NEUTRALIZING GRAVITY

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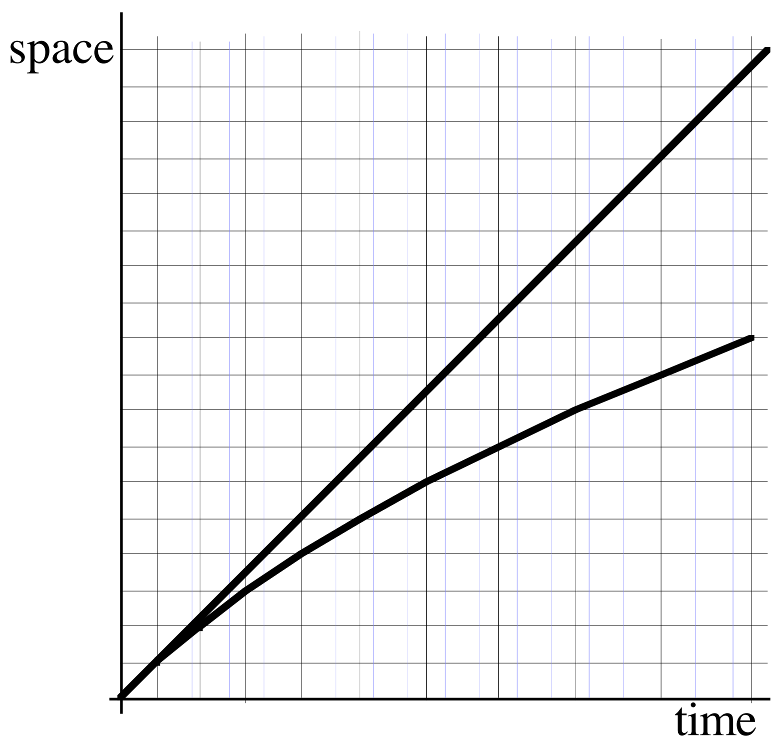
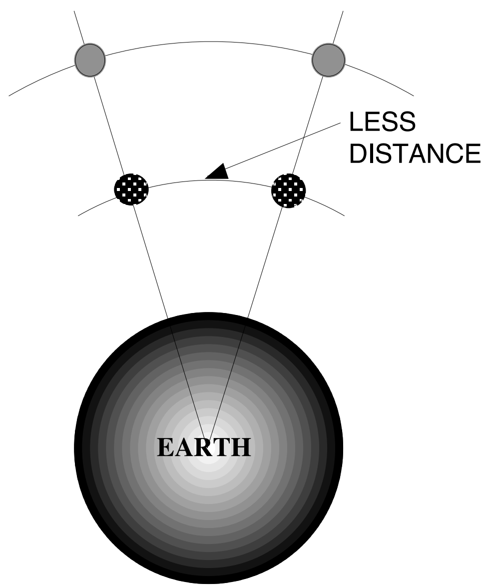
Gravity is the unequal flow of time from place to place. In empty space time passes more swiftly than in a gravity field. A clock in empty space reads more time than on the Earth. Our temptation is to think of gravity as the *cause* of time slowing, but that is not correct. Gravity *is* the slowing of time depending on place. In the words of W. G. Unruh, a foremost theoretician awarded for his contribution to science:

A more accurate way of summarizing the lessons of General Relativity is that gravity does not cause *time to run differently in different places (e.g., faster far from the earth than near it). Gravity* is *the unequable flow of time from place to place. It is not that there are two separate phenomena, namely gravity and time and that the one, gravity, affects the other. Rather the theory states that the phenomena we usually ascribe to gravity are actually caused by time's flowing unequally from place to place.* (Time, Gravity, and Quantum Mechanics, page 4, University of British Columbia.)



To understand how this can be, consider the spacetime graph above. On the space axis are equal increments, and the faint graph lines on the time axis are also incrementally equal. An object traveling through empty space without gravitational influences travels in "flat" spacetime depicted by the straight diagonal line drawn using the equal increments of time. On the time axis, in dark line, is also another grid representing increasing increments of time. This graph shows that the trajectory bends. This is how gravity works, simply by expanding the increments of time. Of course, such time dilation does not explain gravity because it does not explain how regions of high mass/energy expand time in the first place, but for inventive purposes this understanding is sufficient just as we do not need to understand electricity to invent the light bulb.

For gravity in three space dimensions plus time we have to think four dimensionally with objects traveling on time-lines on a spacetime manifold. If that isn't quirky enough, we next have to envision that manifold curved in the presence of substantial mass-energy, like a planet. Analogously we could consider two people at the Earth's equator several kilometers from each other, traveling toward the North Pole. As they move northward they draw closer together because of the Earth's curvature. Similarly, as objects travel in spacetime near the vicinity of a large mass they approach each other and eventually collide just as two people traveling northward collide at the North Pole. The way that two objects above the Earth approach each other is by occupying a distance with less radius above the Earth than they had during the previous instant. They fall.



