Introduction to

Theory of Everything by Illusion

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Chapter 1

Preface

Theory of everything in physics refers to a theoretical framework covering all physical interactions and elements in mathematically coherent way. Because its very nature, theory of everything answers to the current big questions in physics and explains known anomalies. Where's all antimatter gone? Why the expansion rate of our universe is accelerating, because of dark energy? What is mass and inertia? What is dark matter made of and why detecting it is so difficult? Is it even possible to have the theory of everything?

So far, we have had three major players in physics, classical physics, quantum mechanics and Einstein's relativity theories. Our best effort so far, in order to create the theory of everything, has been string theory, more accurately M-theory. But after the initial enthusiasm it has been a bit of disappointment for many theoretical physicists. String theory can't be falsified and being falsifiable is the key principle in physics. Some people in the field describe the situation as having a crisis in physics. In reality, the roots of our problems in physics are much more profound than we have previously thought.

Much more accurate adjective for the situation in physics would be **catastrophic**. Physicists have been building skyscrapers for centuries and unfortunately they have made some extremely poor choices along the design and construction phase. What options we do have? Keep on building on top of our previous mistakes? Should we have a fresh start? Eventually, it's up to *you*.

Introduction to Theory of Everything by Illusion is intended for physicists and for advanced physics enthusiasts. This book introduces a new theory which replaces quantum mechanics, standard model for particles and Einstein's relativity theories. Concepts like dark matter and dark energy will be explained and calculated. Presented theory creates also the foundation for future large scale antimatter utilization.

The biggest problem with contemporary theoretical physics is its deviations and shortcomings from reality combined with unfalsifiable theories. We can see and experience surrounding things, solid objects, liquids, vapors, photons, electrons etc. Emitted and reflected photons create the picture into our brains through our senses. But when we study all those things more closely we kind of lose our track.

Contemporary theoretical physics is living in an era when it's only slowing down the progress of mankind. We are not stupid, we are just misled by our earlier mistakes. When a paradigm gets born it has real staying power. Influential people and unfortunate misunderstandings have laid out the seeds of our scientific path in physics. Development of schooling system and development of our society in general have confirmed and supported our heading.

Going through physics education doesn't help us to realize our earlier mistakes. Young students don't have a chance, they study what they are teached and read books instructed them to read. And if they want a decent career in academics they must accept the current paradigm.

However, paradigms do change, a bit by bit, the amount of anomalous phenomena gets bigger and more problematic and pressure builds up for the change. Have we missed something along the way? Is something fundamentally wrong with our theories? Why can't we unite quantum mechanics and relativity theories? Sometimes it takes an outsider to resolve a problem. Physicists involved with these conundrums don't have a chance to figure them out. Their training prevents them to see the forest or, at least, prevents them from accepting more obvious explanation.

In this book, false turns in physics history are brutally pointed out and the correct way is presented. We should start our journey into the new physics paradigm from particles, what they really are, what kind of properties they have and how they interact with each other? How many different particles actually exist? What's the deal with antimatter? Current standard model for particles and quantum mechanics will be replaced with much more simple and elegant theory.

Proper theory of everything (**ToE**) bonds subatomic phenomena naturally with classical physics phenomena. We'll get the answers to questions like, what is mass? What is time? How inertia emerges? What is energy? Or what is gravitational interaction? In the later part of our journey, we'll discover how relativity emerges from underlying particle phenomena.

Have a nice trip!

Part I

Foundation

Chapter 2

Let's go!

We shall start our journey from the most fundamental element existing, from particles. Everything is made from particles, even some particles are made from other particles. Is there something more fundamental than particle? We don't know, but after our journey we might conclude that there probably isn't more fundamental element than particle.

Hypotheses

Theory of Everything by illusion (TOEBI) has only two hypotheses. **First hypothesis: The beginning of universe provided spiked, spherical, objects (particles)**. Spherical object part feels quite natural and it has been also tested extensively with electrons. So far, no deviations are found.

In order to effectively interact with other particles, TOEBI hypothesizes that those spherical objects have spikes. In a sense, it's quite reasonable hypothesis. Perfect, smooth, sphere is more like a mathematical concept than physical fact. Naturally, measuring out directly those spikes is very difficult or outright impossible.

However, indirect evidence for such spikes exists. Classical double slit experiment can be used as an evidence for those spikes, but more on that later.

Second hypothesis: Interactions between particles or system of particles (SoP) are purely mechanical. In a way, second hypothesis is somewhat superfluous. Based on first hypothesis what other ways for interaction there could be? We should remember, at this point, we have only those particles previously hypothesized. On the other hand, we have to hypothesize that there are interactions between particles and that they have a mechanical basis.

Elementary Properties

What kind of elementary properties particles have? Trivially based on TOEBI's hypotheses particle has properties like radius, volume and cross section. These properties are fairly obvious. But it doesn't require a lot to figure out that particles can spinning around some axis, what would prevent them from spinning? On the other hand, we can ask what makes them spinning? Was there something at the beginning of our universe which made particles spinning? Some kind of universal conservation of angular momentum?

How can we even measure particles' spinning frequencies? There is no mark on a particle, a mark which we could somehow observe and count how many times it goes by in one second. No, we can't do that, at least directly. We can only say that according to TOEBI's hypotheses, particles can spinning with various frequencies.

Where is particle's mass? Shouldn't that be an elementary property? The answer is no, we shouldn't have elementary properties which can be derived from other properties and particle's mass is such a property.

Based on TOEBI's hypotheses, we can conclude that particle's elementary properties are its

- radius without spikes and
- spinning vector.

We define spinning vector so that its magnitude equals particle's spinning frequency and if we look at the spinning vector above, particle is spinning counterclockwise.

Elementary Particles?

How many elementary particles there are? Our universe holds various particles, photons, electrons, protons, neutrons, pions and so on. Elementary particle is something that can't be made from other particles, so composite particles are obviously out. Standard model for particles contains 17 elementary particles plus their antiparticles. How many elementary particles TOEBI predicts?

We postulate that there is only one true elementary particle, **Force Transfer Ether Particle (FTEP)**. Every other particle is made of FTEPs, one way or the other.

Repulsion

What would happen if a larger particle, like electron, surrounded by very closely packed smaller particles (FTEPs), starts to spin? Certainly surrounding FTEPs would experience the spinning of the electron, spikes on particles guarantee that.

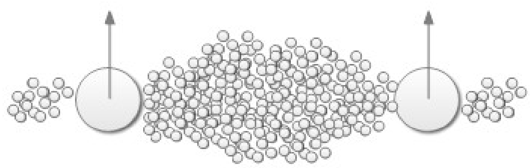

Figure 2.1: Repulsive wall

spinning larger particle generate a flux of smaller particles into the surrounding ether ("sea" of particles) made of FTEPs. It has to generate such a flux, it's required in order to generate repulsion between larger particles in TOEBI, direct "contact" between the larger particles would destroy them. Obviously, and luckily, such an event doesn't happen too easily.

