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The Control of the Natural Forces

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Abstract. The electrical force has a convenient range and strength. This convenient range and strength has made the electromagnetic force easy to exploit. The strong nuclear force has a range measured in Fermis. The strong nuclear force has not been harnessed with classical technology. Its range is too short. The range of the weak nuclear force has also placed it beyond the reach of classical technology. The gravitational force is very weak. This weakness has made it impossible to control the gravitational force. A dielectric medium affects the range and the strength of the electrical force. It is commonly believed that no (di-force-field) medium exists for the other forces. It is assumed that the range and strength of the nuclear and gravitational forces will converge at high energies. These energies are beyond the reach of any conceivable technology. A low energy condition may exist in which the range and the strength, of all the natural forces, are affected. This condition is that of the quantum transition. This paper presents arguments that may have exposed the path of the quantum transition. This exposure may lead to the development of technologies that could modify the range and strength of the natural forces. These technologies could convert matter into energy and provide propellant-less propulsion.

INTRODUCTION

Max Planck's constant qualifies the angular momentum of the stationary atomic state.[9] The path of the transitional quantum state has been unknown. Albert Einstein described the energy of a photon with Planck's constant.[3] Niels Bohr applied these ideas to the atomic structure. Bohr's quantum condition states that the angular momentum carried by a stationary atomic orbit is a multiple of Planck's constant.[2] The quantization of angular momentum is a postulate, underivable from deeper law. Its validity depends on the agreement with experimental spectra. Werner Heisenberg and Erwin Schrödinger extended these ideas and qualified the intensity of a spectral emission. These great scientists found that the frequency and the amplitude of the emitted photon is a function of the differential in energy through which the electron drops. The frequency and amplitude of a classical wave is that of the emitter. The correspondence principle was invented in an attempt to explain this discrepancy. It states the frequency and amplitude of a classical system is equivalent to the energy drop within a quantum system. These constructs form the foundation of modern physics. The structure built upon this foundation considers the classical regime to be a subset of the quantum realm.

Frank Znidarsic's constant V_t qualifies the velocity of the transitional quantum state. The transitional velocity is coupled with a frequency and a displacement. The energy levels of the atom were shown, in the body of this paper, to be a condition of the transitional velocity. The intensity of spectral emission was shown to be a function of the transitional displacement. The action of the transitional quantum state replaces the principle of quantum correspondence. An extension of this work would universally swap Planck's and Znidarsic's constants. There would have to be a compelling reason make this change as it would confound the scientific community. There are two good reasons for doing so. Velocity is a

classical parameter. The structure built upon this foundation considers the quantum regime to be a subset of the classical realm. Znidarsic's constant describes the progression of an energy flow. An understanding of this progression may lead to the development of many new technologies.

The Velocity of Sound within the Nuclear Structure

Thermal energy, nuclear transmutations, and a few high energy particles have reportedly been produced during cold fusion experiments.[7,14] The transmutation of heavy elements has also been reported.[6] The name Low Level Nuclear Reactions is now used to describe the process. The process was renamed to include the reported transmutation of heavy elements. According to contemporary theory heavy element transmutations can only progress at energies in the millions of electron volts. The available energy at room temperature is only a fraction of an electron volt. These experimental results do not fit within the confine of the contemporary theoretical constructs. They have been widely criticized on this basis. These experiments have produced very little, if no, radiation. The lack of high energy radiation is also a source of contention. Nuclear reactions can proceed without producing radiation under a condition where the range of the nuclear force is extended. The process of cold fusion may require a radical restructuring of the range of the natural forces. The condition of the active nuclear environment provides some clues. Low Level Nuclear reactions proceed in a domain of 50 nanometers.[1,12,13] They have a positive thermal coefficient. The product of the thermal frequency and the domain size is one megahertz-meter. The units express a velocity of one million meters per second.

The gravitational experiments of Eugene Podkletnov involved the 3 megahertz stimulation of a 1/3 of a meter superconducting disk. These experiments reportedly produced a strong gravitational anomaly.[4,10,11,15] The results also do not appear to fit within the contemporary scientific construct. They have been widely criticized. It is assumed that the generation of a strong local gravitational field violates the principle of the conservation of energy. The strength of the electrical field can be modified with the use of a dielectric. The existence of a gravitational di-force-field no more violates the principle of the conservation of energy than does the existence of an electrical dielectric. The geometry of the superconducting structure provides collaborating information.[8] The product of the disk size and the stimulation frequency expresses, as in the case with cold fusion, a velocity of one million meters per second.