To be noted in this explanation is the lack of force. Gravity in essence is not a force. Therefore neutralizing gravity cannot depend on force, as does a rocket, airplane or helicopter. Instead we must produce on an object the time of empty space, to 'straighten' the time lines of objects traveling in curved spacetime.

To produce such a time effect we must look for a constant in nature, like the speed of light. It is the constancy of the speed of light that gives the relative time slowing of objects traveling at high speed, explained by Special Relativity. We must find a similar constant in nature, and there is such a constant: the angular momentum of atomic particles, called "spin," determined $h/(4\pi)$ where h is Planck's constant. That the angular momentum of atomic particles is universally constant is evident from the formula.

A controversy now arises: If atomic particles have a property that we can interpret as angular momentum, we can use that property in a physical macro system. This idea is controversial because quantum particles have their own realities with bizarre consequences when analogized with our macro universe. An analogy is therefore seen to be taken too seriously. Nevertheless, atomic particles *do* possess dipole magnetism.

They *do* behave as spinning balls with charge. Atomic particles also display the property of *precession,* the same as a spinning top. It is this property of atomic protons that makes MRI scans in medicine possible. The theory presented here is therefore based on *observed behavior*. The property of atomic particles that gives dipole magnetism and precession cannot be an actual physical rotation, but whatever that quantum property, *if the macro analogy of rotation can be applied to quantum particles to explain their dipole magnetism and precession there is reason to suspect the analogy can be applied for a result in a macro system as if that property were an actual physical rotation.* The result suggested is *time dilation.*

Let us analogize with a macro physical system how a time dilation property could be set up. Let us imagine a wheel spinning on an arm like a child's propeller toy. The arm also rotates, in a direction opposite to the spin of the wheel. We consider the rate of spinning of the wheel from the point-of-view of two observers, one observer stationary on the ground, the other observer rotating with the arm. Obviously the two observers will not see the same rate of spinning on the wheel. Because the arm is rotating opposite the spin of the wheel, its rotation must be subtracted from the wheel spin as seen by the stationary ground observer. This is not true of the observer rotating with the arm, who will see the spin of the wheel as if there were no arm rotation. Put more concretely, let us assume values:

ω_W: rotary velocity of wheel = 1000 rad/sec
ω_A: rotary velocity of arm = 100 rad/sec
θ_W: angular distance traveled by wheel

In 1 second the angular distance traveled by the wheel seen by the arm observer is $\theta_{WA} = \omega_W t = (1000)(1) = 1000$ radians, but the observer on the ground sees $\theta_{WG} = (\omega_W - \omega_A) t = (1000 - 100)(1) = 900$ radians. The assumption here is the normal expectation that both observers see different wheel spins. What if both see the *same* spin? Something must change between observers, and that is time. Using the rotational velocity of the wheel when the arm is stationary, ω_W, in the $t_A = 1$ sec of the arm observer the time of the ground observer would then be:

$$t_G = \frac{\theta_{WG}}{\omega_W} = \frac{900}{1000}\frac{\text{rad}}{\text{rad/sec}} = 0.9\,\text{sec}$$

Time on the rotating system would run faster than for the ground observer, the same as in empty space relative to the Earth. The rotating system would therefore have the time line of empty space, not that of the gravity field. Since gravity is a time phenomenon, such a system in a gravity field could not have the behavior of a normal object.

To carry this wheel/arm analogy further, the angular momentum of the wheel seen from the arm is:

$$L_{WA} = I_{WA}\omega_{WA} = I_{WA}\left(\frac{\theta_{WA}}{t_A}\right)$$

The angular momentum of the wheel seen from the ground is:

$$L_{WG} = I_{WG}\omega_{WG} = I_{WG}\left(\frac{\theta_{WG}}{t_G}\right)$$

(The spinning wheel *only* is being considered, making inappropriate the parallel axis theorem. If the reader has difficulty with this, consider the wheel at the arm pivot.)

