leakage rates are between 30 percent and 40 percent. Compare that with Tokyo, which has shrunk losses to around 3 percent.

Meanwhile, Sao Paulo's rapid growth has robbed much of its water sources of forest cover and exposed them to sedimentation and pollution. Restoring natural buffers on less than 2000 hectares would reduce sediment in water supplies by 10 percent, according to the Nature Conservancy.

Worse, the drought may not be temporary. Some scientists link it to the destruction of the Amazon rain forest thousands of miles away. That would call for more investment in alternative sources - from desalination to water from other river basins.

Those can be expensive and spark acrimony. But hoping for rain isn't a strategy. Chronic shortages would bring social unrest and undermine the city that is responsible for more than a fifth of the country's GDP and is the capital of a region that accounts for 40 percent of Brazil's industrial production. An acute crisis could lead to riots, a mass exodus or worse.

hobgoblin11

Now here is a CRAZY idea.. and bear with me.. I know it's cutting edge stuff. But if you're running out of water.. and other natural resources.. STOP MAKING BABIES. Are you people really that stupid?

**Comment:** One in three of the world's biggest cities is under water stress.

Bloomberg News

## **Water War Amid Brazil Drought Leads to Fight Over Puddles**

By David Biller and Vanessa Dezem November 25, 2014

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Brazil's Jaguari reservoir has fallen to its lowest level ever, laying bare measurement posts that jut from exposed earth like a line of dominoes. The nation's two biggest cities are fighting for what little water is left.

Sao Paulo state leaders want to tap Jaguari, which feeds Rio de Janeiro's main source. Rio state officials say they shouldn't suffer for others' mismanagement. Supreme Court judges have summoned the parties to Brasilia for a mediation session this week.

The standoff in a nation with more water resources than any other country in the world portends further conflicts as the planet grows increasingly urban. One in three of the world's 100 biggest cities is under water stress, according to The Nature Conservancy, a U.S.-based nonprofit.

For remainder of article, see <http://www.businessweek.com/news/2014-11-25/water-war-amid-brazil-drought-leads-to-fight-over-puddles>.

**Comment:** If and when Lake Mead gets too low ...

From: Jerry Decker

To: Patrick G. Bailery, Gary Vesperman

Date: 11/25/2014

Hola Patrick and Gary!

It looks like 12-24 more months before Lake Mead drops too low to pump; sure there will still be water but too low, from July 13, 2014;

Dry as a Bone: Lake Mead's H<sub>2</sub>O Situation Just Got a Whole Lot Worse;

<http://www.takepart.com/article/2014/07/16/lake-mead-water-drought-emergency>

"It's time for us to wake up. If this drought continues, we're going to be in a terrible situation within the next 12–24 months," Jay Famiglietti, senior water scientist at NASA Jet Propulsion Laboratory, told The Desert Sun.

U.S. Bureau of Reclamation regional chief Terry Fulp said, however, that there's enough water to meet the needs of the 40 million people who call the region home, including folks who live in Las Vegas, Phoenix, and Los Angeles.

...the lake's water level dropped to 1,081.7 feet above sea level,...

People living in Nevada and Arizona will see their water supply affected by shortages if Lake Mead's water level falls below 1,075 feet above sea level. The lake would need to drop another 80 feet from its current level for California, which has the oldest water rights to the water and which is experiencing such severe drought that the state's economy is set to lose \$2 billion, to see severe shortages.

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<http://www.dailymail.co.uk/news/article-2549619/Shocking-pictures-reveal-Lake-Mead-shrinking-dangerously-low-levels-threatening-Las-Vegas-water-supply.html>

When it was created in 1935 by the building of the Hoover Dam, Lake Mead was the largest artificial lake in the world.

But the glorious Nevada lake, which has provided decades of water sports and boating, has lost 4 trillion gallons of water in the past 14 years.

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So better pack your stuff and get ready to get out of Dodge.

All hell will break loose when there is no power, no water, so no gas, no food, no imported drinking water...a mini version of what could well happen to the USA when the economy collapses and so many of the over 51% of people who live off the government suddenly get no checks!

Riots, that ain't shit, check this out;

11/24/14 - The World without Electricity

<http://www.keelynet.com/news/112414g.html>

I'm safe here in Mexico (for now)...hope you guys can remain safe too.

Seeya!

Jerry      [www.keelynet.com](http://www.keelynet.com)

On 11/25/2014 12:34 AM, Patrick G Bailey wrote:

Gary,



As far as I and a few associates can determine, the problems to overcome to try rainmaking in the Lake Mead area are;

# 1 - One is local politics in Nevada where some of the politicians are trying to squeeze more money out of the cities and towns for power and water...saying because Lake Mead, Hoover Dam and the Colorado river are all running low and that Lake Mead has \*roughly 181 feet left before the water goes below the turbines\* and all electricity stops, that prices will go up so kickbacks to corrupt politicians will be made. This is JUST IN THE STATE...all to jack up prices for ever more hard-to-come-by water and power...

So what is the rate of decrease as a function of time?

Given that, make it a monthly average,

When do the gas pumps in LA stop?

