

The De Aquino ELF Gravitational Shield

Tim Ventura

tventura6@attbi.com

It should have been an open and shut case. System-H had at one time promised to be potentially the biggest breakthrough in history — a gravitational shield capable of lifting hundreds of pounds of weight using little more power than a common household appliance. However, after 3 years, several research papers, and experimental claims that couldn't be verified, the Internet community was beginning to doubt that De Aquino had even conducted the experiment...and De Aquino himself was nowhere to be found. Welcome to the story of System-H – a tale of government cover-ups and the mystery of an experiment that remains unresolved to this day...

Fran De Aquino, a professor of physics at Maranhao State University in Brazil, first became known the Antigravity community on the Internet when he proposed in 1999 that under certain conditions Extra-Low Frequency (ELF) electrical waves can be utilized to create a gravitational shield. After nearly 3 years and several subsequent experimental designs, he published claims in 2001 that he had succeeded in generating nearly 220 pounds of lift with his newest device, dubbed "System-H". While De Aquino's theory is unique to the world of physics, the basis for his work is actually rooted in research from 1986 by two scientists from the University of Massachusetts in Amherst.

The De Aquino theory of ELF-gravitational shielding is based on a paper called "Aristotle was Right" in which the authors, physicists John F. Donoghue and Barry R. Holstein claim that inertial and gravitational mass are only equivalent in an environment where the atoms composing the mass have no energy from surrounding radiation. In other words, only in an environment of absolute 0 degrees in temperature are the inertial and gravitational mass of an object equivalent.

De Aquino took their theory and generalized it - while "Aristotle was Right" only covered thermal radiation, De Aquino postulated that this theory would also apply to the larger-case example of any type of absorbed radiation that by the mass. De Aquino also showed that the effect of absorbed energy caused a decrease in mass, which is important because it means that if any object absorbs radiation it loses gravitational mass – in other words, it weighs less.

The physics equations that De Aquino created show that energy is absorbed better by materials with a very high magnetic permeability, which is why De Aquino's System-H experimental design uses 99.99% pure iron.

That is also the expensive part, because that is higher than pharmaceutical grade iron, and during my research I was quoted \$4000 for it by the only company I could find that manufactures it - ESPI chemical.

Not only are materials with a very-high magnetic permeability required, but the physics equations also show a negative-dependency between frequency and gravitational-mass – i.e.: the lower the frequency, the better it is supposed to work.

Generally speaking, the physics community looks at this idea rather strangely, because typically speaking higher-frequency wavelengths are considered to impart energy better, but in this case the assumption is that given a low enough frequency and high-enough permeability of the material, each "incoming graviton" will be met by energy that blocks it from entering the mass.

De Aquino doesn't say this outright – nor I am sure that he consciously realizes it – but if you are blocking all incoming gravitons it can have big consequences in relativity theory. To begin with, what you are effectively doing is creating a bubble of localized time and space, similar to the way that the Earth's own gravitational field creates a localized bubble of time and space. On the quantum-scale this doesn't even matter, but in relativity theory this can have really strange side effects, potentially even including changes to the speed of time in the localized bubble in which time and space are affected.

One of the beneficial aspects of the De Aquino design is that it is usually very difficult to have an atom absorb energy without increasing its temperature. If a higher-frequency was required, then the test-apparatus that is described would probably melt in a matter of minutes. Fortunately, due to the properties of the ELF current involved, the lower-frequencies don't get converted into heat.

Most of the physicists that I've talked to believe that this idea appears to be workable, but that only actually building the device will determine whether or not this project is truly feasible. To begin with, the scientific basis for this design - the "Aristotle was Right" paper by Donoghue and Holstein - has been eroded by more recent research that indicates that perhaps the difference between inertial and gravitational mass isn't as easy to determine as they believed it was.

Additionally, even if the Donoghue and Holstein paper is correct, De Aquino's physics are not perfect. While De Aquino has done an excellent job creating the physics for the System-H device, his physics are new formulas that are currently untested. Perhaps the only saving grace for De Aquino's physics theorems is that he is deeply rooted in conventional theory, which provides a good basis to build new theory from.

While I was unable to get directly in touch with De Aquino, I was able to find a valuable resource in Steve Burns, an MS in Nuclear Engineering. In addition to his career as a design-engineer in the computer-industry, Burns maintains the "Starship Technology" website in his spare time, and is considered by many to be the "resident expert" on the De Aquino experiment.

