

[REDACTED]

# High Frequency Gravitational Wave Generator

Navy Case PAX 233 [REDACTED]

**(b) (6)**

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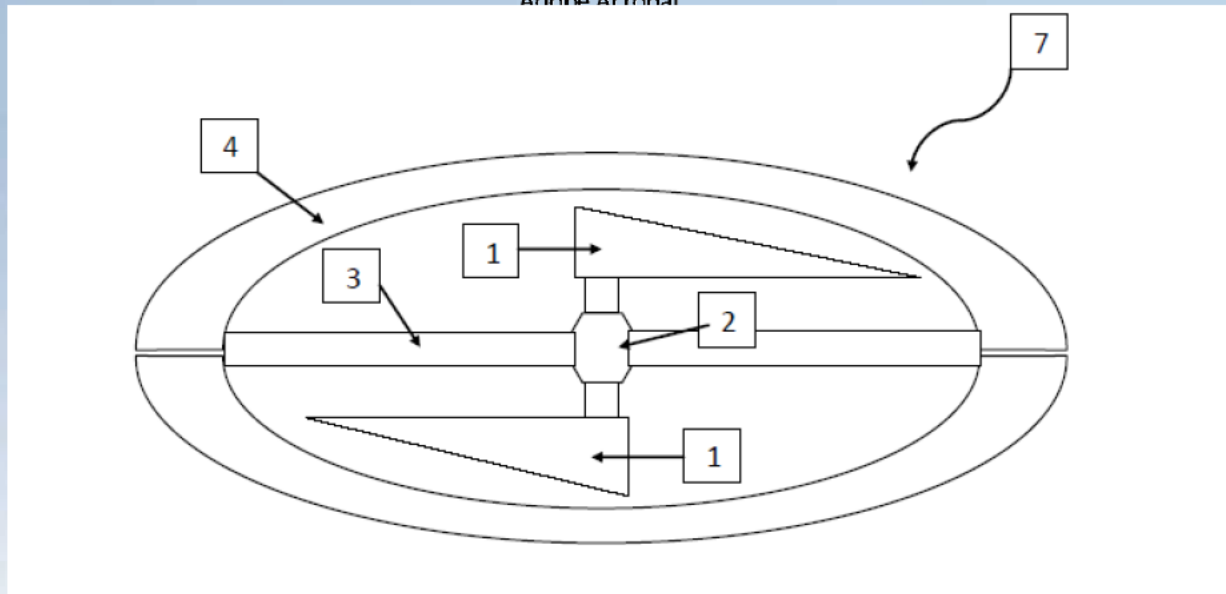
# Co-Inventors and Technical Paper

- Sole Inventor
- **Fundamental Innovative Principle:** The enablement of macroscopic quantum coherence induced by controlled motion of charged matter under rapid acceleration transients (From Chaos, Order).
- Please refer to the imbedded invention-descriptive Concept Paper (double-click icon below – Concept Drawing on page 12):

**PAX 233 - High Frequency Gravitational Wave Generator (HFGWG) - (b) (6)**



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# Background

- ‘NAVAIR's job is to ensure our Sailors and Marines are ready to fight tonight, and have the capability and capacity to win the future.’ - (b) (6), Commander, NAVAIR. (11-19-2015)
- Utilizing the High Frequency Gravitational Wave (HFGW) Generator, our United States Warfighters will achieve Battlespace Supremacy, against all foes. This possibly revolutionary technology bridges State of the Art Engineering Applications with the latest Advances in Theoretical and Applied Physics.
- On February 11, 2016 the National Science Foundation publicly announced that the Laser Interferometry Gravitational Wave Observatory (LIGO) had finally detected gravitational waves, thereby showing the reality of such waves and further strengthening General Relativity (GR) theory predictions.
- Think of gravitational waves as undulations in the structure of spacetime, or to be more exact ‘ripples’ in the curvature of the spacetime ‘fabric’. They are propagating fluctuations in gravitational fields, which arise due to dynamics of massive physical entities, although the source of gravitational waves may not be massive in nature so long as its motion is represented by high frequency/high energy, far from equilibrium dynamics (as can be observed from the energy-momentum tensor expression in the GR field equations).
- It is of great importance to note that because of their physical nature (the graviton being a spin 2 particle) these waves have the capability to penetrate solid matter at high frequency, moving at the speed of light. Furthermore, similar to electromagnetic waves these gravitational waves (GWs) are carriers of energy and momentum. Moreover, GWs are transverse and quadrupolar in nature (stretching and squeezing space along their propagation path), and can be produced by accelerating asymmetric masses, which denotes the far from equilibrium phenomena, their emission represents.
- Electromagnetic (EM) radiation (caused by accelerating electrically charged objects) when passed through a static magnetic field (of constant magnetic flux density) gives rise to gravitational waves at the same frequency with the EM radiation. This phenomenon is known as the Gertsenshtein Effect.