This was from Jerry Decker...

**Comment:** China turns to drastic measures to avoid water crisis

BEIJING -- If you think water is in short supply in California, you should see what's happening in China. The situation is so dire that next month, the communist government will turn on the taps in the world's biggest water-diversion project.

The Chinese government is spending almost \$80 billion on 2,700 miles of waterways being built to make up for the now dry Yongding river. The Yongding River, which once fed Beijing, ran dry along with 27,000 other rivers in China that have disappeared due to industrialization, dams and drought.

"Some of the large parts of the north China plain may suffer severe water shortages," said environmentalist Ma Jun. "Some of the cities could literally run out of water." To try to solve the problem, China's government is planning to spend nearly \$80 billion to build nearly 2,700 miles of waterways -- almost enough to stretch from New York to Los Angeles.

Four-fifths of China's fresh water lies in its south. The idea behind the project is to move some of that water to the parched – and populous – north by connecting existing bodies of water. That's meant relocating 350,000 people to settlements.

Source: <http://www.cbsnews.com/news/china-turns-to-drastic-measures-to-avoid-water-crisis/>. Article includes some interesting photographs.

**Comment:**

**From:** "demeo@mind.net [OBRL-Quarterly]" <OBRL-Quarterly-  
**To:** OBRL-Quarterly@yahoogroups.com  
**Sent:** Friday, November 28, 2014 2:37 AM  
**Subject:** [OBRL-Quarterly] Response to Wired Editors, New Slander of Reich and  
Myself

## **Response to Wired Editors, New Slander of Reich and Myself**

Wired Mag recently published the following article, filled with misinformation and the usual slanders of Reich. This time, however, they also included mention of my name and the Orgone Accumulator Handbook, for tarring and feathering.

### **Fantastically Wrong: Why is the Sky Blue? It's Packed With Sexy Energy, of Course, by Matt Simon.**

<http://www.wired.com/2014/11/fantastically-wrong-wilhelm-reich/>

Of course, the Wired article itself is “fantastically wrong”. The following Response was posted to the Wired comment section, but is repeated here, in case they decide to remove it.

Please visit that website and make your own comments.

Cheers, J.D.

+++++++

27 Nov. 2014

Dear Wired Editors,

I recommend that everyone on your editorial staff, and reading this commentary, to actually try sitting in an authentic orgone accumulator, or under an orgone blanket, or reading a book by Reich, or even my own book which this “Simon” writer claims to be reviewing, before accepting the usual pack of lies about Reich’s work. Or my work.

For 80 years it has become typical for American publishers to slander Reich both personally and professionally without ever mentioning the substance of his findings, nor any of the more recent experimental confirmations of his scientific work. Usually, my work confirming Reich experimentally over 40 years, including 10 years working inside the universities and published in both peer-reviewed and popular publications, is systematically never mentioned. Censored out similar to how Reich’s own writings were censored and burned by the Nazis, the Stalinists, and the FDA — to the happy applause of “all the people who mattered”. Even the unreliable Wikipedia censors out my verification studies, being dominated by “skeptic club” liars who erase them every

time they are added in. Apparently Wired Mag has caught that ugly infection, to censor out contrary facts.

So today you will try to slander me, quoting from cheerleaders for FDA book-burning, such as Martin Gardner, and think this will improve your standing within the general public? For the record, Mr. Simon didn't bother to send one email to me asking a single question before dumping his jokey bile out into the public. Though I doubt if facts would have persuaded him in any case.

Factually, Reich never promoted pornography as is typically claimed, Wm. Burroughs and the other quoted individuals, are no studied or factual commentators on Reich, nor was the accumulator ever offered as a "cancer cure" or "sex box", etc. Such nonsense was invented by Reich's critics, who as clever liars, did not find anything sufficiently bad in his writings to alarm the public. So they just made up a bunch of slanderous stuff, knowing a dead man cannot bring a case to the courts. But the evidence does indicate the orgone accumulator does collect a cosmic energy which has real physical and biological effects — maybe similar to dark-matter or neutrinos or whatever, call it what you will — it boosts the overall immune system, and this can be and has been clinically demonstrated. My "[Orgone Accumulator Handbook](#)" provides some basic details, including citations to published studies.

But be aware, the pirate PDF version of my Handbook linked in the article is an old edition. The newer edition available at [Amazon](#) and [elsewhere](#) has 100+ more pages of details, updated significantly with plenty of citations to newer studies undertaken by scientists and physicians internationally. My various published research papers on the subject of Reich's biophysical discoveries are also mostly available for free download, for those with an interest in experimentally-determined facts.

<http://www.orgonelab.org/demeopubs.htm>

Read my other book "[In Defense of Wilhelm Reich](#)" for details on the lying characters — Nazis and Stalinists and FDA/pharmaceutical bullies — who went after Reich with sharp knives. You will learn new and important things.

Hopefully the FDA has gotten over its impulse to grab for the matches every time Reich's name is mentioned, and might today even consider issuing a public apology to the Reich family for what they did back in the 1950s, burning his books and throwing him into prison to die — all for daring to defend his scientific findings against a fraudulently-obtained FDA legal injunction.

