Theory of Everything by illusion

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Abstract

The Theory of Everything is The Holy Grail of Science. Scientists all over the world are searching for it. Today only three out of four known forces are somewhat unified. Gravitation is a freak without adequate explanation. This theory shows that there is an adequate theory for gravitation. As a bonus, theory presents The Theory of Everything. Presented paper is only overview of the new theory of everything. Most important information is included. Presented theory is testable.

Contents

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List of Figures

Theory of Everything by illusion

Theory of Everything by illusion (**ToEbi**) demonstrates that gravitation, strong interaction and electromagnetic interactions are generated from the same phenomenon and they are distributed by tiny force transfer ether particles (**FTEPs**). ToEbi gives equations for force calculations which apply in scale from atomic to astronomical. Theory of Everything by illusion is based on two hypothesis:

- Big Bang created very tiny spiked sphere-like objects (physical particles) which vary in sizes.
- Gravitation, strong interactions and electromagnetic interactions between particles or system of particles are purely mechanical (particle collisions and/or particle rotation).

Early Universe formatted particles as we know today. Only tiniest force transfer ether particles (FTEPs) are not detected. These tiniest particles create force transfer ether (**FTE**) into the universe. All particles rotate (due to Big Bang) and therefore generate movement into FTE. Rotation is the key concept in order to generate movement into FTE but it's not necessary in order to experience FTE. Moving object experiences surrounding FTE and reacts with it.

Force transfer ether particles

The first hypothesis stated that Big Bang created a very tiny spiked objects (physical particles) which vary in sizes. Current physics can detect many of these particles, like electrons. Exact shape is not known and that's why we need the first hypothesis. Every particle has tiny spikes. One may think that these spikes are actually the raw material from Big Bang. Because high pressure spikes got entangled with each other and thus created various spiked particles.

At first the smallest particles (FTEPs) survived the pressure. After a while, other particles emerged, like electrons.

From the first hypothesis we can explain for example phenomenon like faster than light breakdown of interference pattern in the double slit experiment. Moving photon generates waves propagated through FTE. Because of the spikes, FTEPs are connected to each other. This pure physical connection causes interference pattern to disappear instantly in case of blocking or in some other way observing slits in the experiment.

There is also a phenomenon named as particle entanglement. Entanglement is a direct consequence of physical shape of particles involved (like photons and FTEPs).

Energy

What attributes contribute to particle's energy at rest (in our reference frame)? Current answer comes from Einstein, rest mass and speed of light. Mass is to-

tally understandable but the speed of light sounds a bit strange. From ToEbi hypothesis only reasonable definition for an particle's energy is

First Law of ToEbi

$$\vec{E} = J\frac{s}{kg}m\vec{n}$$

where m is a rest mass and $\vec{n}$ is a rotation frequency $(1/s)$ of particle.

Based on First law of ToEbi we can make the relation between particle's energy and its kinetic energy

$$mn = \frac{1}{2}mv^2$$

so in our reference frame particle's velocity changes distribute to particle's rotation frequency.

ToEbi energy relation

$$\Delta n = \frac{1}{2}\Delta v^2$$

Derived relation is actually quite obvious. What other options a particle has in order to store or release kinetic energy? More on this mechanism in the source of inertia chapter.

Force

Physical mechanism behind a force is created by FTEP collisions. Two spinning particles (they always spin) create a bigger ether density between themselves. In case of same rotating direction, FTEP collisions generate pulling force. Particles get better mechanical grip from denser, slowing down, FTE between themselves and mechanically move towards each other.

Because particles (and objects in general) interact with their masses (cross sections) through FTE and with their spinning rates we can state that force exerted by spinning particles (objects) is defined by

Second Law of ToEbi (Force)

$$\vec{F} = (G_1 + G_2)\frac{M_1M_2}{r^2}\cos(\alpha) + (G_1 + G_2)\frac{M_1M_2}{r^2}\sin(\alpha)\vec{e}_3$$

where α is angle between possible spinning axes, r is a distance between mass points and

$$G_x = N(\frac{ms}{kg})^2\frac{1}{2}n_x^2$$

where (n = spinning frequency). Both particles experience the same defined force towards each other. In case of negative value the force is pushing particles apart (in ideal case). However, the sizes of interacting particles (or stellar objects) matter. If another particle is "much" more massive than the other then interaction in general is pulling type. There won't be needed directional preference to interact on (wavelength difference is too large), so also the angle α will be meaningless in horizontal sense. However, the angle in a vertical sense is still relevant. *There will be a picture in future.*

$\vec{e}_3$ is unit vector perpendicular to the plane containing $\vec{n}_1$ and $\vec{n}_2$ (rotation vectors of particles) in the direction given by the right-hand rule. The

acceleration into direction of unit vector $\vec{e}_3$ can be considered rotation frequency altering acceleration of object (**RFAA**). RFAA has a very important implications for example in energy conservation and in stellar orbiting.