This author has determined that the V_s velocity is that of sound within the nuclear structure. This velocity is carried by the dissolved deuterium in the low level nuclear experiments. This velocity is carried by electrically coupled optical phonons in the gravitational shielding experiments. This velocity is also emerges within the nuclear structure of the atom (1).

(1)

$$V_s = 1/2\pi\sqrt{ZK_{-e}/M_n} \times 2r_n$$

Substituting the elastic constant of the electron (5) and a factor n to account for the affect of neutrons produced (2).

(2)

$$V_s = 1/2\pi\sqrt{Z(F_{\max}/2nr_n)/nM_n} \times 2nr_n$$

This author proposes that the sonic nuclear velocity is the classical affect that establishes the quantum condition. The velocity V_s has been refined to a value of 1.094 million meters per second.

The Speed of Light Within the Electronic Structure

Electrical force is usually described in terms of Coulombs equation (3).

$$E = \frac{2Q^2}{4\pi\varepsilon_o}(1/r) \tag{3}$$

This author redistributed the constants in (3) into the form of the spring constant (4).

$$E = \frac{1}{2}K_{-e}(2r_p)^2 \tag{4}$$

The displacement $2r_p$ is a fixed constant. The elastic constant K_{-e} varies inversely with displacement. (5)

$$K_{-e} = \frac{F_{\max}}{r} \tag{5}$$

The energy E expressed in (3) & (4) are equivalent functions of 1/r. The form of (4) does, however, reveal some interesting properties.

The elastic displacement $2r_p$ was revealed. It equals the classical radius of the election. This author suggests the natural force fields are pinned into the structure of matter at the discontinuity $2r_p$.[16] An electrical force is produced when the discontinuity of an electron disrupts the field of another electron.

The variable elastic constant K_{-e} was also revealed. This constant was used in (1) to produce the velocity of sound within the nucleus. The elastic constant at the radius of the hydrogen atom produces the Compton frequency of the electron. Most importantly the elastic constant was employed to produce the velocity of light V_l within the electronic structure of the atom (6, 7).

(6)

$$V_l = \frac{\sqrt{K_{-e} / M_{-e}}}{2\pi} 2\pi n r_p$$

(7)

$$V_l = \frac{\sqrt{(F_{\max} / r_x) / M_{-e}}}{2\pi} 2\pi n r_p$$

The Energy Levels of the Hydrogen Atom

Maxwell's theory predicts that accelerating electrons will continuously emit electromagnetic radiation.[5] Bound electrons experience a constant centripetal acceleration; however, they do not continuously emit energy. An atom's electrons emit energy at discrete quantum intervals. The quantum nature of these emissions cannot be accounted for by any existing classical theory. The author proposes that the quantum condition emerges at points where the velocity of light equals the velocity of sound. The velocity of sound V_s within the nuclear structure was set equal to the velocity of light V_l within the electronic structure (8).

(8)

$$V_s = \frac{\sqrt{(F_{\max} / r_x) / M_{-e}}}{2\pi} 2\pi r_p$$

Equation (8) was solved for r_x resulting in (9).

(9)

$$r_x = n^2 [\frac{F_{\max} r_p^{\ 2}}{V_s^{\ 2} M_{-e}}]$$

The quantity within the brackets [ ] equals the ground state radius of the hydrogen atom. The reduction of the terms within the brackets produced (10).

(10)

$$r_x = n^2 r_{+h}$$

The result r_x equals the radii of the hydrogen atom. The energy levels of the hydrogen atom were produced as a condition where the velocity of a mechanical wave equals the velocity of an electrical wave. The equalization of these velocities suggests that the strength of the forces that carries the waves is also equal. This author suggests that this condition is the state of the transitional quantum state. An equalization in the strength of each of the natural forces matches the impedance of the states and allows the quantum transition to proceed. Znidarsic's theorem describes the transitional quantum state. It is, "The Constants of the Motion tend toward those of the electromagnetic in a Bose condensate that is stimulated at a dimensional frequency of 1.094 megahertz–meters". Quantum theory currently assumes that the gravitational force is always weak and ignores it. This is a fundamental mistake. During transition, electromagnetic and gravitomagnetic flux quickly flows from the parent to the daughter state. This rapid flow progresses by the way of a strong electromagnetic and a strong gravitomagnetic

interaction. The energy levels of the atom are established through the action of this strong interaction.