But basically repulsive force is due to "too" dense FTE which pushes particle away, even though the particle is attracted towards denser FTE. We'll get back to this phenomenon later when we go through different interactions between particles.

How strong this repulsion between particles can be? We can't answer the question until we have defined and derived couple of other things, like mass, distance, second, energy and force.

Decay and Annihilation

Bigger particles do decay and there are different ways (decay channels) for them to decay. At this point, the knowledge that bigger particles do decay is enough for us.

Particles can also annihilate, which happens when particle and its antiparticle contact. Current knowledge of antiparticles and annihilations is incomplete and TOEBI will make it complete.

There has to be an end point for particle decay chain and annihilations, something so elementary that the process can't proceed no more. One might suggest that e.g. photon can be such an end point, but it's not. Photon can get absorbed by atom or it might vanish during pair production. If photon gets absorbed it will decay to the smallest entities possible, FTEPs.

FTEPs are the smallest particles provided by the beginning of our universe and surviving such extreme initial conditions proves that FTEPs can bear pretty much any condition.

Particle Creation

If particles other than FTEPs can decay and annihilate then the inverse process must be possible also, putting FTEPs together must create bigger particles. That is exactly what happens when photon is emitted from atom or when photon causes electron-positron pair production. In TOEBI, creation of new particles is totally mechanical phenomenon.

There are few subtleties related to particle creation which are covered rigorously in their proper sections.

Chapter 3

Particle Genesis

Was there some kind of Big Bang at the beginning of our universe? What triggered it? Was there something "before" our universe? And if so, what created that/those things? Maybe God did it?

Big Bang?

Based on scientific evidence, it's very plausible that there was some kind of big bang at the beginning. But how something like that can happen? And because it has happened once, it must have been happened numerous times before and naturally it must happen numerous times in future too. We shouldn't conclude that our universe is the only one.

Evidently, our universe hasn't revealed us yet any signs of collision with another universe. In principle, that can happen. Maybe there are reasons why our universe hasn't collided with another universe yet? Some kind of mechanism which prevents universes to be destroyed too quickly, or we are just plain lucky in that regard.

Was there, at the beginning, some kind of singularity, which just went off all over "the place"? TOEBI is based on real matter, so with that in mind, we can speculate a bit about the nature of this possible singularity. First of all, it must have been matter, the very same matter which constructs our universe currently, but obviously wrapped up into a very much smaller volume. So far so good, but how in Earth that matter went off? Maybe God pressed the button next to the sign saying "Do not press!", or maybe not.

So if there was some kind of matter blob there should be at least another identical matter blob. That kind of assumption sounds reasonable due to observed symmetries in our universe. In reality, there can be numerous such matter blobs. Many things in our universe spinning, so maybe these matter blobs were also spinning, why not? Now we have a setup which contains two spinning matter blobs. What's missing?

Collision of course! Maybe two matter blobs just crashed into each other with enormous velocity, naturally speaking about velocity is kind of silly because we don't have the concepts needed in order to determinate velocity in the era prior to the Big Bang. Anyway, these colliding matter blobs might be the generators of the Big Bang.

What kinds of remnants we might possible detect from the collision scenario? Naturally, we have particles, those came from somewhere or from something. If those matter blobs were spinning could that kind of phenomenon leave any marks on our universe?

Force Transfer Ether

In TOEBI different force fields are not needed, single entity is sufficient. FTE is the medium which delivers different forces between particles. What is the origin of FTE?

During the collision between two matter blobs only the smallest debris survived the pressure, and as we now know, the smallest elements according to TOEBI are FTEPs. We define FTEP radius as R_0. Now we can say that one FTEP occupies a volume

$$V_0 = \frac{4}{3}\pi R_0^3.$$

If two FTEPs are put together, they will occupy a volume twice that big. Because the tremendous initial pressure FTEPs couldn't form bigger particles. If larger particles emerged then the tremendous pressure would grind them back to FTEPs. Only after decreasing pressure the creation of permanent larger particles was possible.

We define **FTE density** as

$$\rho_E = \frac{\text{Number of FTEPs}}{\text{Volume}}$$

What can we say about FTE density? Is it the same through out our universe or does it vary from one location to another? It surely varies. Spinning larger particle generates a flux of FTEPs around it. They suck in FTEPs through their poles and push FTEPs outwards along their surfaces, faster towards their equators.

Two larger particles are capable of generating even higher local FTE density in between and around them. Larger amount of TOEBI spinning particles in any given volume then higher the local FTE density will be.

At this point it would be very inspirational to stop for a while and ponder how Divergence theorem and spinning particles of TOEBI come along. Can we interpret FTE as a vector field? Yes, we can use FTE density gradient as the basis for a vector field. At this point, just for simplicity reasons, we should limit our vector field to interactions between FTEPs and electrons.

It's safe to say that in **stable FTE density** spinning larger particles' outward FTEP flux equals the inward FTEP flux. In TOEBI, this outward flux generates for example the repulsion between particles. However, mainstream physics has missed the fact that there exists also inward flux phenomenon with spinning particles. How is it possible? The reason is how particles behave when they interact with other particles, but more on that later. As a mental note, FTEP flux behaviour contradicts Gauss's law but agrees with Gauss's law for magnetism.

Particles in FTE

Let's say that we put a single spinning particle into a density flat FTE. What would happen? Obviously, the particle would generate a stable FTEP flow around it, where the inward flux would match the outward flux. Also flux densities find their balanced values. The outward flux feeds also those inward fluxes on particle's spinning axis poles.

Another phenomenon caused by the interaction between spinning particle and surrounding FTE is denser, spherical, volume around particle. Let's call it as (particle) **FTE sphere**.

FTE Sphere

The size of generated FTE sphere around spinning particle depends on the size of the particle and on the particle spinning frequency. Variations in surrounding FTE density affect FTE sphere volume accordingly, higher the FTE density then smaller the FTE sphere volume.

The radius r_b of the FTE sphere is the distance from the particle's center of mass to the point where FTE sphere density matches the surrounding FTE density (boundary). Let's say that the surrounding FTE density is ρ_b which matches FTE sphere density at the radius r_b.

Now we can conclude that the FTE density on the surface of, say, electron is

$$\rho_s = \frac{1}{\mathrm{m}^2}(r_b - r_{electron})^2 * \rho_b \quad \text{(Density Relation)}$$

On the other hand, FTE density on the surface of electron is constant ρ_e. Little by little we are able to resolve the numerical values for those variables.

Electron

What would be the second smallest particle which could have survived those extreme conditions right after the Big Bang? What can we say based on TOEBI? Naturally, it has to be spherical, that comes from our first hypothesis, but spherical shape also resist best a particle from breaking up in extreme pressure.

What would be the size of that second smallest particle? Based on kissing number problem, the simplest "sphere" made from other spheres in three dimensions contains 13 spheres, so the radius of this particle is $3R_0$. But was this "sphere" spherical enough in order to bear the pressure? Probably not, **but it might have survived in some smaller pressure**.

