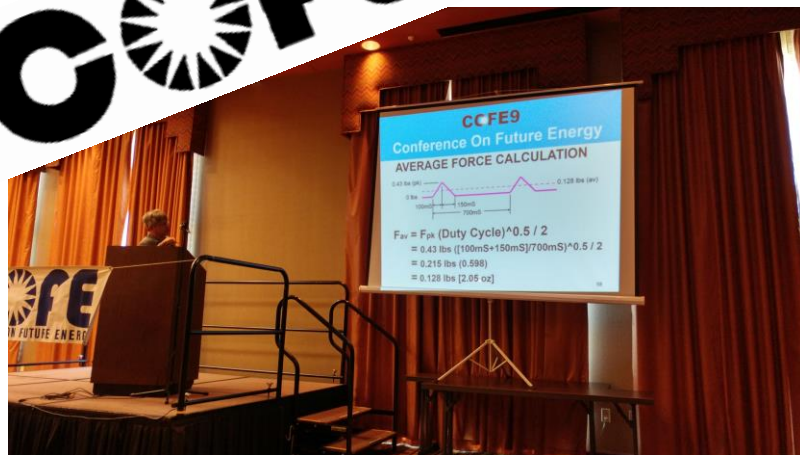


# Future Energy

IRI Members Newsletter

Fall 2018

## COFE REVIEW



Engineer Mike Gamble explains his reproduction of a Boeing force producer at COFE10

PLUS

- Special Report on Manelas Device with Ahern Slides
- **Pulsed Electromagnetic Field Therapy on Prostate Volume, Vascularity**
- Preprint: Test of Mechanical Movement toward Anode in Capacitors
- **General Recommendations from IRI Staff**
- Energy from Vacuum with Application of Electric Field with Dirac Hole Theory
- **Detailed Analysis of Every COFE10 Speaker's Presentation with Photos**
- Self Worth: Steps toward Springing into Action and Going the Distance

Integrity Research Institute

# Report on the Tenth Conference on Future Energy (COFE10)

Thomas Valone, PhD, PE

**Note:** All COFE DVDs are available at <http://www.integrityresearchinstitute.org/catalog/newcds.html>

Another fully successful COFE was held at a new venue, the Crowne Plaza Hotel in Albuquerque NM, August 10-11, 2018. Every speaker was on time and well-prepared with exciting and fresh research in the areas of new energy innovation, propulsion and force production, and bioenergetics applications for health.

**Moray King** started the conference with a focused approach to cohering zero-point energy using plasma. His argument this time was centered on the techniques of using abrupt electric discharge or oscillating the plasma ions. Reviewing the works of Ken Shoulders, Paul Brown, T. Henry Moray, and Alfred Hubbard, he emphasized the production of excess energy could be attributed to one of these two methods. King showed us how the ion oscillations in a plasma tube or within a coil could coherently guide the zero-point energy into oscillating displacement current, which surround the conductors to manifest a cold current phenomena. For this reviewer, the surprise was King's citation of "On Radium Antennae," from *The Electrician*, Apr. 1916, "Radium and Aerials," from *Scientific American*, Oct. 1916, and the Barbat, US Patent Application #2007/0007844 as support for millicuries of radium amplifying electrical circuits such as antennas. However, he showed that a millicurie of radium will produce less than 1 milliwatt of power each second, so the result of such radium amplification exceeds the input capability by a great degree.



**Bill Alek** presented a well-established principle of theoretically achieving faster than light (FTL) travel by disengaging the inertial mass of a starship from the rest of the universe's mass (which he calls "disentangled", implying a quantum effect). This concept follows the Haisch, Rueda, and Puthoff paper in *Physical Review*<sup>1</sup>, which even the famed Arthur C. Clarke labeled the "Space Drive" when he devoted a chapter to its proof in his book, *3001, the Final Odyssey*. Combined with Alek's design for a warp engine,

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<sup>1</sup>Haisch, Bernard, and Alfonso Rueda, Harold Puthoff. "Inertia as a zero-point field Lorentz force." *Physical Review A*. Vol. 49, No. 2, Feb., 1994, p. 678

the presentation gave a glimpse of the future, in the category of Dave Froning's warp drive COFE presentations which was exciting.



**Dr. Glen Rein's** talk on "Quantum Information Storage in Water" was an eye-opener, showing how certain EM fields can impart specific alterations, information or "water memory" that lasts for weeks or months. The storage of frequency information in water seems to require nonhertzian or longitudinal waves as opposed to normal transverse EM waves, according to Rein. One notable discovery that was well-received pertained to the work by Dr. Peter Gariaev who found that shining a laser through young cells can transfer "healthy energy" to old cells so that the old cells become younger.<sup>2</sup> This reviewer also found that Gariaev has an extensive [publication list online](#) which includes a long sought-after research topic, usually absent from articles on the subject, analyzing the *spectroscopy of biophotons*.<sup>3</sup> He also has an interesting free downloadable paper on his main theory of "Wave Genetics" which is intriguing.<sup>4</sup> Another fascinating discovery was related to Surinov who published a journal article on "Information Pharmacology" claiming to replicate copies of drug substance information in "Aquatic Vehicles".<sup>5</sup>

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<sup>2</sup> Berezin A.A., Gariaev P.P., Gorelik V.S., Reshetniak S.A., Shcheglov V.A., 1996, Is it possible to create laser on information biomacromolecules? *Laser Physics*, v.6, N6, pp.1211-1213

S.A. Reshetnyak, V.A. Shcheglov, V.I. Blagodatskikh, P.P. Gariaev, and M.Yu.Maslov, 1996, Mechanism of interaction of electromagnetic radiation with a biosystem, *Laser Physics*, v.6, N2, pp.621-653.

Gariaev P.P., Chudin V.I., Komissarov G.G., Berezin A.A., Vasiliev A.A., 1991, Holographic Associative Memory of Biological Systems, *Proceedings SPIE - The International Society for Optical Engineering. Optical Memory and Neural Networks*. v.1621, p.280- 291. USA.

<sup>3</sup> P.P.Gariaev, G.G.Tertishny, A.M. Iarochenko, V.V.Maximenko, E.A.Leonova, 2002, The spectroscopy of biophotons in non-local genetic regulation. *Journal of Non-Locality and Remote Mental Interactions* Vol. 1, N. 3

<sup>4</sup> Peter Gariaev, Mark J. Friedman, Ekaterina A. Leonova-Gariaeva. *Principles of Linguistic-Wave Genetics*. <http://dnadecipher.com/index.php/ddj/article/view/2> DNA Decipher Journal, Vol 1, No 1 (2011).