The Intensity of Spectral Emission

The intensity of the spectral lines was qualified by Heisenberg. He described the position of an electron with a sum of component waves. He placed these component waves into the formula of harmonic motion. Bohr's quantum condition was then factored in as a special ingredient. Heisenberg found that the intensity of the spectral lines is a function of the square of the amplitude of the stationary quantum state. Max Born's Copenhagen interpretation proposed that square of the amplitude of the stationary quantum state represents the probability that a particle will exist in that location. The great scientists knew nothing of the path of the quantum transition. Their solutions did not incorporate the probability of transition. Znidarsic claims to have discovered the path of the quantum transition. His construct is centered upon the probability of transition. The amplitude (displacement) of vibration at the dimensional frequency of 1.094 megahertz-meters squared is proportionate to the probability of transition.

The transitional electron may be described in terms of its circumferential velocity. Equation (11) describes the spin of the transitional quantum state V_t.

$$\omega r = V_t \tag{11}$$

Angular frequency n times one half the classical radius of the electron r_p equals the velocity of the transitional quantum state (12).

$$(2\pi f)r = \sqrt{K_{-e}/M_{-e}}\,nr_p \tag{12}$$

Equation (12) was squared, reduced, and solved for r. Equation (13) expresses the amplitude of the transitional quantum state squared.

$$r^2 = \frac{K_{-e}n^2{r_p}^2}{4\pi^2 M_{-e} f^2} \tag{13}$$

The transitional frequency f of the daughter state is a harmonic multiple of the transitional frequency of the parent state. The product of the sonic frequency, expressed by Equation (1) and the integer n was factored into (14). Equation (14) expresses the transitional amplitude in terms of the product of the amplitudes of the parent and the daughter states.

$$r^2 = [\frac{2\pi K_{-e}{r_p}^3}{V_t}](\frac{n^2}{4\pi^2 M^{-e} f}) \tag{14}$$

The elastic constant of the electron was expressed in terms of lengths of energetic accessibility (15).

(15)

$$K_{-e} = \frac{F_{\max}}{nr_p}$$

The numerator and denominator of (14) were multiplied by a factor of two. The elastic constant of the electron (15) was also factored into (16).

(16)

$$r^2 = [\frac{4\pi F_{\max} r_p^{\ 2}}{V_t}](\frac{n}{8\pi^2 M_{-e} f})$$

Planck's constant emerged from the terms within the brackets [ ]. The reduction of the terms within the brackets produced (17) Heisenberg's formulation for the amplitude of electronic harmonic motion squared. This formulation represents the intensity of the energy that an electron in an harmonic well emits.

$$r^2 = \frac{nh}{8\pi^2 M_{-e} f}$$

This author maintains that the formulation also represents the probability of quantum transition. The intensity of a an energy flow is a function of the probability of transition. The probability of transition is proportionate to the product of the transitional amplitudes of the parent and daughter states. These constructs reform the foundation of modern physics. This reformation is classical.

CONCLUSION

The velocity of sound with the nuclear structure is the classical affect that determines the quantum condition. This condition is expressed trough the action of the transitional quantum state. This action aligns the motion constants of the interacting fields. The transitional quantum state is that of a Bose condensate vibrating at a dimensional frequency of 1.094 megahertz-meters. The probability of transition is proportionate to the intensity of the vibration. Transitions, between the electric lattice and the nucleus, become probable when the vibration becomes intense. Superconductors and proton conductors can be externally vibrated to harness the effect. The vibration of the nucleons, within the atomic lattice, may produce a condition that acts like a macroscopic nucleus. This new understanding may allow a multi-bodied macroscopic object to be coerced into a state of quantum transition. Trillions of atoms may be enjoined within a single state of quantum transition. Strong gravitational and long-range nuclear effects will be produced. The long-range nuclear effects may be used for the production of energy and the reduction of nuclear waste. The strong gravitational effects may be used for propulsion.

NOMENCLATURE

F_c = 1.236×10^{20} hertz
F_{max} = 29.05 Newtons
M_{-e} = 9.109×10^{-31} kg
r_p = 1.409×10^{-15} meters
r_{+h} = = $.529 \times 10^{-10}$ meters
r_n = 1.36×10^{-15} meters
V_t = 1.094×10^{6} hertz-meters
V_s = 1.094×10^{6} meters/second
V_l = 1.094×10^{6} meters/second

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Biography

Frank Znidarsic graduated from the University of Pittsburgh with a B.S. in Electrical Engineering in 1975. He is currently a Registered Professional Engineer in the state of Pennsylvania. In the 1980's, he went on to obtain an A.S in Business Administration at St. Francis College. He studied physics at the University of Indiana in the 1990's. Frank has been employed as an Engineer in the steel, mining, and utility industries. Most recently he was contracted by Alstom Power to start up power plants in North Carolina.