We can also generalize that Second Law of ToEbi into a stellar scale. If we imagine that a single spinning particle is actually a single spinning stellar object. However, it's important to remember that stellar objects are constructed from (pretty much at the same rate) spinning particles which experience the surrounding FTE conditions (like density). Based on that generalization, stellar object can exert a spin induced force experienced by another object.

Gravitation

Rotation induced force is easily observed with Modified Cavendish Experiment [1]. Larger ball is put near smaller ball, then by rotating larger ball there will be an additional measurable gravitational effect. Experiment on larger mass, like on Earth, effects greatly experiment's results. But still the effect is measurable. The Third Law of ToEbi will handle the suppressing effect caused by Earth.

Gravitational constant G is an empirical physical constant which is believed to be universal. In reality, G is unique to each stellar object and its calculated value is (based on Second Law of ToEbi)

$$G = N(\frac{ms}{kg})^2 \frac{1}{2} n^2$$

where n is spinning frequency of the stellar object.

Measured gravitational constant is a little less than calculated G on Earth. Difference is due to other masses outside Earth (like Moon, Sun and our galaxy center). Also possible slower rotation frequency of Earth's core is a factor. With high precision measurements there is detected small differences in gravitation constant depending on measurement location.

So called flyby anomaly is easily explained if we take the spinning frequency of a spacecraft $f_{spacecraft}$ into a consideration. Additional acceleration generated by the rotation of a spacecraft (spin plane towards Earth) is $f^2_{spacecraft}$ in FTE environment created by spinning Earth (based on Second Law of ToEbi).

Strong interaction

Strong interaction can be calculated with the laws of ToEbi. In case of Helium-(3,4) we can ignore angle, because protons and neutrons are in position where rotation axes are parallel. Based on First Law of ToEbi proton's rotation frequency (8.98755e16 1/s on Earth) and distance in nucleus (2.4e-15 m, particles center-to-center distance), we can calculate force between two protons with previously defined force equation. Strong interaction force (in case of two protons) is roughly 3.9e9 N, which is sum of both particle's generated force towards each other.

At the same time there is repulsion between rotating particles. Repulsion prevents particles in nucleus to collide. Repulsion emerges from colliding

FTEPs between two nuclei. At ground state force of repulsion is equal to pulling force. Strong interaction force inside Helium-4 nucleus can be calculated by adding up all individual forces between every particle pairs, for Helium-4 strong interaction force is roughly 23.4e9 N.

Larger atoms nucleus can be created from simpler nucleus (Hydrogen and Helium isotopes). Some isotopes are stable by themselves but some are just unstable when they are out of larger nucleus (due to radioactive decay or collision).

Strongest binding energy by nuclei count has Fe-56. It can be build from 12 He-4 atoms and one He-8 atom. He-4 atoms are in three layers, four He-4 atoms per layer. He-8 is in the middle of the stack. Each layer is positioned so that proton in layer below is next to neutron in layer above. Also proton in He-4 is next to neutron in another He-4 at the same layer. Per nuclei releasable force is roughly 9.26e9 N.

Electromagnetism

Electromagnetic force can be calculated with ToEbi laws. Within a single, free, atom in non-excited state electrons has the same spin direction when compared to nucleus's spin. Opposite spin direction (positron) means pushing force between electron and nucleus (Second Law). It is possible to change electron's orbiting direction but the change will cause bigger repulsion force between electron and nucleus. Bigger repulsion force means larger orbit for electron. Also after awhile, electron orbiting velocity decreases and it changes the orbiting direction back to the normal.

High FTEP flux from a nucleus prevents electrons (in normal conditions) to collide with nucleus. Because electrons move along with nucleus generated FTEP flux there won't be a synchrotron like radiation phenomenon.

Unpaired electrons are very important in case of electric current. In electric current extra electrons move on atom's partially filled valence band or in "holes" below the valence band. In case where an atom has no holes and valence band is full we can call such an atom as insulator. To reach the next conductive band in case of an insulator requires a breakdown voltage.

Changes between different electron orbits (towards nucleus) in atom causes photon emission. The reason for a photon emission is purely physical. When electron returns to its ground state, it will cause a shock wave of FTEPs toward nucleus. Shock wave of FTEPs towards nucleus compresses FTEPs together and creates a photon particle.

Light's wavelength is actually presentation of photon's rotation frequency. Frequency depends on how near created a photon can get to a nucleus during the compression process and that depends on electrons released potential energy.