Taking the ratio:

$$\frac{L_{WA}}{L_{WG}} = \frac{I_{WA}\omega_{WA}}{I_{WG}\omega_{WG}} = \frac{I_{WA}}{I_{WG}}\left(\frac{\left(\frac{\theta_{WA}}{t_A}\right)}{\left(\frac{\theta_{WG}}{t_G}\right)}\right) = \frac{I_{WA}\theta_{WA}t_G}{I_{WG}\theta_{WG}t_A}$$

At non relativistic arm rotations the wheel mass and radius will not change, so:

$$I_{WA} = m_{WA}r_{WA}^2 = m_{WG}r_{WG}^2 = I_{WG}$$

$$\therefore \quad \frac{L_{WA}}{L_{WG}} = \frac{\theta_{WA}t_G}{\theta_{WG}t_A}$$

From the above example:

$$\frac{\theta_{WA}}{\theta_{WG}} = \frac{1000}{900} = 1.11$$

$$\frac{t_G}{t_A} = \frac{0.9}{1} = 0.9$$

$$\frac{L_{WA}}{L_{WG}} = \left(\frac{\theta_{WA}}{\theta_{WG}}\right)\left(\frac{t_G}{t_A}\right) = (1.11)(0.9) = 1$$

Clearly an evaluation of unity for the ratio of angular momentum observed by a stationary and rotating frame of reference is the outcome when time flow between the observers is not the same. Thus, whenever we find in nature that measured angular momentum is constant, we know that time must differ between observers in relative rotary systems.

The ratio of time difference between the ground observer and arm observer can be found:

$$t_G = \frac{\theta_{WG}}{\omega_W} = \frac{\theta_W - \theta_A}{\omega_W}$$

$$= \frac{\omega_W t_A - \omega_A t_A}{\omega_W}$$

$$= t_A - \left(\frac{\omega_A}{\omega_W}\right)t_A$$

$$= t_A\left(1 - \frac{\omega_A}{\omega_W}\right)$$

$$\Rightarrow \quad \frac{t_G}{t_A} = 1 - \frac{\omega_A}{\omega_W} \qquad \textbf{1}$$

To be noted in equation **1** is that time for the ground observer is less than time for the arm observer when wheel rotation is opposite arm rotation. If both rotations were in the same direction it would be more.

We are now at the main part of this theory, the foregoing being simply a means of showing its working principle by analogy. Let us now imagine a rotating magnetic disc. The disc takes the place of the arm in the above analogy and the electrons the wheel. The magnetic field must be oriented such that electron spin is opposite disc rotation. The following designations are used:

t_0 : time seen by a world observer (sec)
t_e: time seen by an observer in the rotating frame of reference (sec)
ω_r: disc rotational velocity (rad/sec)
ω_e: electron entity corresponding to rotation (rad/sec)
m: mass, the weight of which is to be neutralized (kg)
E_o: energy seen by a world observer (joule)
E_e: energy seen by an observer in the rotating frame of reference (joule)
B: magnetic field (tesla)

Time dilation in the case of Earth's gravity, given by General Relativity, is:

$$\frac{\Delta t \text{ (Earth)}}{\Delta t \text{ (empty space)}} = 1 - \frac{GM}{Rc^2}$$

where *G:* gravitational constant, *M:* Earth's mass, *R*: Earth's radius, *c:* speed of light. Thus time runs slower in a stronger gravitational field than in a weaker one, demonstrated in 1959 by the Pound-Rebka experiment. We should not think of this time slowing as *caused* by gravity, rather it *is* gravity.

For an object to achieve weightlessness, the object's time relative to the Earth must be the same as the time of empty space relative to the Earth. That is:

$$\frac{t_o}{t_e} = 1 - \frac{GM}{Rc^2}$$

Analogous to equation **1**:

$$\frac{t_o}{t_e} = 1 - \frac{\omega_r}{\omega_e} \qquad \textbf{2}$$

$$\Rightarrow \quad 1 - \frac{\omega_r}{\omega_e} = 1 - \frac{GM}{Rc^2}$$

$$\frac{\omega_r}{\omega_e} = \frac{GM}{Rc^2} \qquad \textbf{3}$$

Time and energy are reciprocal, as in KE = 1/2 $L\omega$ = 1/2 $L(\theta/t)$. Therefore, equating the ratios of time and energy using equation **2**:

$$\frac{t_o}{t_e} = \frac{E_e}{E_o} = 1 - \frac{\omega_r}{\omega_e}$$

$$\Rightarrow \quad \frac{E_o}{E_e} = \frac{1}{1 - \frac{\omega_r}{\omega_e}} \approx 1 + \frac{\omega_r}{\omega_e}$$

$$E_o = \left(1 + \frac{\omega_r}{\omega_e}\right)E_e$$

$$\Rightarrow \quad E_e - E_o = E_e - \left(1 + \frac{\omega_r}{\omega_e}\right)E_e = -\left(\frac{\omega_r}{\omega_e}\right)E_e$$

The expression is arranged to give a negative sign, since energy emanating from the rotating system seen by a ground observer would be higher than that seen by an observer in the rotating system. This result can be understood by considering a normal macro system where a ground observer would observe *less* angular momentum of the electron than an observer on the rotating disc. That would mean less energy seen, but since electron spin is the same for all, the ground observer sees more than should be seen. (Again caution in understanding is advisable. Discussed is observable behavior *as if* the electron had an actual rotation.)