The Truth comes out, no matter how many times the angry American media hacks try to slander Reich, to drive additional nails into his coffin.

If every home had an orgone accumulator or orgone blanket on the premises, the public health would improve dramatically, and costs for health care would plummet. That's my professional and studied opinion.

Am I still allowed, in America, to say such "outrageous" things?

James DeMeo, PhD

Posted by: [demeo@mind.net](mailto:demeo@mind.net)

OBRL sponsors life-energy research and educational events; we need your support to continue funding new and innovative projects. If you find this material of value, please donate to OBRL:

<http://www.orgonelab.org/donation>

Or, purchase books on related subjects from our on-line bookstore:

<http://www.naturalenergyworks.net>

**Question:** Do public-private water partnerships offer a viable solution to fixing aging municipal water systems?

**Answer:** Apparently not. The end result is usually a municipality spending exorbitant amounts of money to regain control of its water system from a profit-seeking private company. See

[http://therealnews.com/t2/index.php?option=com\\_content&task=view&id=31&Itemid=74&jumival=12750](http://therealnews.com/t2/index.php?option=com_content&task=view&id=31&Itemid=74&jumival=12750).

**Comment:** A climate expert discusses climate change and the urgent need to reduce carbon dioxide emissions from human activities in

[http://therealnews.com/t2/index.php?option=com\\_content&task=view&id=31&Itemid=74&jumival=12757](http://therealnews.com/t2/index.php?option=com_content&task=view&id=31&Itemid=74&jumival=12757).

**Comment:** A photograph of the first atomic bomb to be detonated as the Trinity test is shown in Bloomberg Businessweek December 8-14, 2014, pages 106-107. See

<http://www.businessweek.com/articles/2014-12-04/manhattan-project-led-to-u-dot-s-dot-nuclear-arsenals-huge-costs>.

**Comment:** In early September 2013 Gary Vesperman wrote the Education Department of the University of Nevada-Las Vegas suggesting they write a computer program that would simulate the dynamics of the torsion field school network using Las Vegas area schools as the prototype model. A professor who works for the UNLV Education Department called Gary and apologized that they simply don't have the computer expertise to build and operate what would be a massive computer simulation.



**Comment:** Boulder City, Nevada has a small weekly newspaper – “Boulder City Review”. January 8, 2015 Gary Vesperman’s “Letter to the Editor” was published. See <http://bouldercityreview.com/sections/opinion/letters/letters-editor.html-49>. He wrote:

Venue sought for exhibit of clean-energy inventions

Dennis Myers’ column “Distrust of scientists has a history” includes U.S. government lying about A-bomb test fallout effects. For decades the U.S. government has also suppressed clean-energy inventions.

I happen to have prepared a proposal to exhibit in Boulder City’s City Hall a gallery of clean-energy inventions. It comprises 16 larger generators, 25 smaller generators, 16 advanced self-powered electric vehicle innovations, 25 radioactivity neutralization methods, 22 space travel innovations, 10 technical solutions to water shortages, and torsion field school network. The exhibit file is linked at <https://app.box.com/cleanenergyexhibit>.

The file includes photographs of the 50 total horizontal feet of otherwise unproductive bare walls inside the City Hall for the seven separate exhibits. As a minor attraction, assume it draws a daily average of 20 tourists the four days a week City Hall is open. If the tourists each spend in Boulder City restaurants and stores an average of \$12.50, the gallery of clean-energy inventions would add \$1,000 per week to Boulder City’s economy at no cost to Boulder City.

For my Nov. 10 meeting with two Boulder City officials, I laid out and photographed the entire gallery on tables and floors around City Hall. We had a friendly conversation. We wondered if City Hall is an appropriate venue. A disadvantage is that City Hall is closed Fridays and weekends. We left trying to find an alternative Boulder City location for the gallery of clean-energy inventions.

*Gary Vesperman*

The morning the “Letter to the Editor” was published in the Boulder City Review, a friend of Gary called to introduce him by telephone with an official with the Boulder Dam Museum. A subsequent friendly conversation led Gary to visiting the Boulder Dam Hotel the following Tuesday to look at the basement of the hotel.

Gary met Roger Shoaff who manages the hotel. Roger had never heard of Gary’s proposal for a “Gallery of Clean Energy Inventions” exhibit.

Roger told Gary that the basement is not available for public use because it doesn’t have access for handicapped people.

However Roger did show Gary a vacant room off the hallway to the museum and art shops. Gary measured the room, visualized possible locations for the seven displays, and decided that he could indeed fit the exhibit into the room.

Gary then spent almost a half-month busily designing the exhibit for the room. It seems a little strange that the small room's odd profile accommodates the exhibit so tightly and yet so nicely. Gary emailed to Roger details of his design as it progressed.

February 5, 2015 Roger emailed Gary the results of a February 3, 2015 meeting of the Board of Directors of the Boulder Dam Museum. Gary's exhibit proposal was unanimously rejected in favor of other pending proposals for the room that they believed to be more compatible with their vision and long-range plans for the building.