Photon emission happens also when heavier particles collide nucleus. With large enough energy, heavier particles can be created from photons. This phenomenon is actually created with high energy lasers. In case of Hydrogen, there is one proton and one electron. Pulling force between particles is roughly (based on ToEbi laws) 2.2e-3 N at Bohr radius.

Magnetism

Orbiting and spinning electron creates FTEP waves around it. In case when material crystal is magnetized, its free valence electrons are moving and spinning in an aligned manner.

The reason why for example iron, cobalt and nickel are ferromagnetic is the shape of their nucleus combined with free valence electrons. In all those cases nucleus is a box like and there is valence electrons which are not used in crystal structure. Excellent example is chromium which has a box like nucleus and one valence electron. However chromium is normally antiferromagnetic! The reason is that every chromium electron is a building block in chromium crystal and therefore you can't re-arrange valence electrons orbiting direction in order to create a magnet from chromium.

With smoother shaped nucleus, electrons can move more freely around nucleus. Box like shape keeps electrons movement (current) more easily in an aligned manner. Magnetization orders these ferromagnetic atoms free electrons flow into an uniform orbiting direction.

Electron flow direction rules the magnetic pole. On another pole of magnet, electrons flow away from the center of magnet and on another pole toward the center of magnet. Based on Second Law of ToEbi same spin directions causes pulling force and different spin directions pushing force.

Direct consequence from this interpretation of magnetism is that there can't be so called magnetic monopoles.

FTE

Denser FTE means bigger repulsion between objects. Even our own planet experiences this for example in case of Sun's effects on radioactive decay rate on Earth. While orbiting Sun, Earth experiences different densities of FTE around Sun (distance varies). In case when Earth is at nearest to Sun, combined FTE between Earth and Sun is most dense. This puts atom nucleus under increased destructive force induced by electrons. Increased destructive force happens because denser FTE keeps weak spots of nucleus in longer distance than normally. Orbiting electrons get lever from this new nuclei distances which increases odds for a radioactive decay.

Also solar flares create FTE shock waves and denser FTE on Earth. Incoming FTE shock wave can be measured and protective measures can be made against following electromagnetic radiation.

Radioactive decay rate can be accelerated artificially by rotating radioactive material [2]. The reason for this phenomenon is acceleration generated by rotation. Rotating material generates acceleration and particles of rotating material experience force (Second Law of ToEbi). Weak spots of a nucleus increase their nuclei distance which gives electrons more destructive lever.

Force calculations

Rotating object generates acceleration. When rotating object is located on greatly larger mass compared to object itself, the acceleration is experienced mainly by the object itself. In case we want to calculate force between two

rotating relatively small spherical objects on Earth we have to consider Earth's FTE damping effect.

Force between rotating object A and (rotating) object B on the same level on large rotating mass C can be calculated by using multiplier of

Third Law of ToEbi

$$T_{A,C} = s^{-2}kg\frac{x_{A,C}^2}{n_C^2 M_C r_{A,B}^2}$$

where $x_{A,C}$ is object's A mass point distance from the surface of object C in meters and n_C is rotation frequency and M_C is mass of object C. Variable $r_{A,B}$ is distance between mass points of objects A and B in meters. In future version, objects on different levels are covered.

On surface of Earth (1 m above) Third Law of ToEbi is valid down to 3.5e-8 m. Below that atom's own ether density movement overrules Earth's ether movement. Given value 3.5e-8 m is derived from Third Law of ToEbi when $T_{A,C} = 1$ applies. 10 000 m above the surface of Earth, Third Law of ToEbi is valid down to 3.5e-4 m. 1 cm above the surface of Earth, Third Law of ToEbi is valid down to 3.5e-10 m. Modified Cavendish experiment is one easy way to verify ToEbi force equations.

Planck constant

Modern physics states Planck constant h and its relation on photon's energy and frequency

$$E = hn$$

where n is (rotation) frequency of photon. Direct consequence from The First Law of ToEbi is that Planck constant presents in reality the mass of photon. Photon's energy is increased for example when photon enters denser FTE. In that case photon encounters more and more FTEPs in its path. This induces higher rotation frequency for a photon. This phenomenon is known as (gravitational) blue shifting. Opposite case is when a photon exits denser FTE. Encounters with FTEPs decrease which decreases photon's rotation frequency. This phenomenon is known as (gravitational) red shifting.