We have reasons to believe that the first stable particle which survived the Big Bang had the radius $\approx 111.234R_0$. Confirmation for this belief will be get later. Currently, this first stable particle is called **electron**. Cross section of electron is

$$A_{electron} \approx 12373\pi$$

Spinning Things

If those matter blobs were spinning before the collision then would that spinning induce spinning among those generated particles? At least it sounds plausible because the principle of conservation of angular momentum, also the rapid expansion of particles (inflation) might have further induced spinning among particles.

Proximity of these early electrons has set the initial spinning frequency for them. We haven't defined second yet, so speaking about frequency is somewhat silly, but let's say that those electrons started to spinning in similar manner.

So far in our early universe, we had spinning electrons and FTEPs in a relative small volume. Contemporary physics might call this state of matter as quark-gluon plasma, but based on TOEBI there was just electrons and FTEPs. Later in book we will learn that gluons are not separate, different, particles but just ordinary electrons with smaller spinning frequecy.

Due to high spinning frequency those early electrons didn't compress and form bigger particles. If electrons got into the direct contact with each other they were merely decayed back to FTEPs, because even photons couldn't survive those conditions.

Proton

In high pressure, spinning electrons must have formed all kinds of composite particles. In our observable universe today we have only two stable composite particles, proton and neutron. All particles made of two or four "quarks" decay really quickly. Why composite particles made of three "quarks" are stable? Why quatation marks on quark?

In TOEBI there is no need for quarks, **quarks are plain vanilla electrons**. Why contemporary particle physics regards quarks as independent particles? The answer is, for historical reasons and misinterpreted experimental results. Electrons were discovered for long before particle physicists discovered the structure of proton. Natural idea was that those particles inside proton must be something other than electrons, otherwise electric charges wouldn't match. Also evidence from proton collision experiments confirmed (due to misinterpretation) that those particles inside proton are heavier than electrons, therefore case closed. But what particle physicists didn't have at the time was the true understanding of nature. We will demonstrate later how different quarks and their masses are created from ordinary electrons.

What makes three electron constructions so special? We'll ponder that question after we are familiar with how particles interact with each other, for now, we take the idea of proton made of three electrons as our work hypothesis.

Photon

As every other particle, photon is made of FTEPs compressed together. Because photons are considerably smaller and hence more coarse grained than electrons they didn't survive those early moments after the Big Bang. The simplest particle made of FTEPs was described in previous electron section. Could that particle be photon? There is few things supporting this idea, but some of those things need the concept of energy.

Due to very small size ($R_{photon} = 3\pi$) photons interact very weakly with other photons. In comparison, we have the following cross sections

- FTEP $= \pi$
- photon $= 9\pi$
- electron $\approx 12373\pi$

Photons are extremely tiny, one diameter of electron can cover roughly 37 photons put side by side.

Antiparticle

Contemporary particle physics describes antiparticle as particle which in contact with its counterpart will annihilate them both. Also, antiparticle's possible charge is opposite to its counterpart. Different charge is used in contemporary particle experiments to separate particles from their antiparticles.

Contemporary particle physics' description of antiparticle is inadequate. Firstly, there is no separate phenomenon as charge per se, which we'll demonstrate later. Secondly, there is no need for separate antiparticles. Every particle (other than FTEP) is its own antiparticle, so called Majorana particle.

Spinning particle has its protective FTEP flux at the weakest near spinning axis poles where the direction of FTEP flux is inwards. If we manage to put two particles, like two electrons, together so that their spinning axis poles collide head-on we get particle annihilation, right? Not necessarily, on top of that precise collision arrangement, also spinning vector directions matter. If those spinning vectors are parallel no annihilation event occures. Imagine a situation where we put to spinning car tires together side by side. They both spinning at the same rate and to the same direction, obviously there won't be any problems in this scenario.

It doesn't require much to imagine what would happen if those tires were spinning into opposite directions before putting them together. We can imagine the smell of burning rubber, thick smoke, after a while explosion and eventually flying pieces of rubber. Pretty much same happens in the subatomic level if we manage to put two electrons with antiparallel spinning vectors head-on together. Naturally, in case of electrons, which has extremely high spinning frequency, things happen quickly and succeeding in the task requires some additional techniques. Particle annihilation processes are described in more detailed manner after we have covered few other fundamental phenomena.

Information so far has given us the keys into a totally new world. Foundation for the utilization of antimatter as a source for energy production is described.

Hydrogen

Hydrogen is the simplest atom, alone proton surrounded by alone electron. Even though hydrogen's apparent simplicity it has been an enormous source of misconceptions in the history of particle physics. The biggest blunder might have been the concept of charge and its amount in case of proton. The fact, that electrons are attracted towards protons but repelled away from other electrons has nothing to with charge. Concept of charge is based on inadequate knowledge of reality as we are about to learn.

Eventually early universe cooled enough and allowed hydrogen atoms to emerge. Before that event, electrons couldn't bond with protons, they were just bouncing around within the soap made of protons, other electrons and FTEPs. From that early "bouncing period" we have inherited cosmic microwave background (CMB).

We have covered so far the early and significant particles in our universe. Due to lack of a proper tools, used mathematics has been very elementary so far, but things are about to change.

Mass

In order to gain some prediction power we define few new properties and their relationships with each other. So far we have our fundamental particle properties, radius and spinning vector. Our first *derived* particle property is mass. We define, **particle mass is its cross section capable of interacting with other particles (Mass Postulate)**.

Other particles or systems of particles interact with particle mass, smaller the mass smaller the magnitude of interaction.

List of particles introduced so far and their radius.

- proton: $\approx 2.3074 * 10^{-14}$ m
- electron: $\approx 5.3848 * 10^{-16}$ m
- photon: $\approx 1.4523 * 10^{-17}$ m
- FTEP: $\approx 4.8410 * 10^{-18}$ m

Measured proton radius is actually much smaller because used measuring techniques. Hitting proton with other particles, like electrons, gives us only the size of proton *hit* by electrons. Inner structure of proton functions as a cushion, larger the energy of hitting electrons then smaller the size of proton appears to be, up to the point where proton is destroyed.

FTE Spheres

By putting more and more spinning particles into a volume we are able to increase the FTE density in that volume. At some point, no more particles can't be inserted to the volume, repulsion between particles prevents that. In more extreme conditions, particles like protons can fusion into bigger atoms.

If we think about our planet, constructed from atoms, it doesn't differ from the imaginary volume above. More particles, denser the generated FTE. We postulate that **every electron and electron based particle has the same spinning frequency** f_e **(Frequency Postulate)**.

Earth mass is the combined mass of its protons, neutrons and electrons. Protons and neutrons are composite particles made of electrons, therefore they share the spinning frequency f_e. On the other hand, our planet generates its own FTE which provides the medium for our bodies' particles (having the same spinning frequency f_e) to interact with. We can conclude that the FTE density of every gravitating object made of protons, neutrons and electrons goes hand-in-hand with their masses. For example, the FTE density on the surface of Earth would be

$$\rho = k\frac{M_{\text{Earth}}}{R^2_{Earth}}$$

where k gives the needed unit and magnitude conversion.