Burns reputation as being an expert is not without reason, as I came to understand after several in-depth phone conversations with him on the subject of the De Aquino experiment. I had known Burns already through his thoughtful newsgroup posts on various technologies, but didn't realize until speaking with him exactly how he was involved with the De Aquino experiment. While I had previously believed that De Aquino had been responsible for the experimental design involved with proving his theory, I came to understand that Burns had actually worked with De Aquino from 1999 to 2001, and was responsible for designing the System-H experiment - De Aquino's current experimental design.

Burns insight into De Aquino's thought process included the observation that De Aquino himself has maintained a very theoretical approach to his gravitational-shielding experiment that unfortunately often neglected to address the real-world needs of creating a successful experiment. Burns had indicated that one of De Aquino's earlier experimental designs — System-A — had power-requirements in the megawatt range, which could only be provided in an experimental setting by a directly-coupled nuclear reactor. A more recent experiment dubbed "System-G" had also been designed by Burns, but he noted that the more recent calculations for the current "System-H" design cast some doubt on the workability of the older design. Burns, however, seemed convinced that the combination of the System-H iron-ball antenna and De Aquino's physics would provide a workable experiment.

Disregarding for a second the physics of the System-H device, there is currently an additional issue of credibility surrounding De Aquino himself. From what I have been able to piece together from conversations from Steve Burns and a few other unnamed sources, De Aquino was very forthcoming about this project up and published a great deal of information between 1999 and 2001 about the theory, the physics, and several related topics on the Los-Alamos bulletin board — a semi-moderated bulletin board that apparently is a bit more lenient about the theoretical work that they will publish than some other physics repositories are.

Everything changed in 2001 — De Aquino, who had once been very active in publishing on the Internet, corresponding with Steve Burns in developing antenna designs for his experiment, and speaking with interested persons via email, went silent. The last publicly available correspondence involved with his active participation is the publication of the experimental results of the System-H experiment. He claimed that the device generated what can be basically termed "Antigravity", or "Negative Gravitational Mass" of approximately 220 gross pounds. The experimental apparatus is supposed to have weighed approximately 100 pounds due to the weight of the iron-ball antenna, which means that his experiment, which used a torsion balance to measure the weight of the ball, should have in fact moved into a negative weight range of approximately 120 pounds.

The fact that De Aquino went silent is very strange, and many people at that time started to question why he might have done this. His experimental results were published at generating 220 pounds of Antigravitational force at only 10 amps, meaning that he should have had an efficiency of somewhere around 120 pounds of lift per horsepower. This result is absolutely amazing if it is correct, and it was compelling enough to prompt people to write him, and even someone to drop by his residence in Brazil to obtain an interview with him about his work.

While De Aquino did respond to emails after 2001, he did not mention much about his work, other than the things that he had already published in a public manner on the Internet. No new research, no video clips, no "general follow up" information — nothing. I wrote to him on several occasions — on the one occasion that he did respond, it was only a "thank you" email with a copy of "Appendix B" attached — the very same Appendix that I was asking him a question about!

The story of the visitor to the De Aquino household in Brazil may hold the key to understanding his silence. Apparently a casual female acquaintance of a researcher was kind enough to drop by De Aquino's house while on vacation in South America, and she brought back a strange story about her encounter there.

The unnamed woman who attempted to follow up on De Aquino's experiment by dropping by his house was not met by De Aquino himself — rather, his daughter answered the door. The daughter explained that De Aquino's work had been taken over by the Brazilian military, and that De Aquino himself was on permanent sabbatical from the University — he was now working in a local government office building, and had been putting in many hours there.

Can this be the truth? I often like to ponder the supposition that perhaps the United States government might be involved with hijacking and/or suppressing new and amazing technologies, but I've always

considered the possibility in a very theoretical sense – never in terms of a practical, real-life situation. The indication from the story that the woman brought back from Brazil indicates that perhaps the Brazilian government was involved with the very same thing that the United States government has been accused of many times.

It is difficult to find evidence to support the supposition that De Aquino's abrupt lapse into silence is due to government influence, but there is at least one piece of evidence to support this conjecture.