For weightlessness, the relativistic energy *difference* seen by an observer in a gravitational field and in the disc's frame of reference must equal the energy of Earth's gravitational field, - *GMm*/*R* joule, also the result of time dilation. That is, for any mass *m:*

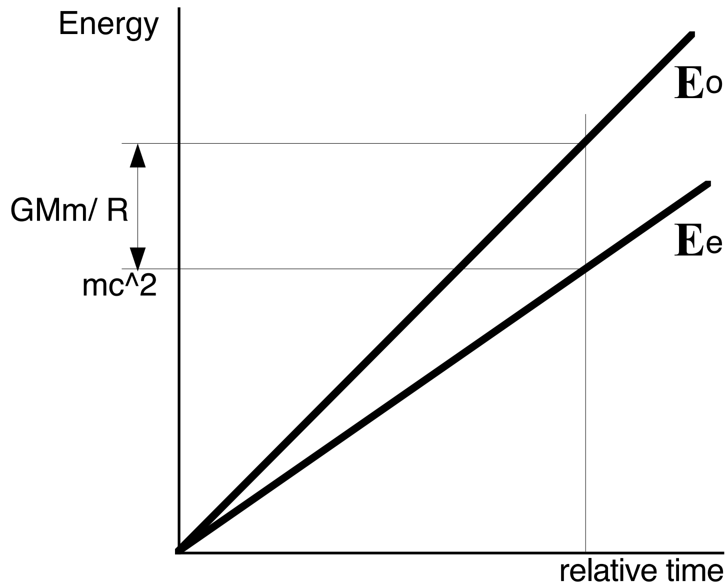
$$-\left(\frac{\omega_r}{\omega_e}\right)E_e = -\frac{GMm}{R}$$

Substituting equation **3**:

$$\left(\frac{GM}{Rc^2}\right)E_e = \frac{GMm}{R}$$

$$\Rightarrow \quad E_e = mc^2 \qquad \textbf{4}$$

A graphic representation is the following, showing the relative energy difference *GMm*/*R* when $E_e = mc^2$:



There are several comments to be made regarding levitation from the above equations. First, the relative time difference given by the General Relativity expression (page 5) is only of the minute order 10^{-10}, and similarly for the disc rotational difference seen by an observer on the discs and one outside the system. For practical purposes considering Earth's gravity, design of a levitating device cannot be based on relative time and disc rotational differences with the external world, but on the energy difference seen by the two observers as this has the significant amount GMm/R. Second, nowhere in the derivation is there the suggestion that energy is expended in open, reactive force as happens with rockets, airplanes and helicopters. The energy a levitating device must expend is GMm/R for the purpose of eliminating the time ratio difference GM/Rc^2. The theory presented here is not based on force and therefore not on open reactive energy expenditure, but on producing a device with the time and energy properties of empty space although immersed in a gravity field. Third, the value mc^2 is the potential energy an alternate time system would have to possess for there to be the relativistic energy difference $-GMm/R$, which is an energy difference the system would have to lose as a consequence of being in the time regime of empty space immersed in a gravity field. Therefore, a levitating system need not actually require the enormous energy potential mc^2 if it can lose energy GMm/R generated within its time regime. Losing energy from a regime of lower to higher energy, the energy lost is negative.

On a historical note, the association of gravity with atomic particle spin was discovered over thirty years ago by experimenter Henry Wallace, described in his U.S. patent 3,626,605. Wallace found a nuclear spin alignment with the spin axis of materials when atomic nuclei of such materials have an odd number of nucleons. The effect is similar to the Barnett Effect, in which a body of any substance given high rotation becomes magnetized. In Wallace's experiments more than magnetism was discovered; also produced and measured by him was an associate gravity field in the material. What he found was the relationship of *all* atomic particle spin to gravity, since the atomic spin of all particles, whether protons, neutrons or electrons, is universally invariant. In more recent years experimenters have discovered unexplained gravitational effects associated with rotating magnetic fields, disclosed in reports such as *Experimental Research of the Magnetic-Gravity Effects,* by V. V. Roschin and S. M. Godin, Institute for High Temperatures, Russian Academy of Science. The report is available at the Internet address: http://www.rialian.com/rnboyd/godin-roschin.htm. The Roschin/Godin experiment was inspired by the controversial Searl Effect Generator, built by the English experimenter, John Searl, in the 1960s. M. Pitkanen of the Department of Physics, University of Helsinki, Finland, has available the report: *About Strange Effects Related to Rotating Magnetic Systems,* on Internet address: http://www.physics.helsinki.fi/~matpitka. Other experimenters are also finding a connection between rotating magnetic fields and gravity, with no theory to explain their findings because all theoretical effort has concentrated on the magnetic fields, which have only an indirect relationship to gravitation. The connection is in the time dilatation property of electron spin. Magnetic fields are related to gravity only because they are manifestations of the directional effect of massed electrons having all their spins oriented the same.