# Description of Invention

- It is possible to generate high frequency gravitational waves (HFGWs) exhibiting power levels of  $10^{10}$  Watts (approx.  $10^{35}$  gravitons/sec) and beyond, by high frequency accelerated axial rotation (spin) and/or accelerated high frequency vibration of a magnetic field confined - electrically charged asymmetric structure, within the context of non-equilibrium thermodynamics, namely far-from-equilibrium physics (highly non-linear in nature).
- The asymmetric structure(s) which constitutes the HFGW generator, has the ability to control the accelerated modes of vibration and/or spin of its electrically charged surfaces, in particular the rapid rates of change of accelerated-decelerated-accelerated vibration and/or accelerated-decelerated-accelerated gyration (axial spin) of these electrified surfaces, in this manner delaying the onset of relaxation to thermodynamic equilibrium (thereby delaying maximal entropy production), thus generating a physical mechanism which may induce anomalous effects.
- Acoustic vibration may be used as an alternative to electromagnetic vibration.
- Using Rapid Acceleration Transients (RATs) of charged matter, under certain conditions (see Slide 2 - concept paper - Equation 3, page 9) , we observe that there will be exponential growth in electromagnetic energy flux with accelerating vibration.
- Invention was conceived on 09/07/2016 – no prototype in existence, as yet.

# Potential Uses

- What is the Navy's potential use for this invention
- The high frequency / high energy gravitational waves generated with the HFGWG can be used in a variety of applications ranging from advanced field propulsion (space drive) to communication through solid objects, as well as asteroid (planetoid) disruption and disintegration. This HFGWG generation is accompanied by high frequency electromagnetic radiation which can further alter the local spacetime energy density, thereby manipulating the local vacuum energy state.
- Is there the potential for commercial use – **YES**
- The design of HFGWG – induced Nuclear Fusion Energy generation.
- The design of HFGWG - induced Imaging Technologies, including deep earth penetrating capabilities (surveillance for rare natural resources, etc.).
- **The possible enablement of Room Temperature Superconductivity**
  - There are three parameters which affect superconductivity, namely temperature, current density, and externally applied magnetic field strength. Physically, these parameters have in common one thing, namely the motion of electric charges (electrons). Control of this motion via vibration and/or spin of charged matter subjected to rapid acceleration transients (highly non-linear in nature) may lead to the achievement of room temperature superconductivity, especially if the charged matter is inhomogeneous. The key to superconductivity may be the enablement of local macroscopic quantum coherence, namely the ability of a macroscopic object to act as if quantum mechanical in nature (superposition, entanglement, tunneling). **What if all you need to do in order to make any wire made out of any 'normal' or 'poor' metal, be superconductive at room temperature, is to make it abruptly vibrate, while running a steady current through it? – like 'plucking' a guitar string, intermittently.**

# Costs

- What is the Navy's (future) investment in the invention.  
EXPERIMENT TRUMPS THEORY EVERYTIME !
  - Anticipated Labor hours - 150K USD - this is a theoretical concept – no prototype in existence, as yet (Section 219 NISE funding for experimental investigation may be requested).
  - Anticipated NAWCAD facility cost – 150K USD.
  - Estimated cost of any outside sources (i.e., drawings, labs, facilities) N/A
  - Current work on NISE FY17 BAR project 219BAR-17-009 'The High Energy Electromagnetic Field Generator' (HEEMFG) test feasibility study, will enable HFGWG design of experiment.

- Are there potential cost savings to the Navy. - **YES**

- If yes, what is/are the potential cost savings to the Navy.

The inventive concept (which may represent a revolutionary technology) does reveal a novel, effective and expedient manner of ensuring the battlespace supremacy of the United States warfighter for generations to come, thus addressing an urgent national and international area of concern, of primary national security importance.

Therefore its potential cost savings to the Navy are incalculably great, with respect to innumerable lives and assets saved.

**Concluding Remarks:** Analysis of the fine structure constant results in the notion that it is the electric charge and its interactive motion within the quantum vacuum that is fundamental to the nature of our Cosmos. Therefore, by controlling this motion, numerous advancements in Science and Technology may arise, room temperature superconductivity being one such advance.