De Broglie relation

The First Law of ToEbi can be stated with mass of photon (= Planck constant)

$$E = hn = \frac{hc}{\lambda} \tag{1}$$

hence

$$\frac{E}{c} = \frac{h}{\lambda} \tag{2}$$

and momentum

$$p = mv = hc. \tag{3}$$

Based on equations (1) and (3)

$$E\lambda = p \tag{4}$$

hence

$$\frac{p}{n} = \frac{E}{c}. \tag{5}$$

By selecting $n = 1$ and combining equations (2) and (5) we have the de Broglie relation

$$\lambda = \frac{h}{p}. \tag{6}$$

Compton scattering

Based on derivations so far we are ready to derive Compton scattering equation. Because momentum conservation we get

$$\vec{p_e} = \vec{p_2} - \vec{p_1} = h\vec{c_2} - h\vec{c_1}$$

hence

$$m_e^2\vec{v}^2 = 2h^2c^2 - 2h^2\vec{c_2}\vec{c_1}.$$

Therefore we get kinetic energy of electron

$$h\frac{c}{\lambda_1} - h\frac{c}{\lambda_2} = \frac{1}{2}m_e v^2 = \frac{h^2c^2}{m_e}(1 - \cos\alpha)$$

therefore

$$\frac{\lambda_2 - \lambda_1}{\lambda_1\lambda_2} = \frac{hc}{m_e}(1 - \cos\alpha).$$

From de Broglie relation we get

$$\lambda_1\lambda_2 = \frac{h^2}{p_1p_2}$$

and in case of photon (which mass is h) we get

$$\lambda_1\lambda_2 = \frac{h^2}{h^2c^2} = \frac{1}{c^2}. \tag{7}$$

Angle between momemtum vectors is include in momemtum conservation equation. By using equation (7) we get equation for Compton scattering

$$\lambda_2 - \lambda_1 = \frac{h}{m_e c}(1 - \cos\alpha).$$

Speed of light

Why the speed of light is a constant (in vacuum)? Gravitation effects only on wavelength of light and bends its path. The reason is actually quite obvious. During creation of a photon new particle experiences strong rotation frequency of nucleus. Nucleus induced FTE movement gives photon rotational movement opposite to protons rotational movement, in other words, different spin direction.

Based on Second Law of ToEbi opposite rotation direction causes pushing force between proton and photon. Generated acceleration is massive and very quickly photon achieves velocity where its interactions between incoming FTEPs causes it to change orientation of its rotation axis aligned with its trajectory. At that point proton and photon doesn't generate pushing force anymore and photon has reached its maximum constant velocity.

What is mass?

There is a two types of masses in physics, inertial and gravitational mass. Those two are experimentally verified to be the same (within measurements accuracy limits). But what is mass itself? What is the mechanism behind it? Only reasonable way to define mass emerges from particle's properties and only property which isn't involved yet in ToEbi is particle's size.

Some particles are made of multiple smaller particles, like hadrons do. How should we define the size of different particles? Every rotating particle defines repulsive wall around it. Inside that wall another particle comes a part of a new particle. Nuclear fusion is a good example or electron capture in case of neutron creation.

Repulsive wall is a good starting platform for the particle's mass definition. At rest every particle's rotation axis is aligned with the surface of a larger object (like Earth). Therefore we can define

Mass of a particle is its repulsive wall's cross section against a surface of larger object.

It's easy to understand what happens if spinning frequency changes (specially with hadrons). In case of spinning frequency increase cross section (mass) increases and in case of spinning frequency decrease cross section (mass) decreases. However, the magnitude of mass change is insignificant based on empirical evidence.

Proton

Based on the mechanism of a mass it's likely that proton is just constructed from three electrons. Prediction is also supported the fact that proton's and electron's energy can be calculated with the same spinning frequency.

Repulsive wall in picture is simplified. In reality, the wall is more wavelike than spherical.

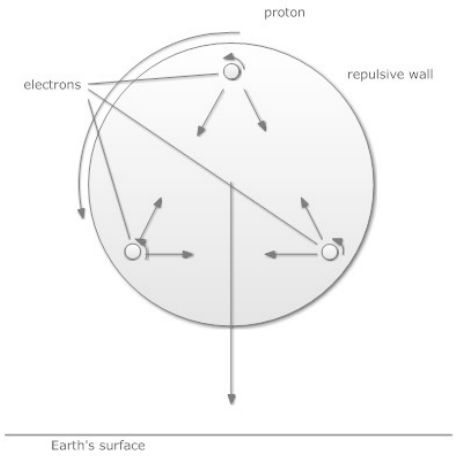

Figure 1: Proton

Configurations based on two or four electrons are not stabile. In case of two electrons very small disturbance causes electrons flyby each other. In

case of four electrons the problem arises from very easy rolling out effect of upper electrons in construction. Up from four electrons, potentially stabile construction are just too big and fragile in order to survive (at least on Earth).

Mass of proton is over 1800 times the mass of electron. Based on previous, we can say that proton's repulsive wall (cross section) is over 1800 times the electron's repulsive wall (cross section).

Neutron

Neutron is made of proton, electron and electron anti-neutrino. The unique feature which differentiates neutron from proton is an additional electron inside proton's repulsive wall. There is two ways for the neutron production.