From equation **4** the weight loss is obviously small using conventional means because of the enormous value c^2. To calculate the energy let us first assume two rotating magnetic discs with the opposite poles of their magnetic fields facing each other. These magnets are separate, and located between them is an armature with wire spokes radiating from the disc axis. This armature has the same outside diameter as the discs. Its wires cut the magnetic field and generate a voltage V as the discs rotate. With magnetic field B and disc area A_d, in the time *t* by Faraday's Law the voltage generated by one wire is:

$$V = -\frac{\Delta B A_d}{\Delta t} \qquad \mathbf{5}$$

(The minus sign is due to the conservation of energy (Lenz's Law) and plays no part in this theory.)

The power generated is:

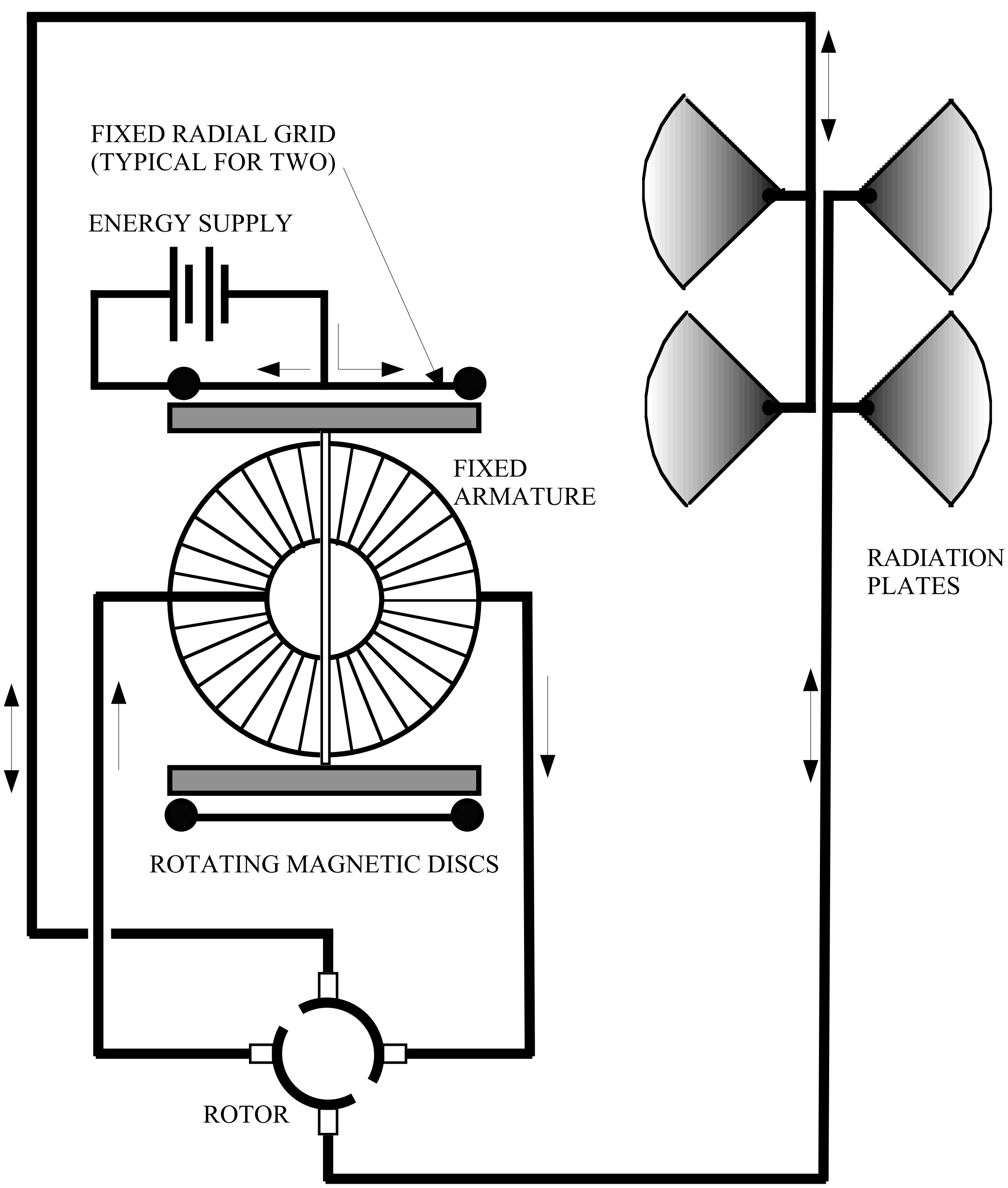
$$P = \frac{V^2}{\Omega_d} \qquad \mathbf{6}$$

where Ω_d is wire electrical resistance. Since Power = Energy/time from the above we obtain the energy for equation **4**:

$$E_e = n\frac{(B\,A_d)^2}{t\,\Omega_d} \qquad \mathbf{7}$$

where n is the number of wires cutting the magnetic field.