Chapter 4

Interactions

Having all these marvelous particles without any interactions would be a very boring story indeed. Luckily particles exist in high enough densities making them capable of interact, particles collide, annihilate and create new particles with each other. There is no need for the exotic gauge bosons, simple mechanical interactions between described particles so far can do the trick.

Larger Particles

Up to the point of annihilation, larger particles interact with each other through local FTE. Let's imagine a stationary, spinning, larger particle in FTE where FTE density equals in every direction. What might happen to that particle? Not that much, it just keeps on spinning forever. But what would happen if we put another particle close to it? It depends on few things, but let's say that those particles have same mass and spinning vectors are parallel and have equal magnitudes.

In first scenario, particles are free and their spinning vectors are parallel. FTEP fluxes from these spinning particles have opposite directions, you can visualize this by rotating two balls to same direction. Ejected FTEPs in one flux collide with incoming FTEPs from the other flux. **Free** particles in such situation react to incoming flux by changing their spinning vectors antiparallel.

Let's say that those spinning particles are not free, so that for some reason, they can't change their spinning vector orientations. What will happen? Denser FTE on another side of spinning particles will put them on the move. Same kind of phenomenon is familiar to everybody in many everyday phenomena, for example driving a vehicle on snowy road and all the suddenly tires on the ditch's side cut into thicker snow bed, escaping the incoming accident requires a good driving skills and a shear luck. Or if we pour water into a children's swimming pool, floating toys near the incoming water get sucked into the stream and so on. spinning particle gets a better "grip" from denser FTE and starts to move towards it, at least to the certain point.

Emerged buffer on the other hand prevents particles from moving too close to each other. In balanced situation, the buffer between particles is so dense that spinning particles pretty much maintain their positions, just like inside proton or in the configuration of single proton and electron.

In second scenario, spinning vectors are antiparallel. FTEPs do collide in this scenario also but due to their handedness emerging buffer pushes particles away from each other. Because very high spinning frequencies all these phenomena happen very quickly.

Particle vs. The Rest

Our universe is made of a vast amount of particles. From the perspective of a single particle, how does it all plays out? Expansion of our early universe caused electrons to lose their nearly uniform alignment and started to bounce around. Eventually, random spots in the early universe started to accumulate surrounding particles. More particles meant denser FTE around them, which led to a greater gravitational interaction between the area and surrounding particles and stellar objects.

If we study single electron or proton under the influence of a stellar object, what's really going on? Apparently particles do interact with stellar objects, they do experience FTE densities generated by these objects. Dimensional magnitudes of these players are vastly different. How single electron or proton is capable of sensing which way to go and at which rate?

Even though the FTE density differences are minuscules around a particle, the difference exists. The greatest combined FTE density is next to a particle on the line between the planet's center of mass and particle's center of mass. Particles spin with enormous frequency f_e (the magnitude is revealed later) which also magnifies the effect gained from density differences.

Combination of these two phenomena gives particles the acceleration exactly towards the center of the larger mass with observed magnitude.

Gravitational Constant

Gravitational constant (2010 CODATA-recommended value)

$$G = 6.67384(80) * 10^{-11}\ \frac{\mathrm{m}^3}{\mathrm{kg} * \mathrm{s}^2}$$

gives us the needed unit and proportional conversion. According to Newton's law of universal gravitation there is attractive force between two objects

$$F = G\frac{m_1 m_2}{r^2}$$

where m_1,m_2 are the masses and r is the distance between the centers of the masses. Newton's law of universal gravitation is sufficient if there is no particle spinning vector induced interactions.

In normal conditions, multiple particles with random orientations combined with particle collisions cancel out the most spinning orientation patterns. Earth's magnetic field is generated in deep down by the flows of "charged" particles, but more on magnetic fields in the classical physics chapter.

Gravitating object is capable of generating an acceleration

$$\vec{g} = G\frac{m_1}{r^2}$$

towards the center of mass m_1. Now, let's put our equation for FTE density here for comparison

$$\rho = k\frac{m_1}{r^2}$$

Now we have

$$\frac{\vec{g}}{G} = \frac{m_1}{r^2}$$

hence

$$\rho = k\frac{\vec{g}}{G} \rightarrow \frac{\vec{g}}{G} = \frac{\rho}{k}$$

so

$$\vec{g}k = G\rho = Gk\frac{m_1}{r^2}$$

We can conclude that constant k is irrelevant and our original equation for FTE density should have been

$$\rho = \frac{1}{\mathrm{kg} * \mathrm{m}}\frac{m_1}{r^2}$$

At this point our density relation equation looks like

$$\rho_s = \frac{1}{\mathrm{m}^2}(r_b - r_{electron})^2 * \frac{1}{\mathrm{kg} * \mathrm{m}}\frac{m_1}{r^2}$$

Because FTE density near particle's surface is way much higher than background FTE density we can say

$$\rho_s \approx \frac{1}{\mathrm{kg} * \mathrm{m}^3}\frac{m_1}{r^2}r_b^2$$

Next step is to find the value for r_b.

What would be the highest possible FTE density? It must be the density of elementary (in mainstream definition) particle, because in TOEBI, particles are created by compressing FTEPs together. In Electron section we speculated that the radius of electron would be $\approx 111.234R_0$, where R_0 is the radius of FTEP ($\approx 4.8410 * 10^{-18}$ m).

We are able to fill approximately 74 percent of the volume of electron with FTEPs, which means that the volume of electron can hold $\approx 1.02 * 10^6$ FTEPs. In other words, the FTE density of electron is

$$\rho_e \approx 1.56 * 10^{51}\frac{\mathrm{FTEPs}}{\mathrm{m}^3}$$

Earth's FTE density on its surface is $\approx 1.471 * 10^{11}\,\frac{\mathrm{FTEPs}}{\mathrm{m}^3}$, so the difference is massive.

Before we can calculate r_b we need to know the FTE density **outside** the volume of electron. It most certainly is not the same than possessed by electron itself.

Energy

What is energy? What is the mechanism of energy? We have particles with different masses and spinning frequencies. Electrons have the same spinning frequency (the origin of this same spinning frequency was described in Particle Genesis chapter). Because protons and neutrons are made of plain vanilla electrons they also have the same spinning frequency. Photons have mass, even thou poorly interacting, and various spinning frequencies. Best candidate for particle's energy is the combination of both mass and spinning frequency, hence we define particle energy as **First Law of TOEBI**

$$E = \mathrm{J}\frac{\mathrm{s}}{\mathrm{kg}}\ m\|\vec{f}\|$$

where m is the mass and $\vec{f}$ is the spinning vector of the particle.