- Electron is penetrated repulsive wall of rotating proton and created an electron neutrino and anti-neutrino in pair production (like in electron capture).
- Anti-neutrino (with suitable energy) approaches proton's core through increasingly denser FTE. Dense FTE causes anti-neutrino rotate faster and gain energy to the point of electron-positron pair production. Because of different rotation direction positron is pushed away from proton and electron is captured with slowed down anti-neutrino.

Inside proton three rotating "quarks" generate repulsive wall and the space inside the wall is big enough to contain electron and its anti-neutrino. Repulsive wall is made of continuous flux of FTEPs from between the "quarks". Electron and electron anti-neutrino inside this wall causes neutron's ability to connect with proton. These two particles inside repulsive wall decrease greatly neutrons externally observed attractive force (similar but stronger phenomenon than electron shielding). Reduced force enables proton-neutron nucleus because there won't be too powerful initial interaction between proton and neutron.

In case when proton approaches another proton they generate very strong pulling (or pushing) force (both rotating fast). Generated pulling force causes these protons just repulsive bounce and/or flyby each other.

Neutrino

Neutrino creation process is quite similar to photon creation process. In case of electron neutrino, the difference is how close to nucleus these particles are created at. Neutrinos are created at very close to repulsive wall hence experiencing greater FTEP flux and spinning from nucleus. This causes neutrino pair production like in case of neutron creation. Creation process makes neutrinos smaller than photons hence lighter (less mass) than photons. Because of a such small mass of neutrino its detection is very challenging.

Neutrino oscillation is similar to red or blue shifting of light. When neutrino enters more dense FTE it will experience more interactions with FTEPs and rotate faster. Faster rotation frequency generates bigger energy for the neutrino. When neutrino enters less dense FTE it will experience less inter-

actions with FTEPs and rotate slower. Slower rotation frequency decreases the energy of neutrino.

Spin

Quote from Wikipedia:

> Spin is an intrinsic form of angular momentum carried by elementary particles, composite particles (hadrons), and atomic nuclei. Spin is a solely quantum-mechanical phenomenon; it does not have a counterpart in classical mechanics (despite the term spin being reminiscent of classical phenomena such as a planet spinning on its axis).

Actually it does have a counterpart in classical mechanics. Spin is indeed particle spinning on its axis! That is the core of ToEbi. With that interpretation theory of everything is possible.

Nuclear spin

Nuclear spin is generally determined by calculating protons and neutrons. If both sums pair up it is said that nuclear spin is zero. If only one of them pairs up it is said that spin is half and if both sums are uneven it said that spin is one. There is natural explanation for the nuclear spin and it's very much classical. It also explains the calculus of nuclear spin. In trivial case of hydrogen spin is labeled as half, in case of deuterium it is one and in case of tritium it is half.

Protons and neutrons have different external rotation frequency which explains why spin calculation works separately for protons and neutrons in other words only proton can eliminate other protons spin totally. In tritium there is two neutrons in nucleus and they eliminates each others spin.

With second neutron created hydrogen isotope decays very quickly but based on measurements neutrons around proton are evenly distributed. In that setup neutrons won't eliminate each others spin due to distance and small external rotation frequency (compared to proton) that's why spin is 2.

Elimination of spin means that when two same kind of particles with same spin (different spin means antiparticle) are at very close proximity generated repulsion causes turbulence in FTE between those two particles. Turbulence prevents nucleus ability to resonate with external waves in FTE (like with waves of magnetic field). Turbulence generated between proton and neutron also effects resonating ability but not as totally as in case proton-proton.

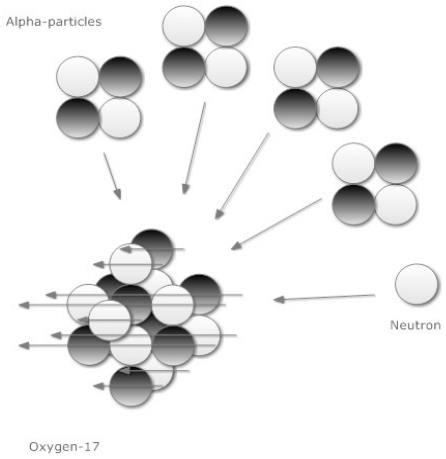

Figure 2: Oxygen-17

Other often observed atom isotope in MRI is oxygen-17 (8 protons, 9 neutrons) and its spin is 5/2. Why 5/2? There is three alpha-particles which have combined spin zero. Two proton-neutron pairs (total spin 2) and one standalone neutron (spin half). So total nuclear spin is $2\frac{1}{2} = \frac{5}{2}$.