<sup>5</sup> Surinov, B.P. et al., *Int. J of Uncon. Sci.*, 2017, Issue E2, pp. 3-9. [www.unconv-science.org](http://www.unconv-science.org)



With a complete review of the biological properties of water, structured water, microclustered water, water treated with an EE System, subtle energy devices for treating water, water treated and imprinted with hydrogen frequencies, impedance spectroscopy, atomic emission spectroscopy, toroidal field alternatives, frequency hopping, DNA, and much more, this may have been the best and most comprehensive lecture presentation by Dr. Rein that COFE audiences have seen.

**Josh Reynolds** was a special presenter and plenary speaker who was giving his first public address in decades, summarizing all of his emerging science and energy projects. Josh Reynolds is noted for raising over \$1M in 1983 to fund R&D on T. Townsend Brown's "petro-voltaics" (PV) based on his later life focus on "gravito-electrics" vs. earlier work on electro-gravitics & his flying foils. T. Townsend Brown (& C Brush) experiments: Townsend's discovery of the works of Charles Brush regarding his research on the anomalous phenomena of certain heavy metal silicates opens the door for advanced PV, "quantum noise flux" devices and beyond. Reynolds used his own Mac with an unusual icon-driven pop-open



window presentation. His topics were very interesting and well-illustrated. One in particular was the most memorable for much of the audience, which was the discussion of Wilhelm Reich and his Orgone Vest, which is like a small, chest cover version of the regular Orgone Blanket. Reynolds used to

construct them and lost more than one to friends who somehow bonded with them when they tried them on. Everyone at COFE10 wanted to make one after this portion of the presentation, which he said was easy to do. The major topics of this presentation included the following:

- Illya Prigogine – negentropic self-organizing systems (protozoa to traffic patterns, diurnal, sidereal & cosmic periodicities)
- John Bochrus (Texas A&M, Pons & Fleishmann)
- George Van Tassel (Integratron) & alien channel
- Georg Lakhovsky (MWO), K McClean (pulsed 1ft core Mag Coil)
- Jack Schwartz – Aura Man
- W Reich & Trevor Constable (& George McMullen)
- EM & ES healing and EM & ES propulsion
- ZPE i.e., free energy

This captivating special event was almost two hours long and his DVD is recommended for those interested.

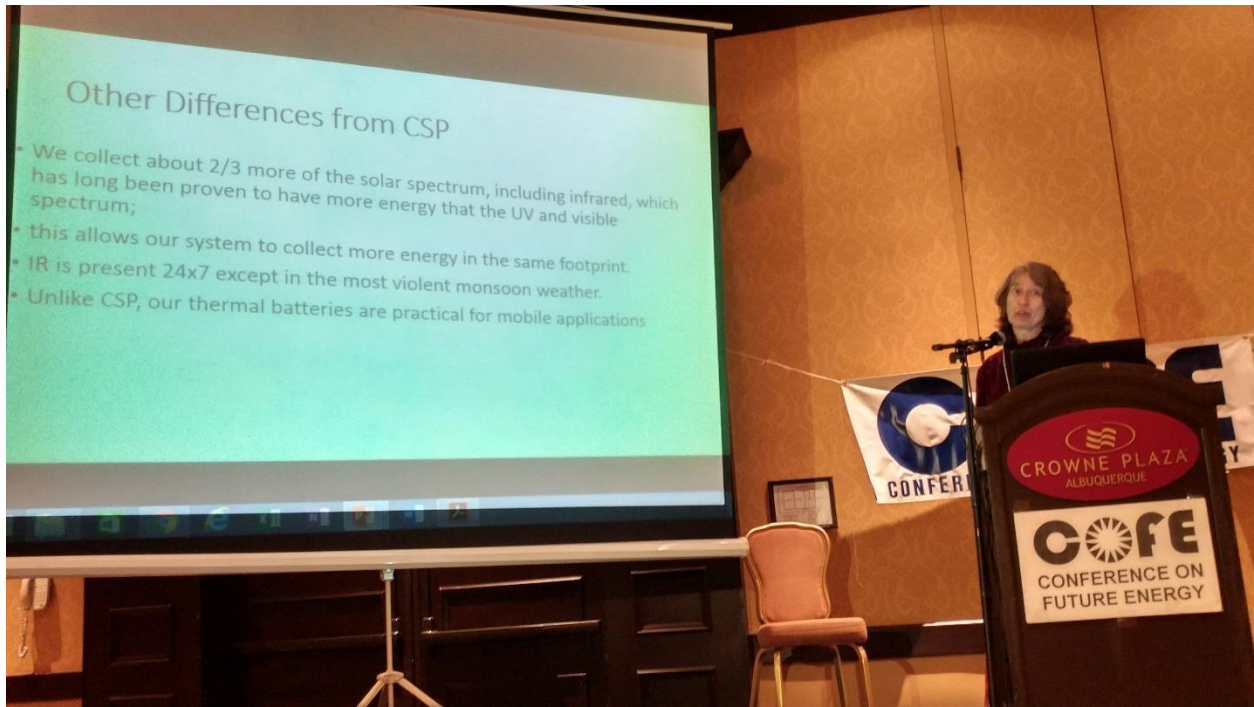
**Gwen Holdmann** was another special presenter who came all of the way from Alaska to give us one of the best renewable energy slideshows that any COFE audience has ever received. Her stories and illustrations proved that localized electrical power generation (i.e., micropower and microgrids) has

been achieved in small villages throughout Alaska. Gwen should know since she is the Director of the Alaska Center for Energy and Power (ACEP), which is an applied energy research program based at the University of Alaska Fairbanks focusing on both fossil and renewable/alternative energy technologies. ACEP's mission is to develop and disseminate practical, cost-effective, and innovative energy solutions for Alaska and other regions with similar energy struggles. As Director of ACEP, Gwen spearheaded the creation of several programs within the organization to help it accomplish its goals, with some control over available funding. These programs vary in purpose and scope and have allowed ACEP to delve into research specialties such as hydrokinetics, power systems integration with a focus on microgrids, development of innovative data collection techniques, and creation of economic analysis for a variety of energy related purposes.