Gary did develop some fresh ideas for the presentation of the Gallery of Clean Energy Inventions which resulted from the exercise of designing the entire exhibit for the small Boulder Dam Hotel room. One consequence is the addition of display diagrams to the beginning of the chapters in this exhibit file.

Gary had incorporated metal bars, metal poles, and signboards to be provided by the Freeman convention company. Gary happens to be intimately familiar with Freeman's booth building materials as a result of working part-time for Freeman (and other convention companies) for many years as a part-time Convention Journeyman with Teamsters Union Local 631.

The Gallery of Clean Energy Inventions would indeed have been a colorful exhibit and could have attracted to Boulder City a respectable number of money spending tourists.

**Comment:** AuroraTek, Inc., had a booth in the Las Vegas Sands Exposition Hall during the 2015 Consumer Electronics Show. Gary Vesperman visited the booth before starting a work assignment to help tear down the convention. Gary was shown two electric scooters displayed that were claimed to not need external recharging.

Gary saw two men riding around in an e-scooter. Gary observed that AuroraTek's e-scooter zips around the convention floor surprisingly fast.

Gary carefully examined one of the two e-scooters. It didn't seem to have an electrical outlet that customarily would be used for recharging electric cars.

President and CEO Bill Alek has posted his explanation of the science behind his e-scooter in <http://auroratek.us/SCIENCE.html>. A summary of AuroraTek's technology is at the beginning of this file's chapter "16 Advanced Self-Powered Electric Vehicle Innovations".

**Comment:** These reports were posted on [enenews.com](http://enenews.com):

04:15 PM EST on December 10th, 2015 | 490 comments

Report: “Red Alert! Sharp increase in radiation... at Fukushima” — Levels spike 400,000% under plant — Almost 1,000,000,000 becquerels per cubic meter — TV: Officials investigating cause

07:05 AM EST on December 2nd, 2015 | 476 comments

Former Japan Official: “Unstoppable contamination of Pacific Ocean... is seriously menacing US West Coast” — “Fukushima now undeniably a global security issue... can't be brought under control by single state” — Experts: Wave of radiation will be 10 times more than entire world's nuclear tests combined

10:56 PM EST on November 25th, 2015 | 915 comments

TV: Underground wall around Fukushima reactors started “leaning” — Cracks developing due to rising water levels — Problems seen along almost entire length of sea wall — Trying to make repairs to keep groundwater from surging (VIDEO)

08:10 PM EST on November 22nd, 2015 | 339 comments

Surge in deadly ‘flesh-eating’ disease in Japan — “Shatters annual record” — Health experts issue advisories — Official: “Researchers are not sure why... There is so much we still don't know” — Number of cases began rising in 2011 (VIDEO)

06:04 PM EST on November 7th, 2015 | 928 comments

Nuclear Experts: Million cancers could result from Fukushima — Already hundreds of times more thyroid cancers... “Just the tip of the iceberg... worst is yet to come” — “Enormous spikes in cancer... devastating health effects” (VIDEO)

04:07 PM EST on November 5th, 2015 | 593 comments

Former Japan Ambassador: Uncontrolled nuclear chain reactions could be underway at Fukushima — “Troubling indications of recurring criticality” as Tellurium-132 detected over 100 miles from plant — ‘Recriticality’ discussed by Japan's top nuclear official

05:21 PM EST on October 30th, 2015 | 707 comments

Japan Times: “Deadly” radiation levels detected outside Fukushima containment vessel — “Details behind situation are unknown” — Officials unable to grasp location of melted nuclear fuel — “Impossible” to plan for decommissioning

07:49 PM EST on October 27th, 2015 | 490 comments

Former WHO Official: Fukushima plant is dumping nuclear waste into ocean on a daily basis; “There's no foreseeable end to it... and nobody has any good ideas on how to stop it” — Japan gov't worried that attempts to reduce leakage will cause even more radioactivity to flow into sea (VIDEO)

06:40 AM EST on October 20th, 2015 | 436 comments

Former US Gov't Official: "The elephant in the room is Fukushima radiation" when it comes to Pacific Ocean animal die-offs... Gov't has totally failed to inform public about full extent of fallout... Media's silence is deafening — Mentions coverage by ENENews

11:37 PM EST on October 11th, 2015 | 337 comments

Professor: "It's really a dead zone" in areas of Fukushima — "Huge impacts... there are no butterflies, no birds... many dramatically fewer species" — "Why does it matter to you (in the U.S.)? The reason is, it's coming, it is coming" (VIDEO)

04:07 PM EST on October 8th, 2015 | 764 comments

UPI: 'Skyrocketing' cancer cases in Fukushima — AP: 'Alarming' cancer rates after nuclear disaster — Times: Child cancers up 5,000% — Radiation doses may be "considerably higher" than estimated — Expert: Cancer outbreak shows officials must now prepare for onset of leukemia, other diseases (VIDEO)

07:38 PM EST on September 26th, 2015 | 900 comments

TV: Experts conclude no nuclear fuel left inside Fukushima reactor — Total meltdown "highly likely" — Conducting more tests to determine how far down corium has penetrated (PHOTOS & VIDEO)