Electron spin

Electrons are no exceptions. When two electrons are close enough in dense enough FTE they will generate turbulence into the FTE. Usually this happen when two electrons orbit a nucleus. Close distance to nucleus provides dense enough FTE for two electrons to experience needed repulsion. Without adequate repulsion electrons would collide and propel each other away. Turbulence masks these paired electrons incapable of participating in covalent bonding or experience resonance with waves around. Electrons are said to have a half spin $(-1/2, 1/2)$.

The origin of electron spin numbers is in Stern-Gerlach experiment. The real reason why silver atoms create the observed pattern is valence electron's rotation pole orientation in magnetic field. Used magnetic field causes valence electron to choose rotation pole orientation while orbiting around silver nucleus. Different rotation pole orientations causes electron to generate pulling force against either S or N magnetic pole as described by Second Law of ToEbi.

Based on ToEbi electrons tend to orbit nucleus in pairs. Three or more electrons can't orbit nucleus in group. This is due to repulsion induced lack of FTEPs from the first electron pair which prevents other electrons to join the electron group. On larger orbit there can be multiple electron pairs at the same time.

Above classical description of electron spin behavior explains why materials made of atoms which have only one valence electron are the best conductors.

Synchrotron radiation

Electromagnetic radiation emitted from synchrotron is very misleading phenomenon. It might be the biggest reason why modern particle physics considers classical interpretation of atom structure impossible. Ultra-relativistic (charged) particle emits photons therefore orbiting classical billiard ball electrons must loose energy and crash into atom nucleus. What a shame.

In reality situation is very much different in an atom scale and in a synchrotron. FTE movement in atom is totally effected by nucleus (see Third Law of ToEbi and examples). On the other hand FTE in synchrotron is effected by rotating (mass) Earth and to certain extend by magnetic field used in synchrotron. Orbiting electron inside atom won't experience incoming FTEPs from the direction of its movement. Electron is moving along with the ejected force transfer ether particles.

The reason for electromagnetic radiation from synchrotron is photon creation (compressed FTEPs) due to collision of ultra-relativistic spinning electron (or proton) and FTEPs provided by Earth. These two are not moving along!

Source of inertia

Spinning particles approach their balanced spinning orientation all the time. For example, in solid pure iron block, all iron atom nucleus are aligned in relation to Earth's imaginary surface (smooth spherical surface). Electrons have their balanced postitions inside a crystal and so on.

Same emergent balanced spinning orientation seeking happens everywhere all the time

So, what causes inertia? In a situation where an object is at rest its all particles are in somewhat balanced alignment. If we have two objects, A and B. Object A hits object B (exert force) resulting object B particles aligment breaks away.

Emerged inertia is actually a work against pulling force between Earth and object B. Object A has its energy stored in higher rotation frequency of its particles. During impact stored energy causes particles of object B (with smaller spinning frequency) none-align in relation to Earth's surface. Bigger the energy bigger the none-alignment.

In next phase pushing repulsive force between object A and B overcomes used force and object B starts to precess. Precession is caused by interaction between object B and Earth (Second Law of ToEbi applies). Result of precession is bigger rotation frequency of object B. Momentum and energy are conserved.

Some part of energy is released in form of photon emissions when electrons find their ground states after impact. Electrons also experience none-alignment and precession. Because close distances between atoms in matter crystals or molecules used force is experienced in every particle involved. Rotation axis orientations are irrelevant, same pushing force and precession is generated regardless of impact direction.

One interesting phenomenon because of higher rotation frequency is weight gain of mass. Higher rotation frequency of particles generate bigger pulling

force against other masses in this case towards Earth.

Very similar idea on energy conservation and inertia is presented by physicist Vesselin Petkov [3].

Relativity

Science in general needs the consept of time. Spinning frequency needs the consept of time ($\frac{1}{s}$). And as we know, speed of time varies. What causes the phenomenon?

In case of gravitational relativity the cause is denser FTE caused by large amounts of matter itself. In case of speed based relativity the cause is increased spinning frequency of particles (see inertia chapter).

Common nominator (even thou the birth mechanism is different) in cases of gravitational based relativity and speed based relativity is the experienced (subatomic) density of FTE. Increased FTE density between (subatomic) particles have couple of consequences.

Mass increase

Increased FTE density causes increased distances between particles. Increased distances in case of hadrons mean larger cross section which equals increased mass. Same applies to leptons during interaction among another particles.

In case of other composite particles (like common atoms), larger repulsive walls (increased subatomic particle mass point distances) increases decay propabilities. Orbiting electrons, hitting cosmic rays etc gain bigger torque when particle distances are bigger which increases the decay propabilities.

Length contraction

Direct consequence from mass increase is proving length contraction wrong. Quite opposite phenomenon is more likely. Current indirect evidence pro length contraction is easily explained by ToEbi and those explanations have nothing to with a length contraction.