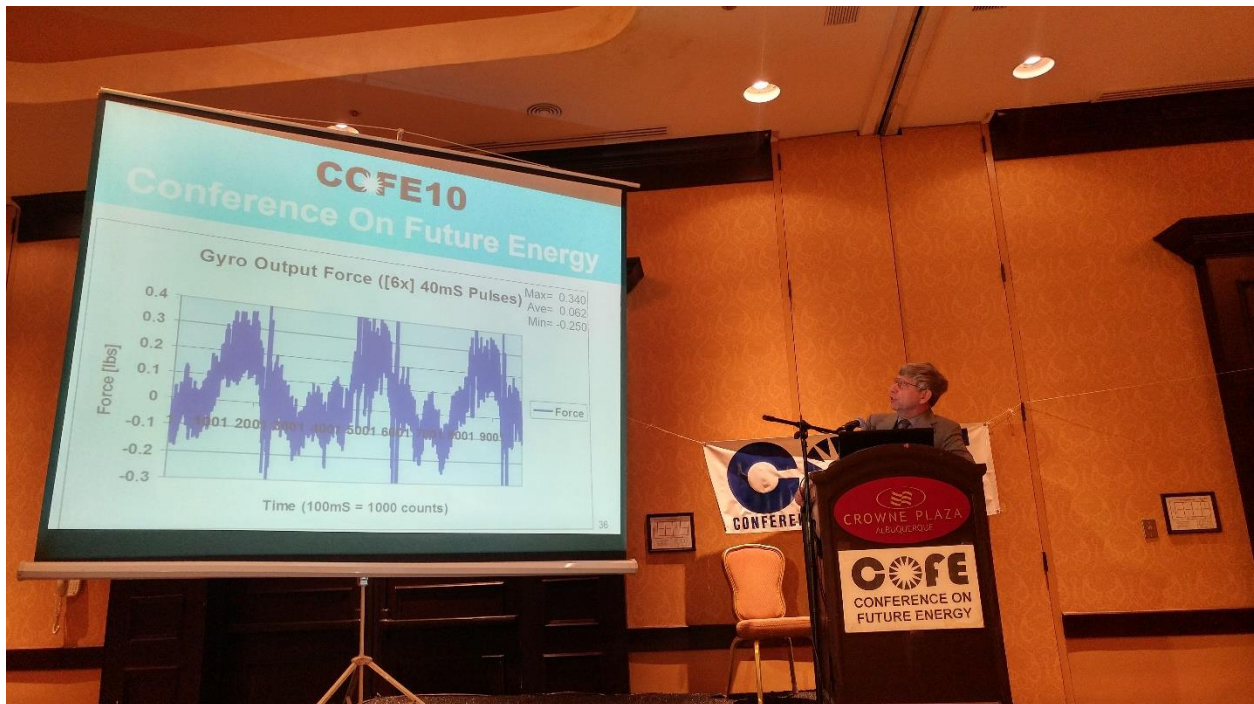


When **Virgil Perryman** was planning for this presentation, he admitted that he is presently working in Saudi Arabia and would need international travel compensation but his US representative Judy Kosovich spent a few weeks being tutored by him when his invention was first announced. Judy did an excellent job of explaining his heat conversion methods which were somewhat unconventional. They are storage batteries which are transportable and range in sizes from 30,000 kWh of thermal energy that's the size of a 20-foot ocean container to home and retail units the size of a home boiler and is claimed to meet all the energy needs of a building from waste electrical energy as well as providing 3-7 days of emergency backup. The technology is using highly compressed air or liquid nitrogen with heat to push the pistons or turn the turbines of internal combustion engines with a Brayton Cycle and molten metal heat storage. In the slide, Perryman is explaining the differences of his thermal battery to Concentrated Solar Power.





**Mike Gamble** updated the amazing Control Moment Gyroscope tabletop model, which is the first time a linear scissoring gyroscope arrangement has been demonstrated to produce linear propulsion. History is being made with the development of this civilian force generator, good for land, air, and space transportation applications, with the help of IRI support for his parts expenditure. His output force has been measured to match the theoretically predicted 0.4 lb. force on average. The future design will improve the force to weight ratio for visible movement.



**Bob DeBiase** lectured on the further experiments with his Quantum Fire Project which seeks to bring perhaps the most disruptive technology since the harnessing of Fire to the market place – a Force Cell that extracts external forces from the Quantum vacuum by means of the Casimir effect. External forces are predicted for Casimir scale wedges as a result of ordinary electromagnetic theory – and the theory has been advancing since the late 1970s with numerous papers having been written by multiple authors. While the theory predicts the Casimir force being present for any surface, even if a triangular design, several geometric arrangements are being assembled with the help of **Dr. Thorsten Ludwig** at his Berlin laboratory with a scanning electron microscope. This reviewer proposed using a sawtooth surface of a diffraction grating, coated in a conductive metal, to test in a vacuum suspended by a very thin thread. This would eliminate the challenge of bringing two separate surfaces in close proximity to achieve the same geometric arrangement.

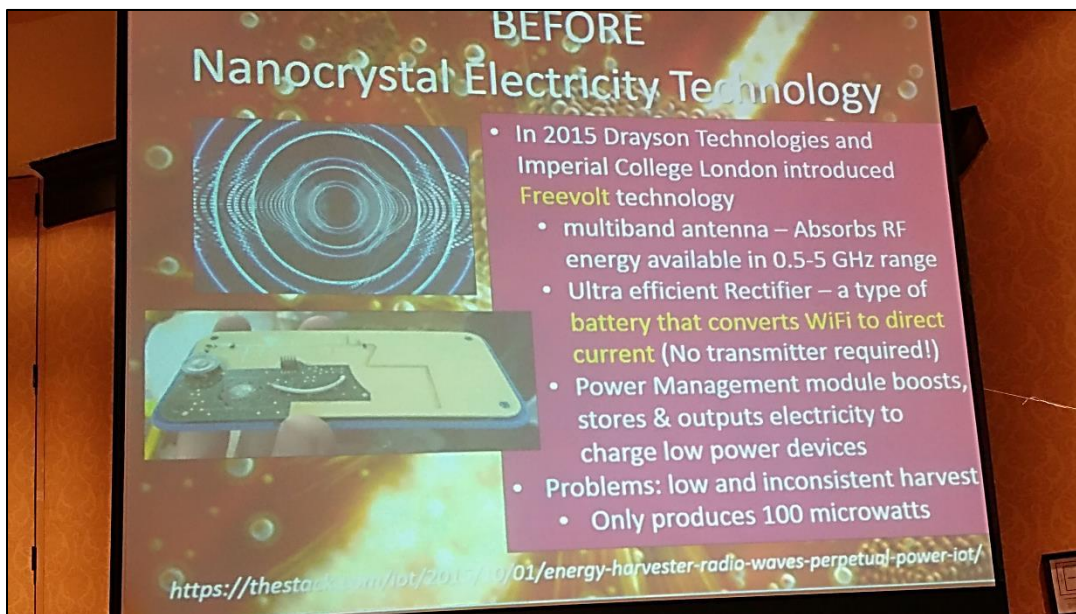
**Larry Deavenport** was a great demonstrator by assembling two of T. Townsend Brown's little known inventions for the COFE10 audience. He deserves the Integrity in Research award for his diligence in