12:21 PM EST on September 21st, 2015 | 457 comments

Nuclear Expert: US West Coast being continuously exposed to Fukushima radioactive releases, it's an ongoing tragedy — Marine Chemist: Impossible to stop nuclear waste flowing into ocean; "It never will be... that's what keeps me up at night" — Radiation levels spiked 1,000% since floods (VIDEOS)

06:35 PM EST on September 17th, 2015 | 561 comments

Yahoo News: Giant mutant fish caught off Japan causes concern about effects of Fukushima — NY Daily News: Monster catch raises questions about ecological impact of nuclear disaster — "We wonder if it's the radiation that caused the fish to grow this big" (PHOTOS)

06:50 PM EST on September 12th, 2015 | 1,002 comments

TV: Floods threaten Fukushima plant structures... "Nuclear nightmare territory then" — Expert: A lot of nuclear fuel has actually gone into ground, and "will come out at the surface" if groundwater rises — Radiation levels flowing into ocean much higher than usual (VIDEO)

04:26 PM EST on September 10th, 2015 | 527 comments

ABC: "Epic flooding threatening Fukushima... Serious concerns about nuclear plant in flood zone" — Massive amount of nuclear waste has already flowed into ocean — "Grave danger" from contaminated water leak — Torrential downpours overwhelm site — Official: It's "threatening safety" at plant (VIDEO)



03:44 PM EST on August 31st, 2015 | 585 comments

Radiation fears growing as govt' finds strangely deformed trees around Fukushima — Nearly 100% have 'morphological defects' — "Trees did not have a top bud, without which its growth cannot continue" — Effects worsening over time — Researchers prevented from doing studies... "so little data" (PHOTOS & VIDEO)

09:59 AM EST on August 28th, 2015 | 1,127 comments

Radiation Expert: Horrific health toll from Fukushima — "Impossible not to be moved by scale of deaths and suffering" — Thousands to die of cancer and that's just the tip of the iceberg — Number of dead babies significantly increased in many areas of Japan — Government actions unconscionable (AUDIO)

02:16 PM EST on August 24th, 2015 | 295 comments

Record-breaking typhoon to make direct hit on Japan's only restarted nuclear plant — 159 mph gust last night, strongest ever measured at location — Waves near 40 ft. high expected around island — Gov't alerts for landslides and floods — Cracks and leaks already found at nuclear plant (VIDEO & MAP)

08:29 AM EST on August 17th, 2015 | 397 comments

Unprecedented volcano warning near Japan's only restarted nuke plant — Mountain is swelling, expanding — Large amounts of magma causing 'sudden crustal movement' — Gov't Now: Extremely high risk of major eruption... Gov't Before Nuke Restart: "Little chance of major eruption" (VIDEO)

05:58 PM EST on August 14th, 2015 | 424 comments

Animals shrunk after Fukushima crisis began — Japan Scientists: We conclude that the small size was caused by environmental stress imposed by unusual event

02:19 PM EST on August 11th, 2015 | 461 comments

Officials: "Trillions of becquerels of radioactive material still flowing into sea" at Fukushima — Map shows nuclear waste coming up from bottom of ocean far offshore — Japan TV Journalist: "Contaminated seawater will circulate around globe... disaster like a huge cloth expanding everyday" (VIDEO)

**Comment:** Fukushima Daiichi Nuclear Disaster: Increased Radiation Spreads to North America as Full Meltdown in Reactor 2 Feared

December 12, 2015 by: David Gutierrez, Natural News

Government data shows that the U.S. is being bombarded with Fukushima radiation 1,000 times higher than normal.

In the months following the 2011 meltdowns at Japan's Fukushima Daiichi nuclear power plant, residents of Los Angeles were being exposed to levels of dangerous alpha radiation nearly 1,000 times above normal levels, a government study found.

The data came from a July 2012 presentation at the National Conference on Radiation Control. The presentation was given by Joji Ortego, Principal Radiation Protection Specialist for Los Angeles County Radiation Management.

Following the Fukushima meltdowns, Los Angeles County heard many concerns from residents about the potential health impacts of radiation crossing the Pacific Ocean from the disaster. So they commissioned a study of radiation levels in the area. The report notes that federal agencies delayed in providing information to the county, and that the state Radiologic Health Branch was unable to provide inspectors due to budget constraints. The state lab was unable to provide a reasonable turnaround time for sample analysis, so the county instead hired a local radiation monitor manufacturer for the analysis.

#### Radiation levels exceed federal thresholds

Samples were taken between April 29 and May 2, 2011, approximately seven weeks after the radioactive releases from Fukushima. The county found that gross alpha radiation levels at a location in Los Angeles were 300 femtocuries per cubic meter (fCi/m<sup>3</sup>), and levels at a Hacienda Heights location were 200 fCi/m<sup>3</sup>.

For context, the Lawrence Livermore National Laboratory reports the average (annual median) level of gross alpha activity for the state of California as just 0.38 fCi/m<sup>3</sup> – that is, 790 times lower.