Now we can conclude that the spinning frequency of electrons and electron based particles is

$$f_e \approx 8.98755179 * 10^{16}\frac{1}{\mathrm{s}}$$

Force

Force between electron based particles can be calculated based on spinning vector. We define force between two electron based particles as **Second law of TOEBI**

$$\vec{F}_{1\leftarrow 2} = G_e \frac{M_e^2}{r_{12}^2} \vec{e}_{12} \cos\alpha$$

where M_e is electron mass, α is angle between spinning vectors, r is distance between electrons (center to center), $\vec{e}_{12} = \frac{\vec{r}_{12}}{r_{12}}$ is unit vector pointing from electron 1 to electron 2 and

$$G_e = \frac{1}{2} f_e^2 \ \frac{\mathrm{m}^3}{\mathrm{kg}} \ (\textbf{G factor})$$

where f_e is the spinning frequency of electron. On the other hand

$$\vec{F}_{2\leftarrow 1} = G_e \frac{M_e^2}{r_{12}^2} \vec{e}_{21} \cos\alpha$$

applies, where $\vec{e}_{21} = \frac{\vec{r}_{21}}{r_{21}}$ is unit vector pointing from electron 2 to electron 1.

How about interactions between a proton and an electron? Proton is a composite particle made of three electrons and Second law of TOEBI applies to interactions between two electrons! Therefore force calculations can be made between the electron and the nearest proton electron. Also other particles based on electrons, like muons, obey Second law of TOEBI.

Physical mechanism behind the repulsive force is denser FTE between particles than they are able to spin through. Local higher FTE density tends to decrease towards the surrounding FTE density and this density decreasing mechanism causes the observed repulsive force.

Spinning Vector Behaviour

Let's say we have in every way isolated volume V for our spinning particles and there is no external magnetic fields present. What happens when two or more particles with arbitrarely orientated spinning vectors interact? Or what happens when single particle comes into contact with particles having a larger spinning vector pattern? Or both cases simultaneously?

Two Electron Based Particles

Spinning electron based particles (from now on electrons) generate FTEP flux with handedness according to its spinning vector. Flux handedness emerges inevitable when larger particle (with spikes) spins in FTE. In interaction between two electrons this handedness takes a big role.

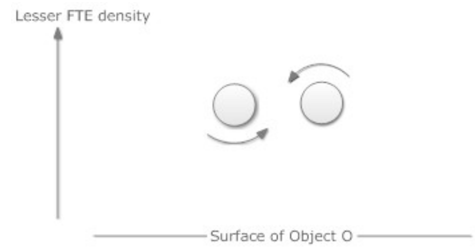

Figure 4.1: Two electrons with parallel spinning vectors

There is two possible phenomena in the general case of two electrons. The first one emerges from the flux handedness and it's behind second law of TOEBI. Parallel spinning vectors generate attractive force and antiparallel generate repulsive force between the electrons. Flux handedness also alters electrons' spinning vector orientations. If electrons or the other electron is allowed, the outcome from flux handedness will be antiparallel spinning vectors (**Flipping Postulate**) for the electrons.

Second phenomenon, which shows its strength at high energy electron collisions, is the repulsive force emerging from the increasing FTE density in between the colliding electrons. We should call this force as FTE density induced repulsive force and it acts only a very small amount of time during the collision.

By-product from the FTE density induced repulsive force (= high concentration of FTEPs) is ofter new particle or particles.

Three Electrons

The case of three free electrons set up in equilateral triangle shape is very interesting because the distances between electrons equal.

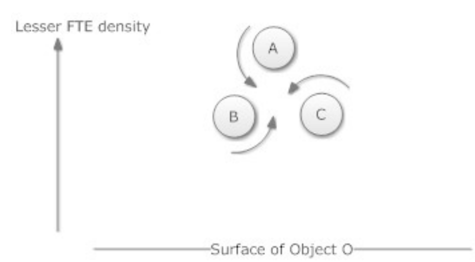

Figure 4.2: Three electrons with parallel spinning vectors (pointing upwards from the page plane)

Electrons having parallel spinning vectors experience attractive force towards each other as stated by second law. But because the flux handedness electrons tend to change their spinning vectors antiparallel to other spinning vectors. Obviously that can't happen with three electrons.

Outcome from such a situation is mostly like a constant spinning vector rotation for all three electrons. We won't go any deeper into this case for now.

Bound State Electrons

Some bound state electron configurations are capable of generating magnificient interactions with other bound state electron systems or with free particles. Let's focus on such bound state electron configurations which **prevent** their unpaired electrons from changing their spinning vector orientations.

Let's say that we have two planes (A and B) which comply with above conditions. Plane A has one column (line) which contains n unpaired electrons with parallel spinning vectors aligned with the plane and those spinning vectors are perpendicular to the column and the same applies to plane B. What happens if we put these planes next to each other so that their unpaired electron columns are at the closest distance with given plane separation r?

Obviously the electron spinning vectors are either parallel or antiparallel between the planes, depending on which way we put the planes together. Because those unpaired electrons are in our defined bound state they won't change their spinning vector orientations in such a situation.

More about bound state electron interactions in Magnetic Field section.

Electron - Composite Particle

Particle - Pattern

*** continue

All Together

*** continue

Repulsive Force in Details

Wave pattern dissappering. *** continue

At this point, we have everything we need to take over quantum mechanics, standard model for particles and Einstein's relativity theories. Only the theory of everything is capable of that.

Part II

Walls

Chapter 5

Quantum Mechanics

As any other area in physics, also quantum mechanics (QM) is very rich in terms of its content. It has been developed approximately 100 years so far, therefore we won't cover all the topics in QM. It would take too much space and on top of that, it would be obsolete.

State Spaces

First of all, we won't need QM state spaces. Particles in our experiments contain all the needed information in their spinning vectors.

*** continue

Chapter 6

Classical Physics

Conservation Laws

Physics rests on conservation laws. How such laws function in TOEBI? Compressing FTEPs together create photon, which is made of 13 FTEPs. Mass of one FTEP is $\approx 7.362 * 10^{-18}$ kg, so putting 13 FTEPs together adds up to $\approx 9.57 * 10^{-34}$ kg, which obviously doesn't match with previously calculated photon mass (Planck constant's value). Conservation of mass is out also, at least for FTEPs.

9 fteps gives $6.626169596 * 10^{-34}$, *continue*

Conservation of momentum states that

$$m_1\vec{u}_1 + m_2\vec{u}_2 = m_1\vec{v}_1 + m_2\vec{v}_2.$$

What does that conservation of momentum actually means at particle level? After all, velocity is purely classical physics concept. We postulate **TOEBI conservation law** which applies if interacting particles don't annihilate all the way down to FTEPs or we are not talking about interactions which in reality **just decrease both original particles' spinning frequencies**.

$$m_1 f_1 + m_2 f_2 = m_1\vec{f}_1' + m_2\vec{f}_2'$$

where spinning vectors **after** an interaction have opposite directions.

Trivially we can conclude that following **TOEBI energy relation** applies (under TOEBI conservation law restrictions)

$$mf = \frac{1}{2}mv^2 \rightarrow f = \frac{1}{2}v^2.$$

The bridge between classical physics phenomena and TOEBI is now established.

all conservation laws...