carefully reproducing the first Brown patent #2,949,550 on a dielectric electrogravitics propulsion device (on the left in the first photo) as well as a gas heated flame jet generator (on the right and in the lower photo). Dr. Paul LaViolette made Brown's flame jet generator famous in his essay on the B-2 Bomber, claiming that it provided the charge separation for sending negatively charged gas out of the rear of the craft, while a positive charge was being deposited on the leading edge of the wings where a high value dielectric was inserted. Although neither demonstration worked as planned, it still was a thrill to see two historical T. T. Brown inventions reincarnated for the conference.

**Suzanne Price** presented a new technology called NanoCrystal Electricity (NCE) emulating Nikola Tesla's the Wardenclyffe system has resurrected the hope of worldwide wireless power. One hundred years later Tesla's dream could be coming to fruition with an ironic twist by the breakthrough introduction of technology and an FCC-approved receiver device. Inspired by Tesla's Wardenclyffe Tower, NCE creators claim it's a revolutionary method of dynamic charging based on the new technology and radio waves that can provide power anywhere and everywhere. The presentation of the details was comprehensive and compelling with ultra efficient rectifiers being marketed by Drayson Technologies for energy harvesting of RF in the low gigahertz range. Talking about "free energy," soon very few devices will require power cords or batteries as the slide from her presentation explains.



**Brian David Anderson** talked about a technology connected to an "open" Tesla coil carrying a wide array of weak frequencies separates the oxygen ions from the metals. The patented configuration is a key feature of the device called the Nano Oxygen Accelerator (NOA) that both detects and releases the large oxygen molecules involved with the condition known as inflammation. Brian said that NOA also has the ability to balance and stimulate the biological processes in human and animal intestines and colon.

**Elaine Walker** was an interesting and unusual presenter with a book dedicated to chaos theory, ***Matter Over Mind: Cosmos, Chaos, and Curiosity***. It was interesting to see how many places in nature exhibit chaotic patterns that Elaine recognized from her NASA and academic training. Elaine presented a thought-provoking journey through the Cosmos to illustrate the startling contrast between nature's chaotic but rich processes, and the human mind's organized but underperforming habits. Her book

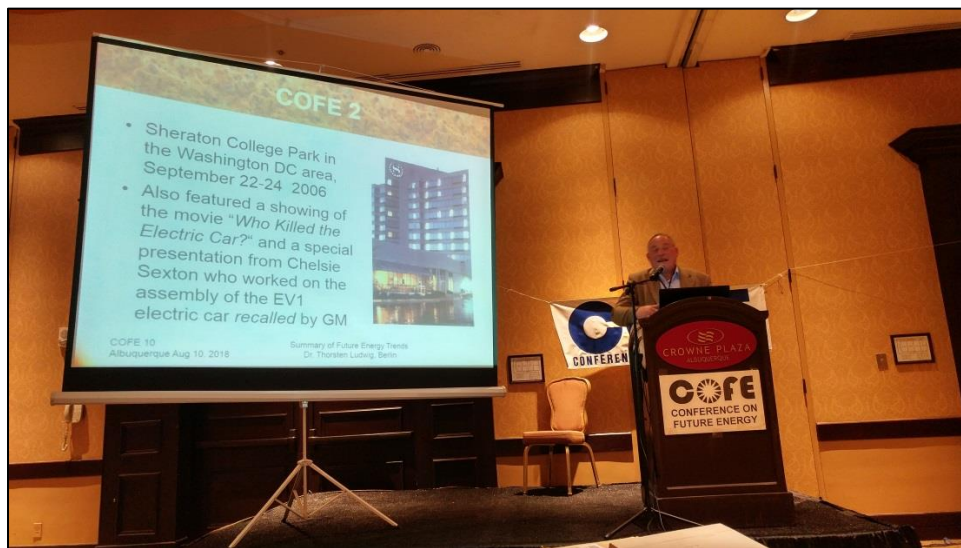




reveals how humanity could achieve even greater heights according to Elaine, if we allow ourselves to rethink how we think. Chaos theory, which is wonderfully explained in her book, is a foundational recipe in nature and large group behavior. Her argument is that abstract thinking is the opposite force that leads to frustrating inconsistencies in society and even limitations in technology.

Her conclusion is that viewing the world through both lenses illuminates the deeper dynamics of the world and a better way forward for humanity.

**Dr. Thorsten Ludwig** presented a valuable summary of the IRI collection of ten conferences on future energy. It was very timely with this year's COFE10 being the tenth in the series. Thorsten emphasized that the conferences on future energy are a wonderful and special conference series that combines far out new ideas, scientific excellence and down to earth practical approach. Over the years many interesting ideas were presented. The highlights of the COFE 1 to COFE 9 were presented and the significance and importance of the COFE conference series in particular and the new energy field in general. It was a great, condensed set of highlights from each conference with a presentation of the most notable speakers that IRI was honored to have secured for its archives. IRI has all of the presentations from COFE 1-10 on DVD and many with papers. As a result, we plan to preserve the memory of COFE 1-10 with (1) the publication under contract of forty of the *Selected Papers from the Conferences on Future Energy 1-10* through KnowledgeE.com and Proceedings.com, as well as (2) the conversion of most of the DVDs to WMV, MPG, or MP4 videos for online downloading and viewing on demand.