The levels detected in Los Angeles County were a full 100 times higher than the level that requires an investigation at a U.S. nuclear laboratory, according to the Environmental Monitoring Plan at Brookhaven National Laboratory: "If the gross alpha activity in the [air] filters is greater than 3 fCi/m<sup>3</sup>, then collect more samples in the vicinity, and project manager will review all detections above the limits ... All values greater than the above-stated gross alpha/beta concentration shall trigger an investigation."

Finally, the Los Angeles County levels were almost 15 times higher than the federal regulatory limit for alpha radiation, which is 21 fCi/m<sup>3</sup> according to a 2010 document from Idaho National Laboratory.

#### Even worse than it sounds

What do all these numbers mean for human and environmental health?

Alpha radiation is one of four major types of radiation emitted by radioactive atoms. It is also referred to as 'alpha particles', or a 'helium nucleus'. Other types of radiation are beta radiation, gamma radiation and neutrons.

Of alpha, beta and gamma radiation, alpha radiation is by far the most dangerous if found inside the human body. That's because unlike beta or gamma radiation, alpha radiation is easily absorbed by cells, where it can cause serious damage, including to DNA. Alpha particles can enter the body if they contaminate food or water, or if they are breathed in – hence the concern among both nuclear laboratories and Los Angeles county about airborne levels of alpha radiation.

The alpha radiation detected from the Fukushima disaster most likely comes from plutonium 239, which is produced as a byproduct in many nuclear reactors. No alpha radiation, however, is emitted by cesium-137, which is probably the most prolific isotope emitted by Fukushima that is still circulating in the environment. Iodine-131, also emitted in large quantities, has a very short half-life and has probably mostly vanished from the environment by now.

But whereas the beta and gamma radiation emitted by radioactive cesium may not be as dangerous from within the body, it is actually far more dangerous if found outside the body – for example, in the contaminated water and soil around the Fukushima plant, or the contaminated water being dumped into the Pacific Ocean. That's because beta and gamma radiation are far more able to penetrate the body's external defenses, and tear apart cells and DNA as they pass through.

**ABOUT THE AUTHOR:** David Gutierrez, is a staff writer for NaturalNews.com  
- See more at: <http://www.healthnutnews.com/serious-meltdown-is-underway-the-fukushima-daiichi-plant-no-2-nuclear-reactor-fuel-is-missing/#sthash.cTJLi9S.dpuf>

**Comment:** March 22, 2011 Melbourne, Florida was dosed with the highest level of radioactive iodine-131 anywhere in the world

Analysis of data from sensitive U.S. monitoring stations for the Fukushima Dai-ichi nuclear reactor accident, Journal of Environmental Radioactivity: [A] major nuclear event at the Fukushima Dai-ichi nuclear power station... resulted in a breach of the nuclear fuel integrity and release of radioactive fission products to the environment. Fission products started to arrive in the United States via atmospheric transport on March 15, 2011... Atmospheric activity concentrations of iodine-131 reached levels of  $3 \times 10^{-2} \text{ Bq/m}^3$  [30,592 microBq/m<sup>3</sup>] in Melbourne, FL. The radioactive noble gas xenon-133 reached atmospheric activity concentrations in Ashland, KS of 17 Bq/m<sup>3</sup>... [These levels] were well above the detection capability of the radionuclide monitoring systems within the International Monitoring System [IMS] of the Comprehensive Nuclear-Test-Ban Treaty [CTBTO]... it should be noted that non-IMS stations located in Richland, WA detected the event one day earlier than any other systems within the

US IMS network... The iodine detections reported in this manuscript are solely representative of the particulate iodine atmospheric activity concentration. It is recognized that the gas phase iodine was not collected via aerosol filtration [which] would be useful to assess the event and to quantify the total radioiodine atmospheric activity concentration.

According to remarks included with CTBTO data recently released by the United Nations Scientific Committee on the Effects of Atomic Radiation, the total iodine-131 in the air was up to 500% of the amount shown.

CTBTO Particulate air monitoring data (.xls file), July 2014: The PTS [Provisional Technical Secretariat] itself issued a number of comments and caveats on the data:...

“Since the IMS stations use paper filters to collect the particulate radionuclides in the air, part of the iodine in gaseous form passes through the filter easily. It is estimated that only 20-50% of total iodine (from all forms) was collected in the samples.”

Of the more than 1,500 measurements in the CTBTO data taken since Fukushima began, iodine-131 levels detected in Florida were the highest of anywhere in the world outside of Japan. Florida also recorded 4 of the top 10 daily measurements.