Lagrangian

TOEBI version

Double Slit Experiment

Double slit experiment is usually conducted with photons, but it works also with any other particle or even with SoP (e.g. fullerenes). How is it possible that interference pattern emerges only if both slits are open? Even if particles are sent one by one! In some experiments, another slit was closed after particle passed slits and the result was no interference pattern. What's going on?

Moving and spinning particle generates waves into surrounding FTE and these waves make interface pattern possible in the first place. FTEPs in these waves have gained certain spinning frequency from moving particle. Particle interacts with its own waves if both slits are open. But if another slit is closed there is no suitable FTE waves to interact with hence no interference pattern.

But what's ruining potential interference pattern in a case where another slit is closed after a particle passed those slits? Waves have passed that other slit too before it was closed but still interference pattern won't emerge.

FTEPs in generated waves are compressed into a smaller volume so they are better connected with neighboring FTEPs. Closing a slit causes perturbation for waves which is instantaneously experiences by all FTEPs constructing those waves. Spikes on involved FTEPs do the trick.

In principle, it's possible to detect which slit particle went through. Slit's walls experience FTE waves at the same time when particle goes through it at approximately equal distance to both of its walls. But at the same time, the other slit experiences FTE waves differently. FTE waves bounce between slit's walls, so simultaneous FTE wave experiencing can't be detected from slit's walls.

Detection of FTE waves inside slits is easier if we use larger objects than photons. The best option might be electrons which are relatively easy and cheap to handle but generate waves much easier to detect than photons do.

If moving particle generates FTE waves and is capable of interacting with its own waves then does this mean that those waves can move faster than particle itself? After all, FTE waves have traveled bigger distance than particle because waves went through the other slit. Situation is even worse with photons, which possess the maximum particle speed! Our only conclusion is that path information of photon traveled faster than photon itself!

However, that shouldn't be too surprising, after all, we lose interference pattern instantly when we close another slit, even after the particle and its waves went through the slits. So in reality, used particle in double slit experiment has its path information **already available**. We have now enough information to explain what happens in delayed choice quantum eraser experiment.

Speed of Light

Speed of light in a vacuum is measured as being constant for all observers. What gives photon its speed? It doesn't miracleously just emerge, at least in TOEBI. Something puts photon into a motion and there isn't too many options either.

Let's say that electrons and protons have spinning frequency x at rest. What is the greatest speed for any particle which can be generated from this particular spinning frequency? That's correct, it's the speed of light. Obviously it can be achieved only if particles spinning vector directions are opposite, hence FTEP flux pushes particles apart in the most effect way possible.

What else can be considered as a factor in this process? Obviously particle's cross section which is an area (m^2). FTEP flux from both particles concentrates over that area and that concentration allows FTEPs to push those particles apart at the rate of $\sqrt{x}$. So obviously protons and electrons **at rest** have spinning frequency $\approx 8.98755179 * 10^{16}$ 1/s ($= f_{rest}$).

In principle, if we had a fast moving, light emitting, apparatus we would exceed our speed of light? Unfortunately that's not the case. Time and length are fixed as stated by TOEBI metric, so our speed of light equals the speed of light of emitting apparatus. Natural consequence from this phenomenon is light's wavelength changes. Relativity part of this book will cover the wavelength changes due to different velocities and gravitational potentials.

Flyby Anomaly

Elementary Charge

Concept of elementary charge (usually denoted as e) is **totally superfluous** in TOEBI. Mass and spinning frequency of electron and proton are the only properties needed to explain elementary charge and phenomena related to it.

We have three different cases related to protons and electrons where Second law of TOEBI applies.

- Proton electron interacts with electron (proton-electron)
- Electron interacts with electron
- Two nearest proton electrons interacts (proton-proton)

But why classical physics defines electrons as having negative charge and protons as having positive charge? Obviously, positive and negative are just conventions previously agreed upon. Proton (having positive charge) is attracted towards electron (having negative charge) as well as electron is attracted towards proton. But because two electrons (or two protons) experience pushing force "charges" have to behave so that two same charges repel each other and opposite charges attract each other, case closed.

Drawn conclusion was another major blunder in physics history, but totally understandable due to lack of better knowledge and vision. However, the behavior of two conducting wires should have stopped physicists to think twice.

Coulomb's law states

$$F = \frac{1}{4\pi\epsilon_0}\frac{qQ}{r^2}$$

where ϵ_0 is the vacuum permittivity. There is two things which should catch our attention, the law obeys the same inverse square law as gravitational interaction and it contains a constant.

Naturally physicists have pondered if gravitational interaction and electrostatic interaction have the same origin, but due to the vast magnitude difference between the interactions no such origin hasn't found. They missed totally the crucial piece from the puzzle, spinning phenomenon.

The vacuum permittivity constant is defined as

$$\epsilon_0 = \frac{1}{\mu_0 c^2}$$

where μ_0 is a constant called vacuum permeability, which is just suitable value with suitable units used in Ampere definition. Because TOEBI is the theory of everything we'll calculate the force in the setup used to define 1 Ampere. Before that, we'll need some elementary knowledge how electrons behave in electric current.

According to Second law of TOEBI, the force attracting two electrons, having the parallel spinning vectors, towards each other is

$$F = G_e M_e^2 \approx 6.7 * 10^{-27}\text{N}$$

As we can see, the force between those two electrons is extremely small and practically unmeasurable.

Static Charges

Let's say that we have an imaginary closed surface A with some reasonable assumptions. A is capable of containing free electrons on it in such a way that electron spinning vectors are mainly aligned with nearby surface area and A doesn't decrease significantly speed of moving electron. How does a free electron behave on A?

Elementary Charges

Let's say that A contains only one free electron. If we bring a test electron (with fixed spinning vector aligned to the surface of A) near the electron on A that surface electron starts to interact with our test electron. If electron spinning vectors are pointing to an opposite direction then the surface electron travels away from the test electron.

If electron spinning vectors are roughly pointing to a same direction then the surface electron would come and stay as close as possible to the test electron.

We should make a mental note about this phenomenon. Depending on initial electron spinning vector orientations, electron on A is either attracted towards our test electron or repelled away from it. Described phenomenon plays the key role in **Stern–Gerlach experiment**.

Negative Charges

How multiple electrons behave on A? Without external interactions an electron interacts with its neighboring electrons and the result is a bunch of colliding electrons. Depending on properties of the material and external conditions, A can contain certain amount of electrons on it. Those electrons are not ordered in any way, their spinning vectors point on every direction, but they are mainly aligned with the surface.

If we bring an external electron near A it would interact with all kinds of electron spinning vectors and the net force would be more or less zero, at least to the certain point. Let's say that we have two identical closed surfaces, A and B, and they both contain some large amount of electrons. What will happen when we put those surfaces to a proximity?