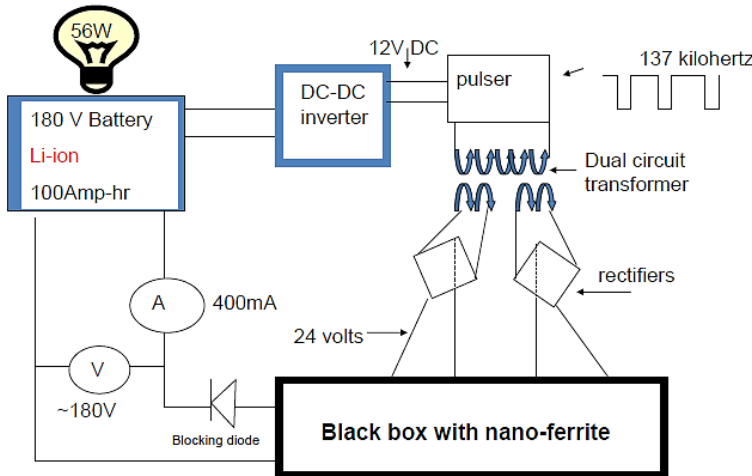
The Saturday night presentation with **Drs. Tom Valone and Brian Ahern** was particularly interesting since the Manelas Device has had such a wide coverage in the popular literature even before the conference. With global warming increasing as carbon emissions (at 408 ppm) now exceed 140% of the maximum level (290 ppm) the earth has ever seen in over a half million years, a carbon-free energy source is the long sought after discovery. The Manelas Device presents just such a solution. Strong experimental evidence was presented by the MIT scientist, with impeccable credentials, who has spent the most hours testing the device in the past few years. However, the conundrum is that the energy output is too good to be true, even under controlled circumstances. The source of the energy is also undetermined but nanocrystalline grained  $\text{SrFe}_{12}\text{O}_{19}$  is hypothesized to work with the quantum vacuum since EDAX analysis of the solid billet uncovered strontium ferrite as a major ferroelectric ingredient of the “battery.” The video is introduced by Dr. Valone with his literature search summary and then two slideshows by Dr. Ahern gave a theoretical introduction to the widespread confirmation of nanocrystalline energy production below 10 nm, followed by the practical details of the Manelas Device, where nanocrystalline strontium ferrite is the active ingredient. Now that the inventor, Arthur Manelas passed away in 2014, this video presentation is a must-see for future energy researchers, where Dr. Ahern, fresh from several government contracted assignments, is still making himself available at a minimal fee for further development of the prototype toward eventual commercialization. This may be the most promising and memorable new energy inventions of the entire COFE series, in this reviewer’s opinion. Free copies of this DVD is being sent at the end of the year to all IRI Members as the annual gift.



A few hundred people were fortunate to hear Dr. Ahern present the astounding facts surrounding his testing of the Manelas Device, such as 70 watts of continuous output and no consumption of any material, with voltage and battery capacity increase over 7 days, which included closeups and a circuit diagram of the installation in an electric car driven for 25 miles, with detailed graphs and charts of the electrical output over time. Magnetic anomalies seem to accompany the strontium ferrite billet field measurements, while its interaction with the resonant circuit with three-axis coils was reminiscent of a

traveling wave tube (see circuit diagram). Brian introduced the Manelas Device lecture with a review of his experience with nanocrystalline structures of 5-10 nm that have already been documented to spontaneously produce heat and energy output. Historically, Takahashi was successful with a low energy nuclear replication (LENR), according to Ahern, when he worked with nanocrystalline powders of 5-10 nm in April, 2009 with an energy localization theory as an explanation. Also, it was noted that Yoshiaki

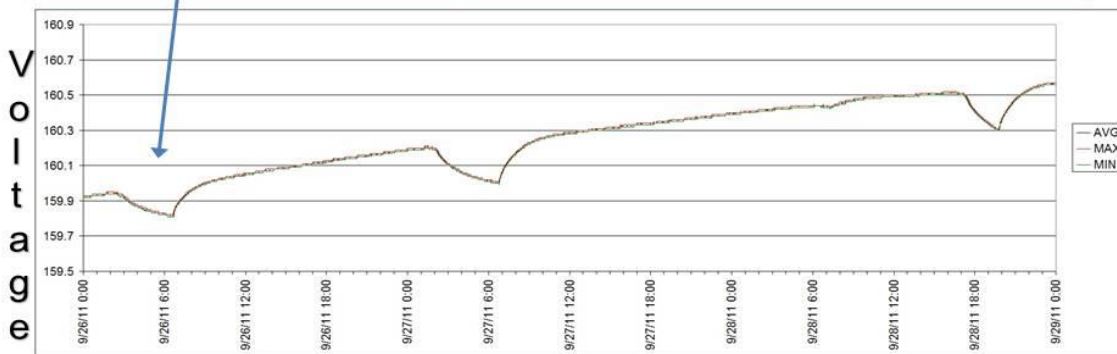
Arata from Japan found that Hydrogen gas added to 5 - 10nm nickel powders spontaneously produces heat at a low level. Ahern also noted that magnetic vortices arising in ferromagnetic crystals below 10 nm. A few concerned parties have expressed interest in Ahern's offer to work without labor fees and a minimal budget of \$10K to \$20K for expenses, just to refine and finalize the Manelas prototype design as a proof of principle. A couple of his most impressive slides are included in this report below. Dr. Ahern can be reached through his email: ahern\_brian@msn.com