The application of equation **7** shows why the connection between rotating magnetic fields and gravity is difficult to detect. Magnetic discs 1 m in diameter rotating at the exorbitant rate 5,000 RPM, with the considerable field B = 1 tesla and an armature with 738 20 ga. copper wires between them, by equation 4 generate the undetectable weight loss 2.83×10^{-11} kg. The lack of any connection between magnetism and gravity found by traditional experimenters is not surprising. Even if the magnetic field were B = 20 tesla the weight loss would still only be 1.13×10^{-8} kg. Clearly, loss of weight energy $GMm/R = E_e - E_o$ must be achieved directly, not by an accumulated relativistic energy difference, the same as a weight rolling down an incline takes longer to reach the bottom than if it slid. The explanation is that part of its gravitational energy goes into rotation, leaving less for falling, whereas in sliding the total usage of that energy is for falling. In the case of a levitating device *all* its gravitational energy must be lost by means other than falling, and there is only one way for that to happen: by electromagnetic radiation. Electric current has to be generated within the manufactured time regime of the rotating magnetic field and its electrons accelerated to emit energy, requiring that current be AC. The energy radiated is considerable, suggesting the need for a large radiating surface.



SCHEMATIC

The above diagram pictures a disc arrangement where two rotating magnetic discs have a stationary armature sandwiched flat between them (not at 90° as shown in the schematic). Important is that the magnetic discs do the rotating, not the armature as in conventional motors and generators, due to the important relationship of disc rotation to electron spin. The bottom of the top disc is N, the top of the bottom disc is S and the discs rotate clockwise as seen from above. Electron spin is therefore opposite disc rotation, required by equation **2**. Current (considered here to be electron flow, not conventional positive current) in the armature will be generated from its inner rim to its outer rim. This direction is desirable because of the smaller circumference of the inner rim that would build charge to impede current if flow were opposite. DC current generated by the armature is changed to AC by a rotor, and enters a circuit where energy generated in the time regime of the rotating magnetic field is radiated into free space from the radiation plates. These are four quarter discs arranged in pairs so that positive and negative pulses from the electric circuit flow opposite, the same as in a dipole antenna. The plates are electrically isolated and in the form of circular arcs to fit together into a circular plate. The plate is circular because the plate plus housing of the entire device will tend to rotate in reaction to the rotation of the magnetic discs.

Again since Power = Energy/time the power needed to levitate m kg is GMm/Rt. Substituting constant values into this expression the power required in the time t_d of one disc revolution is:

$$P_1 = \frac{(6.67 \times 10^{-11})(5.98 \times 10^{24})\, m}{(6.38 \times 10^{6})\, t_d}$$

$$= (6.25 \times 10^{7})\, \frac{m}{t_d}$$

Substituting equation **5** into equation **6** the power that must be generated in one revolution using n wires to cut the magnetic field is:

$$P_2 = \frac{n \left(\frac{B\, A_d}{t_d} \right)^2}{\rho_d}$$

$$= \frac{n\,(B A_d)^2}{\rho_d\, t_d^{\,2}}$$

These two power equations must be equal:

$$(6.25 \times 10^{7})\, \frac{m}{t_d} = \frac{n\,(B A_d)^2}{\rho_d\, t_d^{\,2}}$$

$$\Rightarrow \quad t_d = \frac{n\,(B A_d)^2}{(6.25 \times 10^{7})\, m\, \rho_d} \qquad \textbf{8}$$

Of interest is to know the radiation frequency *f* from the plates that will be the same as the AC frequency of the circuit. Radiated energy is given by the Poynting expression S = $F_e^{\,2}$ max/(2 *c* μ_o) where F_e is the electric field and μ_o = 4π x 10^{-7} tesla m/amp. S quantifies the rate of energy flow per unit area radiated upon a surface. Thus we can imagine a surface of the same area very close to the radiator upon which its energy radiates. The amount received by that surface will be the same as the amount radiated and we can use the Poynting expression to estimate that amount.