Time dilation

Changed subatomic distance cause time measurement change. In case of increased FTE density it takes more "time" for an electron to change its orbit due to increased distances of suitable orbits. Therefore passenger on high speed imaginary space craft ages much slower than his/her family on Earth.

It's possible to derive an equation for time dilation based on ToEbi (show later).

Superconductivity

In order to understand superconductivity we must understand what happens when energy is very low in an atom or in a system of atoms. One part is the low

kinetic energy of atoms which enables them to be at very close approximate and in ordered position to each other. This is achieved with laser cooling.

Other part is that removing energy from a particle equals reducing its spinning frequency. There is immediately two obvious consequences from reduced spinning frequency.

- Particle (or system of particles) interacts less with Earth's FTE. In other words it experiences less gravitational interaction.
- Orbiting electrons (in material capable of superconductivity) experience less pulling force and repulsion due to slow spinning frequency of nucleus (system of all nuclei). This is the key to superconductivity. Outer electrons already in the system are very easily put into motion (into direction of current) by externally put electrons. After that initial push externally put electrons won't experience resistance.

Meissner Effect is easily explained with ToEbi. After critical point in terms of atom energy reduction (reduced spinning frequency) magnetic flux (flow of FTEPs) starts to control spinning orientation and spinning frequency of electrons on surface (and below surface) of object. Magnetic flux induces electrons to spin opposite direction compared to magnetic flux. Phenomenon is exactly the same as in case of photon creation in atom. Based on Second Law of ToEbi magnetic source and outer electrons of the object starts to experience pushing force.

Helium II phase

One of the most exciting phenomenon in low energy experiments is helium II phase. First of all, helium is the only atom which won't experience solid state in normal pressure no matter how low the temperature (energy) is. The reason for this is atom structure of helium-3,4.

There is three or four nuclei orbited by one pair of electrons. Because those paired electrons helium composes a very inert gas. Helium nucleus is however quite exposed compared to other atoms nucleus. Atoms containing more than one protective electron or electron pair can protect their nucleus much more efficiently. When two atoms are put together there is always generated denser FTE between them. Denser FTE attracts orbiting electrons due to increased interactions between FTE and electron. Because that nucleus exposure helium gas won't experience solid state. Rotating nucleus can always hit another nucleus due to lack of electron protection. With high pressure (25 bar) it is possible to bring helium atoms so close to each other that helium appears to be in solid state.

The difference between helium-4 and helium-3 is one neutron. Because a single neutron in helium-3 its nucleus is more interactive (see nucleus spin chapter) at nucleus level compared to helium-4 nucleus (nuclear spin = 0). This explains why it takes even lower energy to achieve helium II phase with helium-3.

With combination of being liquid and having low energy (rotation frequency of particles is small) helium II phase is an excellent heat conductor. Heat in form of particle motion just go through as a sound in the air. Other

atoms are at this temperatures in solid form. Solid form absorbs much more effectively externally given particle motion (kinetic energy) than liquid.

Creeping effect

So what causes the creeping effect? Obviously gravity causes liquid level equalizing. But why that liquid does the creeping at the first place? The reason is gravity and low energy of container and liquid helium. Even thou container has low energy it certainly has more atom mass in it compared to that helium inside it. This mass provides denser local FTE for helium to interact with. Because of low energy, container and helium can get very close to each other and therefore helium nucleus changes its orientation towards container walls.

The change in orientation causes gravitational interaction between helium and Earth to vanish completely or partially depending on container wall orientation towards Earth (Second Law of ToEbi). But the starter for creeping is gravity which pulls helium towards Earth.

Examples

This section contains few calculation examples with ToEbi equations.

Parallel wires

Two parallel copper wires, diameter $2.05 \cdot 10^{-3}$ m, length 1 m each. Copper crystal size $a = 3.615 \cdot 10^{-10}$ m. Each copper wire surface contains roughly $2.466 \cdot 10^{16}$ copper crystals, so roughly $6.2 \cdot 10^{16}$ outer electrons. Valence electrons per wire weight roughly $5.6 \cdot 10^{-14}$ kg.

Valence electrons (because current) rotate around nucleus axis parallel to wires. Therefore we can handle those valence electrons of the copper wire as a one spinning mass.

Force generated by existing valence electrons between wires at distance of 1 m is

$$F = T_{wire,Earth}(G_1 + G_2)5.6 \cdot 10^{-14^2} \approx 1.95 \cdot 10^{-42} n_{valence}^2$$

where $n_{valence}$ is the spinning frequency of copper's outer electrons ($8.98755 \cdot 10^{16}$1/s).

Wires generate approximately force of $3.16 \cdot 10^{-8}$N. Calculated force is generated only with existing valence electrons in those wires. 1 Ampere definition generates force of $2.0 \cdot 10^{-7}$N. We can conclude that wires used in the definition are thinner than wires used in this example.