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

## Manelas Data

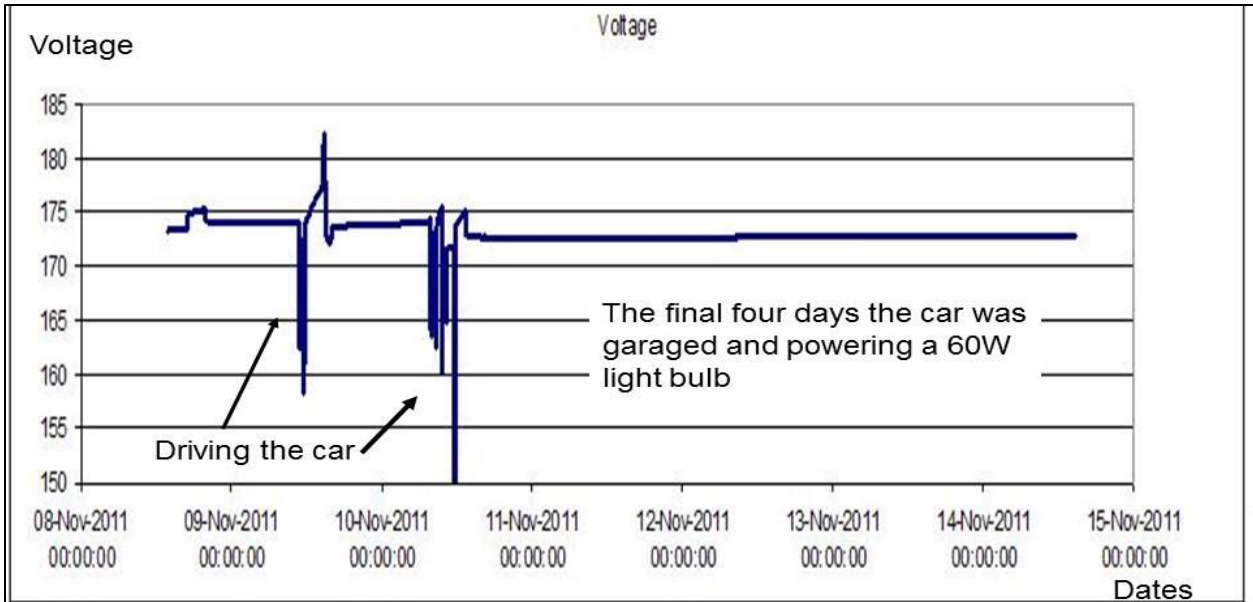
The voltage dips are a curiosity. The first two began at 2AM on successive nights. They were coincident with a large northern lights display. Much more data is needed. We will add a separate data logging ammeter for the next test. The first dip corresponded with the fourth largest aurora of the year. The second dip is bigger and it corresponded to the largest aurora of the year. Clearly the magnetosphere is interacting with the device operation.



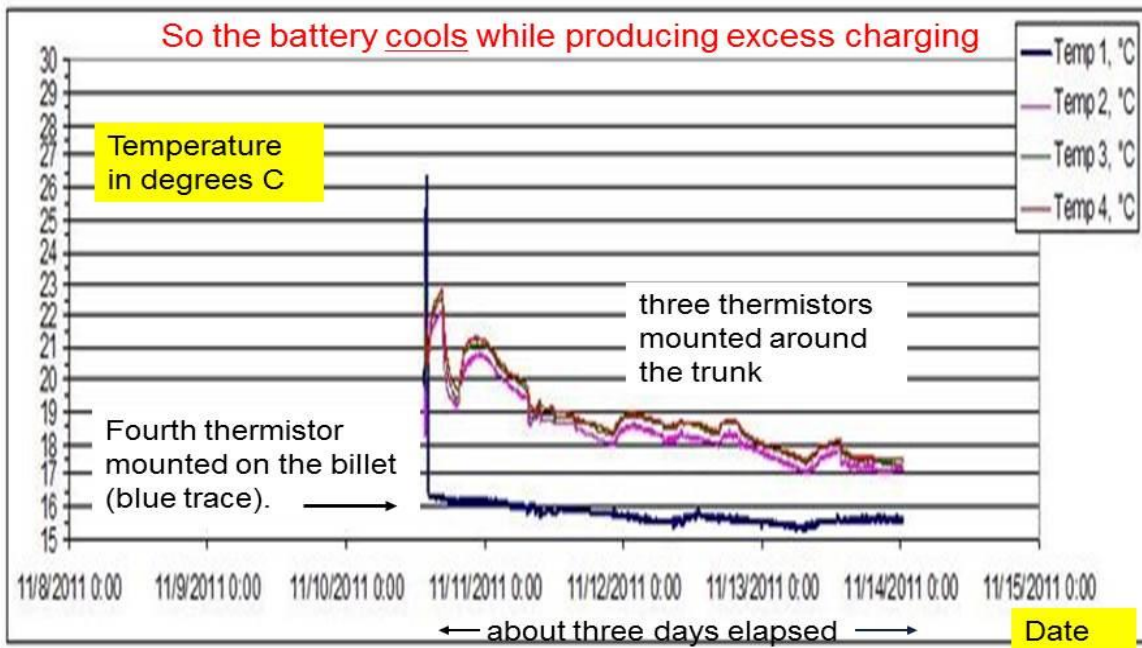
Battery pack at 165 Volts  
27 watts of power charging the battery for 7 days

Date/Time  
9/26 – 9/29/11





**Power output was increased from 27 watts to 60 watts.**  
**Battery pack voltage increased from 165 volts to 180 volts.**  
**Then,  $\Delta\text{Power}/\Delta V = 33/15 = 2.2$  Amps increase (since  $P = I V$ ).**



**Sub-Ambient operation of the ferrite core**

# Nano-Ferromagnetism

- Ferromagnetism is a collective behavior
- Nanograins (3-12nm) impose collective action of the nuclei to vibrate cooperatively
- Clean electrical energy production results
- The nature of the vacuum is important
- Experiments outpace theoretical understanding

This device exceeds our ability to account for the continuous energy output. Our model is now focused on unique physical properties arising below 12 nanometers.

It was this reviewer's pleasure to edit every one of the Ahern slides and combine the two slideshows into one presentation. Each one of Brian's notes were faithfully incorporated into colorful text boxes on the corresponding slide, without changing any words, so that the viewer can read and hear his explanation of the particular characteristic behavior illustrated in each slide. In one case, the power difference was calculated and added for elucidation purposes. The best ones have been reproduced here in an expanded special report just for our IRI Members. While cold fusion or low energy nuclear reactions (LENR) have not been recently advocated by IRI, due to their slow progress, this presentation offers an insight into possibly the single most important discovery that has resulted from cold fusion research – the nanocrystals of various minerals below 10 nanometers correlated with anomalous energy output. Of course, it cannot be overemphasized that another presenter at COFE10 (Suzanne Price) also alerted us to the corresponding breakthrough in the nanocrystalline commercial realm, where such products as the "Forever Battery" is now being marketed. If ever a synchronicity pointed to the next big thing in clean, carbon-free future energy development, this may be the one.

A crowdfunding campaign is also being considered to advance this well-documented invention for its further development. Contact IRI directly if the reader has any interested donors so that we may administer and manage the project, along with offering tax deductions to the party offering assistance, since IRI is a 501(c)3 charitable organization.