To lose energy $E_e - E_e$ the rate of energy received (and dissipated) per m^2 by the Poynting expression is:

$$\frac{E_e - E_o}{t_C\,A_P} = \frac{2\,F_e^{\,2}\,\mathrm{max}}{2\,c\,\mu_o}$$

where $E_e - E_o$ is the amount of gravitational energy lost (6.25 x 10^7) *m*, and the amount radiated is doubled for two surfaces of the radiating plates. t_C: time of circuit cycle and A_P: total area of radiating plates considered for both top and bottom surfaces. Therefore:

$$\frac{(6.25 \text{ x } 10^7)\,m}{t_C\,A_P} = \frac{F_e^{\,2}\,\mathrm{max}}{c\,\mu_o}$$

From Physics:

$$F_e = \frac{\sigma}{\epsilon_o}$$

where σ: surface charge density (coul/m^2) and ϵ_o = 8.85 x 10^{-12} farad/meter. Therefore:

$$\frac{(6.25 \text{ x } 10^7)\,m}{t_C\,A_P} = \frac{\left(\frac{\sigma}{\epsilon_o}\right)^2}{c\,\mu_o}$$

$$= \frac{\sigma^2}{c\,\mu_o\,\epsilon_o^{\,2}}$$

From Physics: σ = q/A_P where *q* is electrical charge (coulomb). Therefore:

$$\frac{(6.25 \text{ x } 10^7)\,m}{t_C\,A_P} = \frac{\left(\frac{q}{A_P}\right)^2}{c\,\mu_o\,\epsilon^2}$$

$$= \frac{q^2}{c\,\mu_o\,\epsilon^2\,A_P^{\,2}}$$

$$\frac{(6.25 \text{ m } 10^7)\,m}{t_C} = \frac{q^2}{c\,\mu_o\,\epsilon^2\,A_P}$$

From Physics: $q = i_P\, t_C$ where i_P is current within radiator plates. Therefore:

$$\frac{(6.25 \text{ x } 10^7)\, m}{t_C} = \frac{(i_P\, t_C)^2}{c\, \mu_o \varepsilon_o^2 A_P}$$

$$(6.25 \text{ x } 10^7)\, m = \frac{i_P^{\,2}\, t_C^{\,3}}{c\, \mu_o \varepsilon_o^2 A_P}$$

$$= \frac{i_P^{\,2}\, t_C^{\,3}}{(3.00 \text{ x } 10^8)(4\pi \text{ x } 10^{-7})(8.85 \text{ x } 10^{-12})^2 A_P}$$

$$= \frac{i_P^{\,2}\, t_C^{\,3}}{(2.95 \text{ x } 10^{-20})\, A_P}$$

$$\therefore \quad (1.85 \text{ x } 10^{-12})\, m = \frac{i_P^{\,2}\, t_C^{\,3}}{A_P}$$

$$t_C = \sqrt[3]{\frac{(1.85 \text{ x } 10^{-12})\, m\, A_P}{i_P^{\,2}}}$$

From Physics:

$$i = \frac{0.707 \text{ V}}{R_P}$$

where 70.7% of DC voltage is taken for AC voltage, and R_P: electrical resistance of plate material (ohm). Let ρ_P: resistivity of plate material (ohm m); A_{PX}: cross sectional area of plate; distance current travels in plate is arc radius r_P of plate. Therefore from Physics:

$$R_P = \rho_P \frac{r_P}{A_{PX}}$$

Substituting into i:

$$i = \frac{0.707 \text{ V}}{\dfrac{\rho_P\, r_P}{A_{PX}}}$$

$$= \frac{0.707 \text{ V } A_{PX}}{\rho_P\, r_P}$$

Since $A_P = 2(\pi\, r_P^2)$ for 2 surfaces:

$$t_C = \sqrt[3]{\frac{(1.85 \text{ x } 10^{-12})\, m\, 2(\pi\, r_P^2)}{\left(\dfrac{0.707 \text{ V } A_{PX}}{\rho_P\, r_P}\right)^2}}$$

$$= \sqrt[3]{\frac{(2.33 \text{ x } 10^{-11})\, m\, r_P^{\,4}\, \square_P^{\,2}}{V^2\, A^2_{PX}}}$$

$$= (2.85 \text{ x } 10^{-4}) \sqrt[3]{\frac{m\, r_P^{\,4}\, \square_P^{\,2}}{V^2\, A^2_{PX}}} \qquad \textbf{9}$$