Electrons on the side facing the other surface start to "feel" a denser FTE between the surfaces. Electrons on both surfaces get grouped together according to the bigger FTE density. Finally the surface which has bigger total charge induces anti-parallel spinning vector direction to electrons on the other surface. This phenomenon happens if surface material doesn't prevent it from happening, for example a charged balloon.

Picture here?

Based on Second law of TOEBI, electrons having anti-parallel spinning vectors generate pushing force and that is exactly what will be experienced between A and B. Instead of letting those surfaces interact naturally we could hold them still during their interaction. What would happen? After the initial kick, nothing, surfaces won't repel each other anymore, unless we once again move them closer to each other.

Negative Charge vs. Positive Charge

Classical physics calls the situation where there exists a deficit of electrons as a positive charge. Let's say that we still have those two closed surfaces, A and B. But this time, surface A has a deficit of free electrons and surface B has a surplus of free electrons.

Let's bring these surfaces close to each other and again electrons on B start to experience the denser FTE. But due to the absence of free interacting electrons on A, electrons on B experience only pulling force towards A. It's the same phenomenon which occurs with interacting proton and electron.

Electric Field

There is no electric field per se, spinning particles just interact with each other through the local FTE, that's all. Surely we can create an abstraction such as electric field but it's totally superfluous, so we shouldn't do that.

We have now demonstrated how classical electrostatic phenomena emerge in TOEBI. Things get really interesting when we realize that the mechanism behind magnetism emerges ridiculously easily based on spinning electrons.

Electric Current

We can put "charged" particles with a same sign in a motion just by pushing them with those very same particles. Classical physics calls this phenomenon as electric current. Normally, particles moved in an electric current are electrons.

What happens at atomic level when we put those electrons in motion? Let's say we have a battery and a circuit which has a resistor constraining electric current to the certain amount of electrons through the wire's cross sectional area per second. Until we close the circuit nothing happens.

Immediately after closing the circuit, stored electrons in the battery and in the wire between the battery and the switch get more volume to spread out. Moving electrons interact with free electrons already at present in wire. Due to electron spinning frequency the spreading happens at the speed of light, until electrons hit the resistor which starts to regulate the speed of electric current.

What happens to those moving electrons? They get organized in very exciting way. Because charge density is high, moving electrons arrange themselves in similar manner than electrons described in electrostatics chapter. Neighboring electrons end up having parallel spinning vectors.

The cause for this phenomenon is quite obvious. Electrons penetrating into a wire cause free electrons already in wire to change their spinning vector orientation. At first, those spinning vectors turn throughout a cross section of wire perpendicular to incoming electrons. Incoming flow of electrons turn spinning vector orientations eventually into repulsive "mode", but at the same time, resistance (repulsion) from free electrons on the other side turn all spinning vectors aligned with electrons' motion.

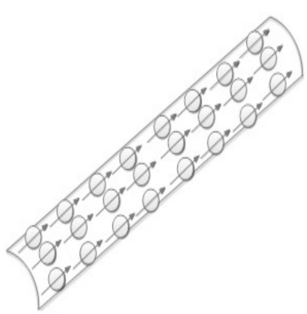

Figure 6.1: Organized electron spinning vectors

Every time when electrons are put on a motion as in an electric current the outcome is the same, electron spinning vectors get aligned with electrons' motion and they point to the same direction (towards the source of electric current).

Electrons moving on the surface and just under the surface generate electric and magnetic fields.

Ampere

Let's assume that we have two copper wires (AWG 28, 0.08 mm^2) 1 meter apart. Half of the surface area of each wire interacts with another wire, so the effective surface area per wire is $5.01 * 10^{-4}$ m^2. We shall exclude the effect generated from electrons under the surface.

So how many electrons we need in order to generate a force as big as $2 * 10^{-7}$ between the areas? We know electron spinning frequency and mass, so by resolving x from equation

$$2 * 10^{-7} = 2 * G_e x^2 M_e^2$$

gives the amount of needed electrons per surface area which is $\approx 5.46 * 10^9$. Charge density is the same throughout the wires, so how many electrons there are per wire cross section? And what is the drifting speed of those electrons?

*** continue

Magnetic Field

In general, magnetic fields emerge from two sources, from electric currents and magnetic materials. But in both cases, the underlying mechanism is exactly the same, organized electron spinning vectors. Therefore, magnetic field is not an independent phenomenon per se.

By Electric Current

Electric current, as described in earlier section, causes observable effect between two wires. If current is fed to the wires through the same end then electron spinning vectors in both wires are parallel. According to Second law of TOEBI, generated force is therefore attractive.

If we feed current through the opposite ends of the wires we have a situation where both wires have their own, anti-parallel, electron spinning vector direction. According to Second law of TOEBI, generated force is therefore repulsive.

By Magnetic Material

At this point, we won't go too deep into the mechanism behind magnetic materials. It's sufficient to say that magnetic materials are capable of having more or less organized arrangement of electron spinning vectors for its unpaired electrons. Because spinning electrons generate magnetism there is one direct consequence, **magnetic monopolies are obviously impossible**.

In ferromagnetic material, unpaired electrons are organized in such a way that neighboring electrons have their spinning vectors approximately parallel. Imperfections in a magnetic material generate so called magnetic domains and unpaired electrons in such domain have their spinning vectors precisely parallel.

In antiferromagnetic material, unpaired electrons are organized in such a way that neighboring electrons have their spinning vectors approximately antiparallel. Every free electron has four closest neighboring electrons which have parallel spinning vectors but which are anti-parallel to the electron itself. Naturally, such pattern generates extremely poor "magnetic field".

Adhesive Force

Let's say that we have a large, ideal homogeneous magnetic field in classical sense. The easiest way to create such a magnetic field is by putting two symmetrical magnetic poles (Picture 6.2) face each other with a gap between them.

If we look at the setup from TOEBI point of view we realize that electron spinning vectors are parallel on both poles. Obviously, if we want attractive force between the poles those electron spinning vectors have to be parallel according Second law of TOEBI.

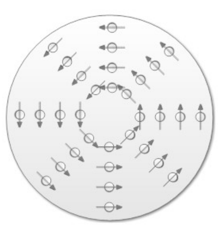

Figure 6.2: Magnetic pole from above

Let's say that we have two cylinder shape iron magnets with dimensions $r = 0.5$ cm and $h = 0.5$ cm having their magnetic axis along their height. Based on their volume and iron density we can say that each magnet is made of $\approx 3.334 * 10^{22}$ iron atoms. So in the ideal case we would have $n \approx 1.33 * 10^{23}$ unpaired electrons per magnet participating in generating the magnetic field.

In theory, we can calculate the force between the two attached magnets by calculating the force (by second law of TOEBI) between their center of masses with given number of unpaired electrons.

$$F = n * G_e \frac{m_e^2}{h^2} \approx 17.88 \text{ N}$$

In practice, due to differently orientated magnetic domains and blocking caused by magnet's atoms gained force won't be as high as calculated theoretical value. Generated force could hold ≈1.8 kg object in the air, more realistic amount would be ≈0.18 kg or something like that.