During my inquiries about De Aquino's relationship with the Brazilian military, I came across a copy of a most interesting paper entitled "The Socio-economical effects of the introduction of Gravitational control", written by one Paulo Vicente, a Captain in the Brazilian Military's "CTEx- Weapons Systems Subdivision". This paper is a first draft of the document, published in November 2001 – right about the same time that De Aquino went silent. Additionally, out of the 20 or so references that this paper cites in the bibliography, four of De Aquino's papers on gravitational control are listed.

While it is possible that the Vicente Paulo document could be a fake, I would prefer to believe that it is a real and valid document establishing a link between De Aquino and the Brazilian military. There are a few reasons why I believe that this is the case – the most obvious of which being that if it was a fake, then it would probably have been written by De Aquino himself. In my opinion, the writing-style in the paper is not De Aquino's – it contains a different meter than De Aquino typically writes with, and the vocabulary and writing style indicate that it was written by someone less familiar with English than De Aquino himself is – something to be expected in Brazil, where the native tongue is Portuguese, not English. The differences are obvious enough that even an untrained observer can detect that the author was not De Aquino (who writes in text-book English), but someone else – for instance, even the capitalization in the title of the paper "The Socio-economical effects of the introduction of Gravitational control" is incorrect.

While the case can be made that De Aquino's research is either willingly or otherwise being suppressed by the Brazilian military so that they can study it for their own ends, the conclusion does not necessarily follow that the System-H design works. Martin Tajmar, a consultant on space-related physics for the European Space Agency, indicated that he is not convinced that the De Aquino experiment is grounded on solid physics, stating "further analysis from Donoghue & Holstein's approach leads to no deviation in the equivalence principle". Tajmar's basis for this belief is apparently more recent research on the foundation paper of De Aquino's theory – "Aristotle Was Right" by Donoghue and Holstein. Tajmar cites the analysis conducted by Professor Gabriel Barton from the School of Mathematical and Physical Sciences at the University

of Sussex as the basis for this rebuttal of Donoghue and Holstein's work.

Steve Burns, after careful review of the Barton paper, offers the following comment, "This is an excellent paper but again inconclusive. Barton himself suggests experiment or a more extensive analysis to resolve the issue. The bottom line is it depends on metric interpretation as to what conclusion is drawn and no one is sure about interpretation."

Since Donoghue and Holstein predicted that the difference between gravitational and inertial mass would be incredibly tiny – on the order to $10 \cdot E-12$ – the experiment that apparently discredited their experiment out to something like 1000 times less of a difference than they believe could easily have been corrupted. Tajmar indicates that the best way to tell is simply waiting for the results of "Gravity Probe B", which should be taking very precise measurements on the Earth's gravitational field when it launches in the near future.

There is some indication that De Aquino himself may be following the close scrutiny of the Donoghue and Holstein paper – in fact, according to Steve Burns, De Aquino apparently made some revisions to his work in 2001 to show that the theory still works based on the "basic Hamiltonian" despite whatever the case involving the Donoghue and Holstein investigation reveals. Martin Tajmar has analyzed the revision of the De Aquino theory, and firmly asserts "in his simplified approach using Hamiltonian etc., he also makes some basic mistakes."

For the moment, it would seem that the majority of scientists would agree with Martin Tajmar's criticisms of the De Aquino apparatus. However, the physics community does not unanimously condemn the De Aquino experiment, and I was pleasantly surprised during my research to find several scientists who support the possibility that the De Aquino theory may in fact work.

Dr Eugene Podkletnov, the famous Russian Materials scientist conducting research into super-conductive gravitational shielding at the University of Tampere, Finland, offered a following opinion on the De Aquino experiment, "I entirely agree with you on your approach to the work of De Aquino and in my opinion his system, when replicated exactly to his requirements, should bring positive results. Better analysis of various approaches might allow better understanding of the mechanisms of practical gravity modification".

Dr. Thomas Bearden, a retired Nuclear Engineer well known for holding views considered heretical by the mainstream of science, stated "the lower in frequency you go, the more gravity-effect you get, because you are affecting the time-domain energy". Bearden's comment attempts to address the basis for the De Aquino's theory, the assumption that an ELF field might

be used in certain conditions to create a gravitational shield. Bearden hypothesized that in physics, $\Delta E \cdot \Delta T = \text{constant}$ – in other words, by reducing the ΔT (time) variant you increase the amount of energy (ΔE) available to the closed energy system of each ELF photon.