If we feed the same current but from the opposite ends of wires then based on Second Law of ToEbi experienced force is pushing the wires apart.

Mass of Sun

Earth orbits Sun roughly 30 km/s so the force holding Earth in its orbit is

$$F = \frac{mv^2}{r} \approx 3.6 \cdot 10^{22} N.$$

Total pulling force generated by Earth and Sun is based on Second Law of ToEbi (excluding RFAA)

$$3.6 \cdot 10^{22} N = \frac{(G_{Sun} + G_{Earth}) M_{Sun} M_{Earth}}{r^2} \cos(7.155) N$$

Resolving M_{Sun} from the equation gives $\approx 2.018 \cdot 10^{30}$ Kg. Current calculated value is $1.9891 \cdot 10^{30}$ kg.

Rotation frequency of Venus

Planet Venus orbits Sun, but its spinning direction is different than any other planet in our Solar system. Originally Venus had the same spin direction, but a collision with an other object made it to flip upside down.

There are measurable effects due to the different spinning direction of Venus. Based on Second Law of ToEbi, RFAA is slowing down Venus with the force of

$$F_{RFAA} = N(\frac{ms}{kg})^2 (G_1 + G_2) \frac{M_1 M_2}{r^2} \sin(\alpha) \vec{e}_3 \approx 3.383 \cdot 10^{18} N$$

where $\alpha \approx 2.19$ degrees and $G_{Sun} \approx 1.040 \cdot 10^{-13}$ and $G_{Venus} \approx 1.134 \cdot 10^{-15}$. There will be both orbiting velocity and spinning frequence decrease.

Impulse reduced the orbiting velocity of Venus is $\approx 1.7 \cdot 10^{27}$J. It means that orbiting velocity of Venus has dropped ≈ 26.5 m/s during the 16 years. In comparison, the orbiting velocity of Venus is roughly 35 000 m/s!

At the same time, due to uneven force delivery (large circular area) Venus experiences a torque between itself and Sun. Experienced torque slows down the spin frequency of Venus.

Calculate the torque

Sun bends starlight

Initial facts.

- Mass of photon (Planck constant): $6.62606957 \cdot 10^{-34}$ Kg
- Selected wavelength of light: $\lambda = 430$ nm, hence $n_{photon} = \frac{c}{\lambda} \approx 6.972 \cdot 10^{14}$ 1/s

Based on Second Law of ToEbi, force deflecting photon at its maximum value is

$$F = (G_{Sun} + G_{photon}) \frac{M_{Sun} M_{photon}}{r^2} \approx 6.7 \cdot 10^8 N$$

Obviously calculated value doesn't match the observations. There must be some other type of interaction mechanism between a photon and a stellar object. Let's hypothesize that interaction happens only between an electron and a photon when they are almost colliding (photon electron flyby). The minimum distance between an electron and a photon is $\approx 5.3848 * 10^{-16} + 1.452289 * 10^{-17} + x \approx 5.53 * 10^{-16} + x$ m (Values are calculated based on particle's cross sections πr^2). Variable x means the mandatory gap between

the interacting particles. The duration of flyby is $\approx 3 * 10^{-24}$ s. Hence the impulse is

$$F * s = (G_{electron} + G_{photon}) \frac{M_{electron} M_{photon}}{r^2} * s \approx \frac{7.3 * 10^{-54}}{(5.53 * 10^{-16} + x)^2} J$$

Measured deflection angle is $\approx 8.5 * 10^{-6}$ rad. By using basic momemtum vector calculus we get

$$\frac{7.3 * 10^{-54}}{hc(5.53 * 10^{-16} + x)^2} = \frac{3.7 * 10^{-29}}{(5.53 * 10^{-16} + x)^2} = \tan \alpha$$

and the value for the x as big as $\approx 2 * 10^{-12}$ m which sounds reasonable. Therefore chosen hypothesis sounds promising. Naturally the density of Sun effects (density correlates with FTE density) the distance between the electron and photon during the flyby.

References

[1] Modified Cavendish Experiment,
`http://www.sea3000.net/zhuyonghuan/20081009181348.php`

[2] V.A. Panchelyuga, S.E. Shnoll
Lomonosovs Moscow State University, Moscow, Russia Institute of Theoretical and Experimental Biophysics RAS, Pushchino, Russia
`http://arxiv.org/ftp/physics/papers/0606/0606173.pdf`

[3] Vesselin Petkov
Institute for Foundational Studies 'Hermann Minkowski'
Montreal, Quebec, Canada
`http://spacetimecentre.org/vpetkov/Inertia-Petkov.pdf`

[4] Wikipedia
`https://en.wikipedia.org/wiki/Venus`