## Manelas References (Google Search)

### [Arthur Manelas Passes - Infinite Energy Magazine](http://www.infinite-energy.com/iemagazine/issue119/manelas.html)

[www.infinite-energy.com/iemagazine/issue119/manelas.html](http://www.infinite-energy.com/iemagazine/issue119/manelas.html)

New energy inventor **Arthur Manelas**, 71, passed away on December 4, 2014, two ... Most felt that Manelas had perhaps the most promising new energy **device**.

### [Manelas Device | e-Cat Site](https://ecatsite.wordpress.com/manelas-device/)

<https://ecatsite.wordpress.com/manelas-device/>

The Manelas **device** is a purported over-unity **device** based on Dr. Brian Ahern's theories of nano-magnetism ... **Arthur Manelas** is skilled at reconditioning cars.

### [In Memory of Arthur Manelas - Revolution-Green](http://revolution-green.com/memory-arthur-manelas/)

[revolution-green.com/memory-arthur-manelas/](http://revolution-green.com/memory-arthur-manelas/)

Dec 7, 2014 - According to **Arthur** and other trusted observers the **device** the size of a school lunch box would eventually fully recharge the batteries in about ...

### [Tiny Tornadoes of Magnetism—Keys to Free Energy? | Atlantis Rising ...](https://atlantisrisingmagazine.com/.../tiny-tornadoes-of-magnetism-keys-to-free-energy...)

<https://atlantisrisingmagazine.com/.../tiny-tornadoes-of-magnetism-keys-to-free-energy...>

The expert in high voltage electronics is **Arthur Manelas**, and the mainstream ... After carefully testing Manelas' **device**, Ahern speculated that tiny magnetic ...

### [\[PDF\]Project Tesla ... & Beyond Manelas Device Nano Oxygen ... - TeslaTech](https://www.teslatech.info/ttevents/2018conf/2018ETCp05.pdf)

<https://www.teslatech.info/ttevents/2018conf/2018ETCp05.pdf>

The Manelas **device**, invented by **Arthur Manelas** gained prominence after being utilized in a refurbished electric car to recharge batteries. At the core of the ...

### [Arthur MANELAS, et al. NanoMagnetic Power -- Nanomagnetic ...](http://www.rexresearch.com/articles2/manelas.html)

[www.rexresearch.com/articles2/manelas.html](http://www.rexresearch.com/articles2/manelas.html)

**Arthur Manelas** took the **device** apart to rebuild two new ones. In the interim he suffered a stroke and died without leaving a circuit diagram or notes on the ...

### [Nanomagnetism and LENR - General LENR Talks - LENR Forum](https://www.lenr-forum.com)

<https://www.lenr-forum.com> › Forum › LENR Topics › General LENR Talks

Jan 7, 2016 - 30 posts - 5 authors

**Arthur Manelas** took the **device** apart to rebuild two new ones. In the interim he suffered a stroke and died without leaving a circuit diagram or ...



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## Classical Physics



# Electrostatic Accelerated Electrons Within Information Horizons Exert Bidirectional Propellant-Less Thrust

**Authors:** [Ankur S. Bhatt](#), [F.M. Becker](#)

During internal discharge (electrical breakdown or field emission transmission), thin symmetric capacitors accelerate slightly towards the anode, in contradiction to standard physics. The effect can be predicted by core concepts of a model called quantised inertia (also known as MiHsC) which assumes inertia of accelerated particles, such as electrons, is caused by Unruh radiation. This discrete Unruh radiation forms standing waves between the particle's boundaries to a Rindler horizon and a confinement horizon, which are established based on special relativity in concert with quantum mechanics. Electrons accelerate toward the anode and are assumed to encounter an inhomogenous Unruh radiation condition causing a force suggested by a modification to their inertial mass. To conserve momentum, the overall mechanical system moves in the direction of the anode. This resulting force is assumed to be caused by an energy gradient in between the confinement and the Rindler zone and its equation is derived directly from the uncertainty principle. Various thicknesses of discharging capacitors are compared to show the agreement between the experimental findings and a virtual particle oscillation associated with a standing wave energy gradient hypothesis.

**Comments:** 26 Pages.**Download:** [PDF](#)

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# Some new results concerning the vacuum in Dirac's hole theory

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Received 25 October 2005

Accepted for publication 7 February 2006

Published 21 June 2006

Online at stacks.iop.org/PhysScr/74/117

## Abstract

In Dirac's hole theory (HT), the vacuum state is generally believed to be the state of minimum energy. It will be shown that this is not, in fact, the case and that there must exist states in HT with less energy than the vacuum state. It will be shown that energy can be extracted from the HT vacuum state through application of an electric field.

PACS numbers: 03.65-w, 11.10-z

## 1. Introduction

It is well known that there are both positive and negative energy solutions to the Dirac equation. This creates a problem in that an electron in a positive energy state will quickly decay into a negative energy state in the presence of perturbations. This, of course, is not normally observed to occur. Dirac resolved this difficulty by assuming that all the negative energy states are occupied by a single electron and then evoked the Pauli exclusion principle to prevent the decay of a positive energy electron into negative energy states. The electrons in the negative energy states, the so called *Dirac sea*, are assumed to be unobservable. What we observe are variations from the unperturbed vacuum state.

The proposition that the negative energy states are all occupied turns a one electron theory into an  $N$ -electron theory where  $N \rightarrow \infty$ . Due to the fact that the negative energy vacuum electrons obey the same Dirac equation as the positive energy electrons we have to, in principle, track the time evolution of an infinite number of states. Also the vacuum electrons in their unperturbed state are unobservable. All we can observe is differences from the unperturbed vacuum state. To simplify the problem, quantum field theory (QFT) was developed. In this case, the vacuum state is defined as the state in which no electrons or positrons exist. Therefore at the conceptual level the situation is simplified.