It is important to understand that the support for the De Aquino experiment by Podkletnov, Bearden, and the few scientists arguing in favor of investigation of this approach to gravitational shielding stems from a curiosity about the basis for this experiment, which in the engineering world is a very unique approach that has never been tried before. De Aquino's experiment utilizing ELF waveforms with frequencies down to approximately 1 cycle-per-ten-seconds – this is a uniquely low frequency, and falls well below any large-current experimentation ever attempted – including military research into ELF deep-sea communication tools from the early 1980's.

Opponents of the De Aquino theory might argue that the United States military regularly uses high-current ELF waveforms for submarine communication, and has never reported gravitational effects as a result of those. However, a document entitled "Extremely Low Frequency Communications Program" on the American Federation of Scientists' website describes the frequency ranges used by the Navy in Projects Seafarer and Sanguine as being in the 40 to 80hz range – a large enough difference in frequency that De Aquino's own theorems would not show a noticeable gravitational shielding effect.

In a conversation with Steve Burns, he addressed several other differences between the military ELF systems and the De Aquino experiment such as the incredibly-high magnetic permeability required from the iron-core, which he feels precludes the military from ever having noticed a gravitational-shielding effect in their work with ELF communications. Another factor includes the weight of the Navy's apparatus being so heavy that any slight reduction in weight of up to even a ton would go unnoticed – Project Sanguine utilized an antenna 222km in length, which is also no doubt either buried or anchored to prevent movement from weather-related effects, and most surely weighed-in at least several tons.

Up until this point, I have resisted the temptation to reveal the "crucial piece of evidence" in the De Aquino case for three reasons. First, I wanted to provide an adequate setup to the story so that the reader could understand why accurate and concise information from De Aquino himself is currently impossible to come by. Second, I wanted to show the reader that at the present time, the outcome of the De Aquino experiment is still up in the air. An experiment to demonstrate his apparatus could go either way at this point – either in his favor with a working Antigravity device, or against him with a complete experimental failure. The third reason is that the "crucial piece of evidence" may not even exist.

I had given up on finding any new information on the De Aquino experiment and tried to put the experiment out of my mind, when three weeks later I mentioned it in passing to Reed Murray – a former investigator for the Disclosure Project, a renowned UFO-investigation organization. Surprisingly, not only did Murray know the name "De Aquino", but he also proceeded to tell me that the Disclosure project had received a copy of a video-tape in which De Aquino successfully conducts the System-H experiment, causing the iron-ball to degravitate in a slow manner exactly as De Aquino's theory claims it will.

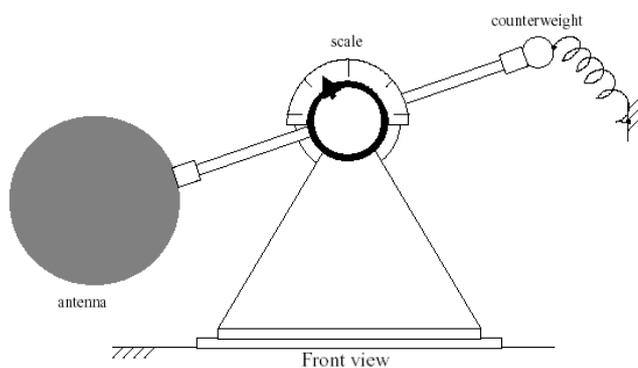
Murray, who no longer works for the Disclosure Project, recalled seeing this video a few months ago, and in his description the video involves a man that he described as elderly in a rather eclectic-looking laboratory standing over a ball attached to what he called a "pendulum" – this is an almost perfect layman's description of the De Aquino device, and I assure you that I had not told him about what the device looked or performed like before he said this.

Murray then further startled me, when he said that he couldn't understand what the man in the video was saying because it was apparently in Spanish, but that when the man switched the power on, the ball began to slowly lift on the balance!

I took the information that Murray had given me and contacted Space Energy Access Systems, where Murray had indicated that the tape was now most likely to be found. Jonathan Kolber, the Vice President of Planning and Product Development at SEAS, also remembered seeing the tape. He recalled seeing the same tape that Murray had described several months ago, and agreed with my recounting of Murray's story about what was on it.