Before the U.N. made this data public, an ENENews report from April 2011 noted that for the specific date of March 22, Florida recorded the highest I-131 level of any CTBTO monitoring station in the world. See: Melbourne, Florida had highest iodine-131 reading of any CTBTO monitoring station in the world from March 22-23 (CHART)

CTBTO - Worldwide			micro-Bq/m3
LOCATION	COLLECTION	I-131	
Gunma, Japan	3/16/2011 6:55	14680552	
Gunma, Japan	3/21/2011 6:55	5198744.7	
Gunma, Japan	3/22/2011 6:55	2155559	
Gunma, Japan	3/23/2011 6:55	2117152.9	
Gunma, Japan	3/30/2011 6:55	94353.72	
Gunma, Japan	3/19/2011 6:55	91602.33	
Gunma, Japan	3/20/2011 6:55	86328.8	
Gunma, Japan	3/17/2011 8:11	55607.36	
Gunma, Japan	3/24/2011 6:55	50455.47	
Gunma, Japan	3/25/2011 6:55	46889.27	
Gunma, Japan	3/18/2011 6:57	43994.6	
Gunma, Japan	4/18/2011 6:55	37978.62	
Gunma, Japan	3/31/2011 6:55	32084.04	
Melbourne, FL, USA	3/22/2011 18:54	30591.92	
Gunma, Japan	3/26/2011 6:55	23268.59	

CTBTO - Outside Japan			micro-Bq/m3
LOCATION	COLLECTION	I-131	
Melbourne, FL, USA	3/22/2011 18:54	30591.92	
Oahu, Hawaii, USA	3/21/2011 22:25	21606.81	
Oahu, Hawaii, USA	3/20/2011 22:25	15254	
Sacramento, CA, USA	3/18/2011 21:39	13810.61	
Melbourne, FL, USA	3/23/2011 18:54	13335.58	
Sand Point, Alaska, USA	3/22/2011 20:34	12332.99	
Resolute, NU, Canada	3/29/2011 22:55	10996.51	
Melbourne, FL, USA	3/24/2011 18:54	10803.72	
Oahu, Hawaii, USA	3/25/2011 22:25	10749.96	
Melbourne, FL, USA	3/21/2011 18:54	10508.15	

Source: <http://www.healthfreedom.org/florida-hit-with-highest-level-of-radioactive-material-from-fukushima-outside-japan/>

**Comment:** Fukushima amplifies Murphy's Law



Murphy's Law has found a permanent home in Fukushima: "Anything that can go wrong will go wrong."

For instance, only recently, radioactive cesium in tunnels at Fukushima suddenly spiked by more than 4,000 times similar measurements from one year ago. This spooky/huge spike in radiation levels hit 482,000 Becquerels per liter. TEPCO intends to investigate the reason behind the enormous anomalous increase, *Radiation Spikes in Fukushima Underground Ducts*, NHK World, Dec. 9, 2015. Over the course of a year, 4,000 times anything probably is not good.

Not only that but the barrier constructed at the Fukushima nuclear power plant to hopefully prevent contaminated water from leaking into the ocean is tilting and has developed a crack about 0.3 miles in length along its base. The wall is 0.5 miles long and 98 feet below ground.

An ocean barrier, indeed: "Higher levels of radiation from Japan's 2011 Fukushima nuclear accident are showing up in the ocean off the west coast of North America, scientists from the Woods Hole Oceanographic Institution reported," *Higher Levels of Fukushima Radiation Detected Off West Coast*, Statesman Journal, Dec. 3, 2015. Fortunately, so far, the detected levels still remain below U.S. government-established safety limits.

In the meantime, TEPCO battles one of the most perplexing disasters of all-time with an average number of daily workers more than 7,000. The difficulty of procuring workers at the site is beyond imagination. Homeless people are hired off the streets to do the dangerous decontamination work.

## **The Tokyo 2020 Olympics**

The situation better get better really soon because the Olympics are scheduled for 2020, which brings to mind perilous lost corium, the sizzling hot melted core in Plant #2, that hopefully, keeping one's fingers crossed, has not burrowed into the ground, spreading deadly isotopes erratically, ubiquitously throughout. Still, nobody knows where this Missing Corium-Waldo of the Nuclear World is located.

Meanwhile, Greenpeace/Japan accuses the International Atomic Energy Agency (IAEA) of downplaying the health risks of the 2011 Fukushima disaster and accuses the agency of acting in concert with Japanese Prime Minister Shinzo Abe's attempts to "normalize" the disaster, *Greenpeace Japan: IAEA Downplays Dangers of Fukushima Disaster*, Sputnik News, Feb. 9, 2015. Hurry, hurry, the Olympics is coming!

One clever approach to the problem of too much radiation is to increase the "allowable limits": "The permissible annual level of radiation exposure has been dangerously heightened in Japan after the March 11th accident. One (1) millisievert (mSv) has been elevated to 20 mSv for residents in affected areas. The government increased the

annual limit for nuclear workers' radiation exposure from 100 mSv to 250 mSv in 'emergency situations,' Mitsuhei Murata (Executive Director of Japan Society for Global System and Ethics and former Japanese ambassador to Switzerland) *Nuclear Disaster and Global Ethics*, UN World Conference on Disaster Risk Reduction, March 16, 2015.

When the "permissible level" of radiation was initially moved higher, the Japan Medical Association stated: "The scientific basis for choosing the maximum amount of 20 mSv in the band of 1 to 20 mSv is not clear."

Furthermore, according to Physicians for Social Responsibility, there is no safe level of radiation. Apropos the Fukushima situation: "It is unconscionable to increase the allowable dose for children to 20 millisieverts (mSv). Twenty mSv exposes an adult to a 1 in 500 risk of getting cancer; this dose for children exposes them to a 1 in 200 risk of getting cancer. And if they are exposed to this dose for two years, the risk is 1 in 100. There is no way that this level of exposure can be considered 'safe' for children."