Now consider a 'simple' quantum theory consisting of non-interacting electrons in a background classical electromagnetic field. In this case, it is generally assumed that QFT and HT will give identical results. However, recently, several papers have appeared in the literature pointing out that there are differences between HT and QFT for this simple

situation (see [1–4]). The problem was originally examined by Coutinho *et al* [1, 2]. They calculated the second order change in the energy of the vacuum state due to a time-independent perturbation. They found that HT and QFT produce different results. They concluded that the difference between HT and QFT was related to the validity of Feynman's belief that the Pauli exclusion principle can be disregarded for intermediate states in perturbation theory. This belief was based on Feynman's observation that terms that violate the Pauli principle formally cancel out in perturbation theory. However, Coutinho *et al* [1, 2] show that this is not necessarily the case for HT when applied to an actual problem. The author (Solomon [4]) found that this problem was related to the way the vacuum state was defined in QFT. If the definition of the vacuum state was modified as described in [4] then the HT and QFT would yield identical results.

The above mentioned papers looked at the differences between QFT and HT for a time-independent perturbation. A recent paper by the author (Solomon [5]) examined the difference for a particular time-dependent perturbation. The conclusion of [5] was that the HT vacuum state is not a minimum energy state, that is, in HT there exist states with less energy than the vacuum state. This is a somewhat surprising result because it is generally assumed that the HT vacuum state is also a minimum energy state. This is in sharp contrast to the standard formulation of QFT where the vacuum state is also the minimum energy state.

One possible result of this research is that it could shed light on the reason for anomalies in QFT. An anomaly occurs when the result of a calculation is not consistent with a symmetry of the Dirac equation. In [5] it was pointed out that HT is anomaly free. Therefore an understanding of the



# Effect of Pulsed Electromagnetic Field Therapy on Prostate Volume and Vascularity in the Treatment of Benign Prostatic Hyperplasia: A Pilot Study in a Canine Model

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**BACKGROUND.** Benign prostatic hyperplasia (BPH) is a result of urogenital aging. Recent studies suggest that an age-related impairment of the blood supply to the lower urinary tract plays a role in the development of BPH and thus may be a contributing factor in the pathogenesis of BPH. The canine prostate is a model for understanding abnormal growth of the human prostate gland. We studied the efficacy of pulsed electromagnetic field therapy (PEMF) in dogs to modify prostate blood flow and evaluated its effect on BPH.

**METHODS.** PEMF (5 min, twice a day for 3 weeks) was performed on 20 dogs affected by BPH. Prostatic volume, Doppler assessment by ultrasonography, libido, semen quality, testosterone levels, and seminal plasma volume, composition and pH were evaluated before and after treatment.

**RESULTS.** The 3 weeks of PEMF produced a significant reduction in prostatic volume (average 57%) without any interference with semen quality, testosterone levels or libido. Doppler parameters showed a reduction of peripheral resistances and a progressive reduction throughout the trial of the systolic peak velocity, end-diastolic velocity, mean velocity, mean, and peak gradient of the blood flow in the dorsal branch of the prostatic artery. The pulsatility index and the resistance index did not vary significantly over time.

**CONCLUSIONS.** The efficacy of PEMF on BPH in dogs, with no side effects, suggests the suitability of this treatment in humans and supports the hypothesis that impairment of blood supply to the lower urinary tract may be a causative factor in the development of BPH. *Prostate* 74:1132–1141, 2014. © 2014 The Authors. *The Prostate* published by Wiley Periodicals, Inc. This is an open access article under the terms of the Creative Commons Attribution-NonCommercial-NoDerivs License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.

**KEY WORDS:** BPH; prostate; electromagnetic therapy; PEMF; dog

Grant sponsor: Parsemus Foundation.

**Disclosure Statement:** The authors declare that they have no competing interests considered to be relevant and important with any organization that to any author's knowledge has a direct interest, particularly a financial interest, in the subject matter discussed.

**Authors' Contributions:** R.L. was involved in the concept and design of the study, interpretation of results, semen sampling and evaluation, and preparation of this manuscript. R.L. performed the treatment. R.L., G.A., and F.S. performed the ultrasonography. F.S. performed the

acquisition of data. G.M.L. and E.L. were involved in revision of the manuscript. All authors have read and approved the manuscript.

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Received 24 February 2014; Accepted 2 May 2014

DOI 10.1002/pros.22829

Published online 9 June 2014 in Wiley Online Library (wileyonlinelibrary.com).



## General Recommendations from IRI Staff

Jacqueline Panting N.D. and Thomas Valone PhD, PE

Don't forget to include motion (exercise, walking, working with weights as tolerated) and supplements (glucosamine, chondroitin, MSM, Calcium-Magnesium, hydrolyzed collagen, and gelatin-Jello) in your diet. Exercise and supplements together provide the nutrients needed for bones and joints AND allow the nutrients to get into the needed areas to rebuild tissue. We recommend **Joint Soother** from [www.puritan.com](http://www.puritan.com) as one of the best and most affordable vitamin companies (**Puritan's Pride**, 800-645-1030). **Joint Soother** (2 per day formula) has a triple strength glucosamine, chondroitin, and MSM combination that provides a noticeable different in mobility within only a few days! The standard combination would be recommended for **joint rebuilding** such as <http://www.puritan.com/msm-products-031/triple-strength-glucosamine-chondroitin-msm-joint-soother-017895> . Make sure to take two (2) per day.

Another vitamin company, with a free magazine subscription, is the nonprofit **Life Extension**, and well researched products is [www.LEF.org](http://www.LEF.org) (Life Extension Foundation, 800-544-4440). LEF also has amazing *Wellness Specialists* available by phone 800-226-2370 from 9 AM to 1 AM ET, seven days a week! Ask them anything 😊.

### Hip Pain and Stiffness

We would start with the inexpensive **Thigh Master** [http://smile.amazon.com/s/ref=nb\\_sb\\_noss\\_1?url=search-alias%3Daps&field-keywords=thigh+master](http://smile.amazon.com/s/ref=nb_sb_noss_1?url=search-alias%3Daps&field-keywords=thigh+master) . This is important as a hip abductor to get nutrients back into the hip joints by exercising them. Keep in mind that ALL joints in the body have NO blood circulation! The only way they get nutrients is by putting the "body in motion". Weight bearing exercise is best to also open calcium channels in the bones and strengthen them. Even 20 jumping jacks twice daily has been shown to significantly strengthen the hip joints.

You can also add gelatin or **hydrolyzed collagen** tablets to help form cartilage too, also available from Puritan Pride [www.puritan.com](http://www.puritan.com). The collagen should be taken on an empty stomach with water at least twice a day. It also helps maintain youthful skin!

[www.IntegrityResearchInstitute.org](http://www.IntegrityResearchInstitute.org)