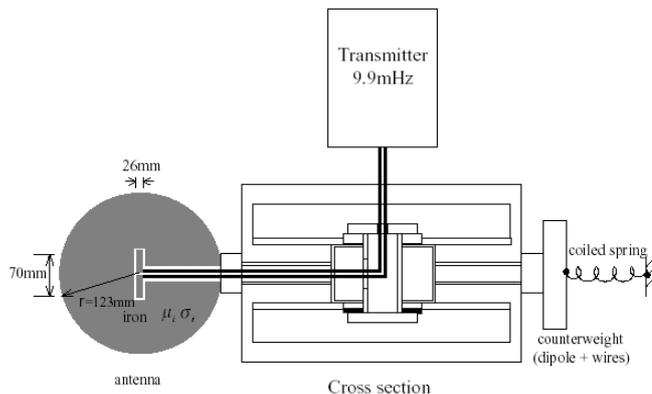
Neither Jonathan Kolber nor Reed Murray apparently realized the value of the De Aquino video because of the Portuguese audio-track that neither of them spoke. Without knowing in advance that the torsion balance in the De Aquino's tape is not acting upon the iron sphere, neither of them would have immediately realized that the iron-ball is actually exhibiting a negative-gravitational force. Additionally, without the knowledge that the iron-sphere on the balance is composed of pure-iron, it would not be easy to discern the true weight of the device being levitated, which is approximately 100 pounds. Kolber's team set the tape aside pending further information, and it subsequently became lost among the other materials that they frequently receive.

For the time being, Jonathan Kolber's group is actively looking for their copy of the De Aquino tape, which they believe is still archived somewhere onsite at SEAS. Perhaps within the next month, enough will be known about this experiment to either validate De Aquino's theory as being a fraud, or as the final crowning achievement of 20th century technology.



System-H Balance

This schematic shows the balance assembly used by Prof. De Aquino to test the forces generated during testing.



System-H Assembly

This schematic shows the System-H assembly to provide ELF wave signal to the interior of the 60kg iron-core transducer.

REFERENCES

1) Donoghue J.F. & Holstein B.R.; "Aristotle was right: Heavier Objects Fall Faster", European Journal of Physics, no 8, (1987) pp. 105-113.

2) Barton, G., "On the Finite-Temperature Quantum Electrodynamics of Gravitational Acceleration", Physical Review D, Vol. 40, No. 12, 1989, pp. 4096-4099.

3) Vicente, P.; "Socio-economical effects of the introduction of Gravitational control", http://www.starshiptechnology.homestead.com/files/Grav_effects.pdf, 2001.

4) De Aquino, F.; "Correlation Between Gravitational and Inertial Mass: Theory and Experimental Test", <http://www.elo.com.br/~deaquino/Correlation.pdf>, 20001.

5) De Aquino, F.; Gravitation and Electromagnetism: correlation and grand Unification; Journal of New energy, no2 pp 76-82, Los Alamos National Laboratory preprint no. qr-qc-9910036, 1999.

6) De Aquino, F.; Possibility of control of the gravitational mass by means of Extra-Low Frequencies radiation; Los Alamos National laboratory preprint no. qr-qc-0005107, 2000.

7) De Aquino, F.; How to extract energy directly from a gravitational field; Los Alamos National laboratory preprint no. qr-qc-0007069, 2000.
De Aquino, F.; A possibility of gravity control in luminescent materials; White paper, 2001.

8) Federation of American Scientists, "Extremely Low Frequency Communications Program", <http://www.fas.org/nuke/guide/usa/c3i/elf.htm>

ONLINE RESOURCES

1) Burns, S.; "Starship Technologies"; <http://www.starshiptechnology.homestead.com>

2) Ventura, T.M.; "American Antigravity: Professor Fran De Aquino's System-H"; <http://www.americanantigravity.com/deaquino.html>

3) Ventura, T.M.; "Fran De Aquino Gravitational-Shielding Documentation Online", <http://groups.yahoo.com/group/americanantigravity/files/Documentation/Fran-De-Aquino/>

4) Naudin, J.L.; "The System-G From Fran De Aquino", <http://members.aol.com/jnaudin509/systemg/index.html>

Institute for Planetary Synthesis

P.O. Box 128, CH-1211 Geneva 20,
Switzerland

Tel. 41-022-733.88.76, Fax 41-022-733.66.49

E-mail: ipsbox@ipsgeneva.com

website: <http://www.ipsgeneva.com>