Recent studies confirm "exposure to low levels of radiation can cause cancer," specifically, "No matter whether people are exposed to protracted low doses or to high and acute doses, the observed association between dose and solid cancer risk is similar per unit of radiation dose," (Source: British Medical Journal, Press Release, *Low Doses of Ionizing Radiation Increase Risk of Death from Solid Cancers*, International Agency for Research on Cancer, WHO, Oct. 21, 2015).

In sharp contrast to Japan's position, Chernobyl's officialdom has a different take on "permissible annual radiation exposure," specifically: "The radiation limit that excluded people from living in the 30km zone around the Chernobyl nuclear plant exclusion zone was set at 5mSV/year, five years after the nuclear accident. Over 100,000 people were evacuated from within the zone and will never return," (Greenpeace Japan). Never ever to return!

Nuclear disasters don't go away easily. For example, Chernobyl is already facing a brand new crisis. The durability of the original decaying blighted sarcophagus expires within the next 12 months. However, the new replacement sarcophagus, the world's biggest-ever metallic dome, will not be accomplished in time as they are short of funds (615 million EUR).

In addition to Ukraine's internal strife with pro-Russian citizens, the country has serious financial difficulties. All of this amounts to one more "spoke in the wheel" against nuclear reactor proliferation (Incidentally, China has 400 reactors on the drawing board). Who knows if and when a crippled reactor ends up in the hands of a financially strapped country? Then what?

Already, Ukraine has 15 nuclear reactors standing tall, so far, amongst whizzing bullets and powerful rockets. Dismally, Ukraine has conceivably become a nuclear holocaust tinderbox in the midst of cannon fire, rumbling tanks, and surface-to-air missiles, for example, Malaysia Airlines Flight 17 was shot down by a missile, supposedly by accident, on July 17, 2014, all 298 on board died.

Meanwhile, back in Japan, raising the level of permissible annual radiation exposure does not escape international notice. According to Dr. Ian Fairlie, former head of the Secretariat of the UK Government's CERRIE Committee on Internal Radiation Risks: "The Japanese government goes so far as to increase the public limit for radiation in Japan from 1 mSv to 20 mSv per year, while its scientists are making efforts to convince the International Commission on Radiological Protection (ICRP) to accept this enormous increase."

But, wait a moment; the Olympic Committee has already designated Tokyo 2020. Is it possible the IOC has the cart ahead of the horse, maybe way ahead?

As for the newly established higher acceptable Japanese limit for radiation: "This is not only unscientific, it is also unconscionable," Dr. Fairlie, *Unspoken Death Toll of Fukushima: Nuclear Disaster Killing Japanese Slowly*, Sputnik International, Aug. 8, 2015. After all, on a factual basis, "unscientific and unconscionable" are strong indictments.

Yet, the Olympic committee has already approved Tokyo 2020, and people from around the world will be making plans to attend. Withal, if the Olympic Committee is okay with Japan's capricious radiation conditions, then shouldn't everybody else be okay with it too? Well....

All of which brings to mind: If Fukushima's a canary in the mineshaft that exposes nuclear power's hidden dirty underbelly, meaning, once things go wrong they really go wrong, adhering to Murphy's Law, then what of the potential consequences of big ole nuke plants in war zones? How would Murphy's Law apply in a war zone? The most comfortable answer is: Don't even think about it.

Still, the world's 430 nuclear reactors are "big fat sitting ducks." According to former ambassador Murata, nuclear reactors are "the world's most serious security problem."

Thus, Fukushima may be more than the poster child of nuclear power's fragility vis a vis extreme forces of nature; it's also a surrogate poster child for lurking dangers behind and within terrorism and within war zones when "anything that can go wrong will go wrong," for example, a downed airliner over Ukraine.

## **Nuclear Reactors are as Dangerous as Nuclear Weapons (Murata)**

Rockets have been fired at nuclear facilities in Israel. “ Hamas claimed responsibility for the rockets, stating that it had been attempting to hit the nuclear reactor. Militants from Hamas’s Qassam Brigades said they had launched long-range M-75 rockets towards Dimona” (The Jerusalem Post, July 9, 2014).

As mentioned earlier, Ukraine is home to 15 nuclear reactors in the midst of a war zone. What if a missile accidentally, or purposefully, hits a nuclear reactor? Does Fukushima provide any clues as to the consequences of such a disaster?

Assuming Fukushima is truly a harbinger of how remarkably well nuclear disasters harmonize with, in fact, cohere to Murphy’s Law, it probably implies that “all bets are off.”

*Postscript: “The future of the Olympic Games is at stake. It is as a believer in the spirit of the Olympic Games and the Olympic Movement that I am pleading for an honorable retreat, and this, in order for Japan to devote maximum efforts to controlling the Fukushima crisis,” Mitsuhei Murata, Former Japanese Ambassador to Switzerland and Executive Director, Japan Society for Global System and Ethics, Tokyo, October 28, 2015.*