With these equations a *Magnetic Disc Levitator* can be designed. Let us imagine two magnetic discs of 1.5 m diameter with central holes of 0.1 m diameter for passage of stem and wiring, and a copper armature sandwiched between them with the same dimensions. The effective area of the discs over the armature is 1.76 m^2. Armature wires are #10 gauge placed radially, which have material diameter 0.1019" = 2.59 x 10^{-3} m. The central rim of the armature has circumference 0.314 m, so 0.314 m/2.59 x 10^{-3} m/wire = 121 wires. With adequate spacing between wires assume 110 wires so that staggering two banks of such wires: n = 220 wires. #10 gauge wire has cross-sectional area 5.27 x 10^{-6} m^2 and at 20° C copper has resistivity $\square_d$ = 1.7 x 10^{-8} ohm-m. Resistance $\square_d$ of length l = 0.70 m copper wire is therefore:

$$\square_d = \square_d \frac{l}{A(\text{wire})}$$

$$= (1.7 \text{ x } 10^{-8}) \frac{0.70}{5.27 \text{ x } 10^{-6}}$$

$$= 2.26 \text{ x } 10^{-3} \quad \text{ohm}$$

Assume disc rotation: 800 RPM = 13.33 rev/sec. Therefore t_d = 0.075 sec/rev. Assuming a magnetic field across discs: B = 1.5 tesla, from equation **8**:

$$m = \frac{n\,(B\, A_d)^2}{(6.25 \text{ x } 10^7)\, t_d\, \square_d}$$

$$= \frac{220\left[(1.5)(1.76)\right]^2}{(6.25 \text{ x } 10^7)(0.075)(2.26 \text{ x } 10^{-3})}$$

$$= 0.145 \quad \text{kg}$$

or 145 gm. This is measurable. By equation **5** times 220 the voltage generated is:

$$V = (220)\frac{(1.5)(1.76)}{0.075}$$

$$= 7{,}744 \quad \text{volts}$$

For the radiator plates we can assume one single assembled plate with diameter d = 3 m. This has area $\pi(3^2/4) = 7.07\ m^2$. Assume plates are #10 gauge aluminum sheet: 0.1019" = 0.0026 m thick; $\rho_P = 2.8 \times 10^{-8}$. For average cross sectional area A_{PX} of circular plate, this will be at diameter d_a where surface area less than d_a equals surface area greater than d_a:

$$\pi \frac{3^2}{4} - \pi \frac{d_a^{\ 2}}{4} = \pi \frac{d_a^{\ 2}}{4}$$

$$\therefore \quad d_a = 2.12\ m$$

Circumference of this circle is: $2\pi(2.12/2) = 6.66$ m.

$$\therefore \quad A_{PX} = (6.66)(0.0026)$$

$$= 0.0173\ m^2$$

Since $r_P = 1.5$ m in equation **9**:

$$t_C = 2.85 \times 10^{-4} \sqrt[3]{\frac{(0.145)\,(1.5)^4\,(2.8 \times 10^{-8})^2}{(7744)^2\,(0.0173)^2}}$$

$$= 9.05 \times 10^{-11}\ \text{sec}$$

The frequency of radiation is therefore 1.1×10^{10} which is within the microwave range. How a rotor or other electrical device can deliver such high frequency will be left to the ingenuity of experimenters.

Preparation of the above may seem excessive for a 145 gm weight loss, but this result is from an effort to keep requirements within presently achievable limits. If a magnetic field of 9 tesla could be maintained on three stacked magnetic discs of 3 m diameter rotating 1,000 RPM, with two fixed armatures between them, 100 kg could be levitated. Improved levitation ability will be realized with technical developments in maintaining high magnetic fields over large surfaces.

SUMMARY

Electron spin, being a universal constant, creates time alteration between relative rotating systems. Since gravity is due to the unequal flow of time, electron or any atomic particle spin has consequences for gravity, but the connection between magnetic fields and gravity is difficult to experimentally discover because of the high energy requirement of levitation. The *Magnetic Disc Levitator* bypasses the high energy requirement mc^2 by radiating away the energy GMm/R acquired by mass m in a gravity field. Obviously if an object's weight energy is zero so is its weight. This is done by placing an armature within the magnetic field of rotating magnetic discs, with the generated DC current converted to AC and the energy radiated into free space by two pairs of large plates acting as antennae. The magnetic discs are rotated opposite the spin property of electrons producing the magnetic field, thereby producing the proper relative time difference to the exterior gravity field. The current they generate belongs to their time regime and therefore so does the energy that current radiates. Energy GMm/R disappears through radiation and the device is in the regime of flat spacetime although immersed in a gravity field.

CONCLUSION

The subject of "antigravity" has been vigorously avoided by academics best qualified to address it. Placed in the same category as alchemy, astrology and phrenology the academic elite will not allow its professional reputations to be soiled by any association with the topic, and have even declared gravity neutralization theoretically impossible. But a new discovery in astronomy, namely the accelerated expansion of the universe, has made its discussion acceptable within the bounds of that science. Neutralizing gravity is possible. If gravity is possible so is its cancellation. The requirement is only to "think out of the box" regarding the time dilatational property of electron spin. Humanity has never been impeded by lack of vision, that has always been present, but it has always been impeded by negative dogmas imposed on forbidden subjects. Once we remove conventional prejudices regarding gravity humanity will truly enter its space age. Here described is how to begin.