Unpaired electrons in a magnet have their spinning vectors "locked" into a certain pattern which prevents electrons from flipping their orientation in presence of another magnet. However, those spinning vector orientations change a bit when magnets are attached or at very close proximity to each other. FTEP flux handedness causes the phenomenon. In case of free electrons, flux handedness causes spinning vectors to find antiparallel orientations. In case of attractive magnets these tiny spinning vector orientation changes increase the force between two magnets.

At close proximities, repelling magnets experience also spinning vector orientation changes. Pushing force between fixed electrons' spinning vectors causes electrons to be pushed as far as possible away from each other. Due to magnet's internal structure, which is holding those spinning vector orientations fixed, those spinning vector orientations get a bit of misaligned which reduces the experienced repulsive force.

Lorentz Force and Electron

What happens when free electron enters a magnetic field? What happens when free electron moves in a magnetic field?

In general, particles with reduced spinning frequencies or bigger mass have their trajectories bent less sharply than particles with normal spinning frequency f_e or smaller masses.

Spinning Vector Rotation

Electron

We can see (Picture 6.4) how an electron enters the magnetic field (upper magnetic pole is excluded from the picture).

Positron

*** continue

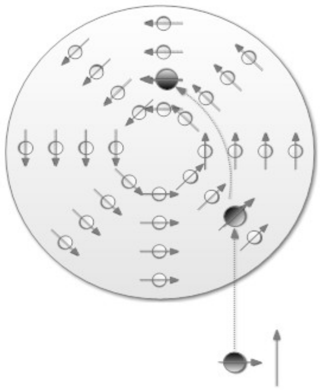

Figure 6.3: Electron in magnetic field

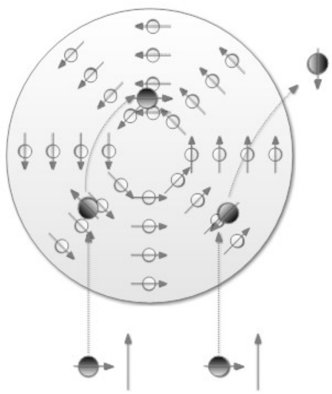

Figure 6.4: Positron in magnetic field

Guiding Center

In many cases, we are interested in how particles behave when they gain a balanced circular motion in a magnetic field. Centripetal force keeping particle in its circular orbit is

$$\vec{F} = \frac{mv^2}{R}.$$

Can we calculate a radius if we know a particle mass and its velocity?

*** continue

Lorentz Force and Proton

Proton

*** continue

Antiproton

*** continue

Conserved Spinning Vector Rotation

*** continue

Chapter 7

Particle Physics

So far, we have recognized four different particles (with their radius)

- proton: $\approx 2.3074 * 10^{-14}$ m
- electron: $\approx 5.3848 * 10^{-16}$ m
- photon: $\approx 1.4523 * 10^{-17}$ m
- FTEP: $\approx 4.8410 * 10^{-18}$ m

FTEPs are the most fundamental particles existing and they provide the medium for all force interactions. Photons and electrons are compressed from FTEPs, so in a sense, photons and electrons are not elementary particles.

On the other hand, we shouldn't call them as composite particles because FTEPs in those particles don't "function" as an independent particle, they are just compressed together.

Equilibrium State

*** continue There is derived equation for repulsion

In equilibrium state, attractive force between particles equals with repulsive force generated by repulsive wall. It means that due to numerous FTEPs particles can't spinning through them all. Equilibrium state can be found from core of any composite particle. Factors involved in equilibrium state are particle spinning frequency and mass.

Half of particles' energy get involved in equilibrium state between two particles, so those energies define the equilibrium distance between particles. In case of parallel spinning vectors following applies for two particles

$$r_1 + r_2 = \frac{1}{2}E_1 + \frac{1}{2}E_2 = \frac{1}{2}f_1 m_1 + \frac{1}{2}f_2 m_2$$

where f is spinning frequency and m is particle mass.

Balanced distance (center to center) between two electrons without any dampening (e.g. caused by nucleus) is $\approx 4.09 * 10^{-14}$ m.

Proton

Proton consists of three plain vanilla electrons (no quarks of any flavor needed) and it has a measured mass. According to TOEBI, proton radius is $\approx 2.3074 * 10^{-14}$ m (R in Figure 7.1). However, contemporary particle physics has measured and calculated proton (charge) radius to be $\approx 0.88 * 10^{-15}$ m. Why's the difference?

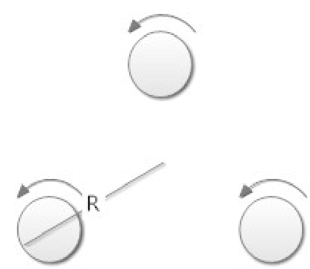

Figure 7.1: Proton

Particle generated by three electrons having their spinning vectors parallel generate very dense FTE between and around them. This dense FTE functions as a buffer between particles, it prevents physical collisions between proton electrons as well as physical collisions caused by incoming particles. By physical collision, we mean a direct contact between the incident particles, no FTEPs between them.

If we bombard protons with other particles those proton electrons and FTE between them react accordingly, gap between electrons get smaller. Harder we bombard smaller the gap. Contemporary particle physics has measured proton size with the method described above. Scattering particles from pinned down proton electrons give totally wrong idea about proton size.

What is the trick with protons (and neutrons)? How three electrons with parallel spinning vectors can stay together? Obviously some external force has pushed three electrons so close to each other that the FTE density is higher outside the system of three electrons than "inside". How such a system can function?

*** continue

Quarks?

Contemporary particle physics states that proton is made of three quarks and quarks come in many flavors and masses, including their anti-quarks. How this kind of plunder has happened at the first place?

The problem is the way how protons have been studied. In order to get those quarks interacting with other particles and fields, protons are collided with near c velocities. High energy collisions can lead to many proton electron spinning frequencies and configurations, but observably some outcomes are more probable than others. Can we conclude which outcomes are the most probable? *** continue

Behaviour

How does this construction of three electrons behave in various conditions? *** continue

Part III

Roof

Chapter 8

Black Holes

Current understanding among cosmologists is that every galaxy has a black hole in its center. However, the real underlying problem is the poor contemporary knowledge about how objects interact in every scale. Object spinning frequency distributes in a significant way (in squared manner) to interactions, but currently it's **ignored completely**!

According to TOEBI, black holes are not needed and on the other hand, it might be that such an object can't even exists by TOEBI, at least for a long periods of time.

Neutron Star

642 Hz, tarviiko isoa massaa? no ei

Current Evidence

One good example as a black hole evidence comes from the study of stellar orbits near the center of Milky Way [1]. According to the study, there exists a black hole in the center and its mass is roughly $4.3 * 10^6$ times the mass of our Sun.

***continue

Chapter 9

Dark Matter

Chapter 10

Dark Energy

Chapter 11

Antimatter

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Monitoring stellar orbits around the Massive Black Hole in the Galactic Center

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