A brief overview of the new order in the Universe

It's great that you think about this stuff

99 years after General Relativity

FLIPPON

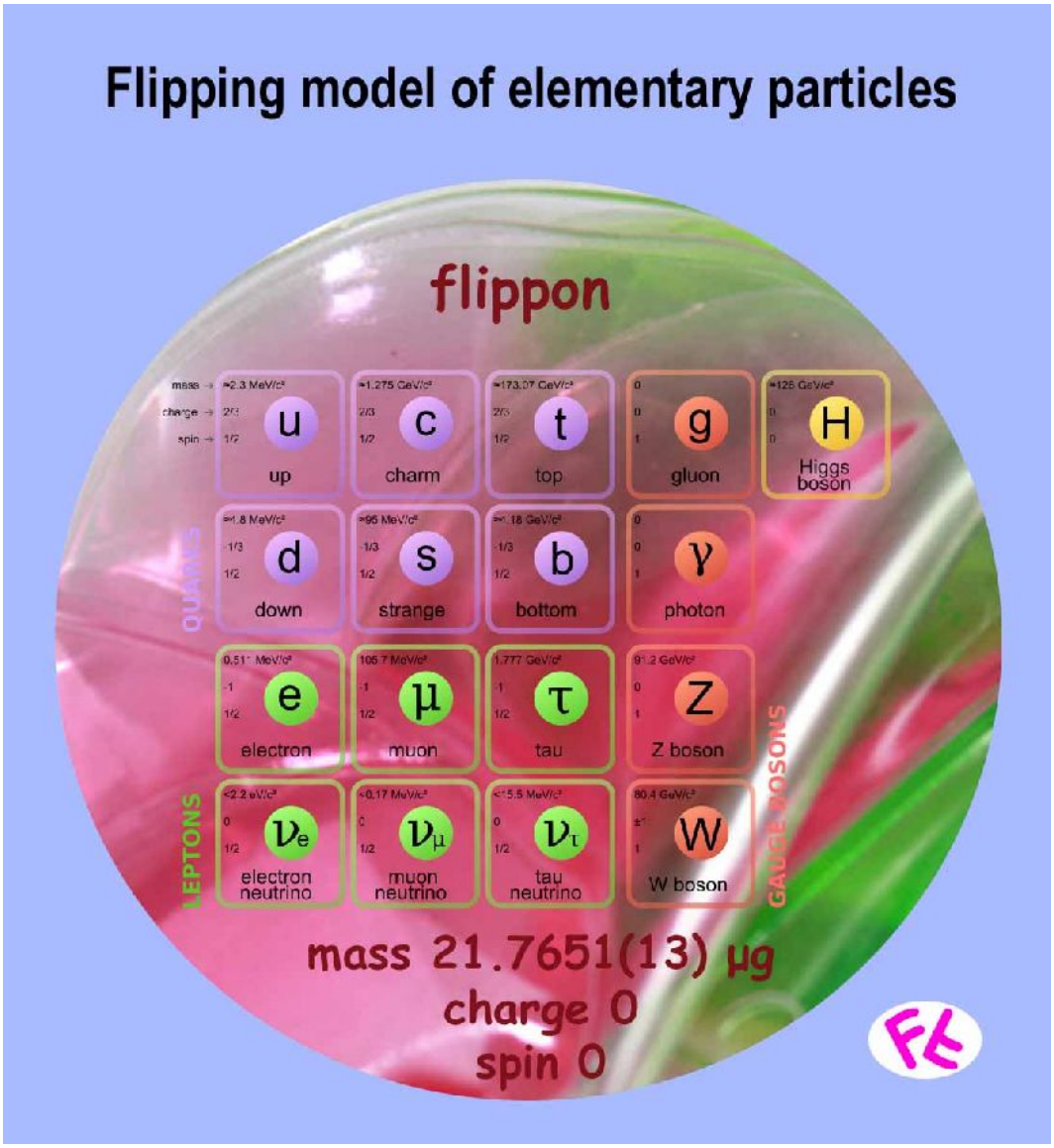
Mini novel of Krunomir Dvorski

Reality must be a continuous stream of changes driven by universal laws such as:

Incipient Law of Creation
Law of Last Evidence
Law of Aging Photons
Law of Abandonment Origin

- 2015 -

The Flipping Theory



Flippon is the elementary particle and basic building block of the universe from which was produced all other particles by own breakage

**This novel is written with poor English language. Keep in mind that there may be spelling and grammar errors. Sorry for the discomfort.*

The Flipping Theory

Monograph on t*he Flipping Theory* :

FLIPPON

First edition

Krunomir Dvorski

New Laws:

Incipient Law of Creation
Law of Last Evidence
Law of Aging Photons
Law of Abandonment Origin

New words and terms:

flipping theory - new framework for understanding large scale phenomenology of our universe
flippon - the elementary particle and basic building block of the universe from which was produced all other particles by own breakage
flippmint - small clumps of dark matter from which can not arise ordinary particles.
flipptant - clouds with large presence of flippons which can trigger a new process called *Massaggregation*
force of origin - the force that resists the removal energy from place of origin.
goo - untouchable particles from space of property (SofP)
goo-collision - collision between goo particles in space of property (SofP)
Incipient Creation - *The process of creating flippons by Flipping transformation*
Incipient Law of Creation - law of physics
Law of Last Evidence - law of physics
Law of Aging Photons - law of physics
Law of Abandonment Origin - law of physics
Massaggregation - crushing flippons into a large number of elementary particles
place of origin - the place of creating or converting energy from one form to another
SofP - space of property - an unusual blend of the real world without mass, space and time
SofR - space of reality - everything that physically exists, what we see, what we hear, what we feel, and everything what we can measure
Tuva Diagram - the process of Massaggregation in a symbolic way

This novel is based on a wide range of research in physics and cosmology.
Sketchy answers to questions about the universe forced me to look for new solutions. The result is

The Flipping Theory

with four new laws of physics. If anyone is surprised, I would ask them to look at other theories first and then read mine. Please note, we are trained to follow the extravagant Big Bang and its collaterals. Theoretical background does not allow us to see things beyond the scope of standard theories. The road to the acceptance of new theories and new laws of physics is a long and bumpy.

My thanks to all schools that enable free education through the internet lectures.
I thank to Community of Waterloo Region with several schools and universities who popularize science.
Special thanks to the Perimeter Institute for Theoretical Physics.
Thanks colleagues.
Most of all thanks to my wife Gordana and my children Sandra and Dalibor

Krunomir Dvorski

Kitchener, February 8, 2015

**This novel is written with poor English language. Keep in mind that there may be spelling and grammar errors. Sorry for the discomfort.*

Table of Contents

Flippon

Mini novel of Krunomir Dvorski

Excuse me for my arrogance on. We are trained to follow the extravagant Big Bang and its collaterals.
Theoretical background does not allow us to see things beyond the scope of standard theories.

Dark matter is made of flippons. Flippon is a huge massive particle and carrier of mass, space and time.
Elementary particles of ordinary matter have been created by crushing flippons.
Dark energy is dark side of science and insufficient knowledge about properties of light.

**This document is written with poor English language. Keep in mind that there may be spelling and grammar errors. Sorry for the discomfort.*

Abstract

During the past decade *Flipping theory* has become framework for alternative understanding large scale phenomenology of our universe. This novel is describing origin of flippons and its role in the creation of ordinary matter; also, define and describes a flippon as solution to the dark matter problem; reveals number of *new natural laws*; and creates a new history of the universe. Universe is not as old as you think.

At the time of formation, flippons cause three basic processes: *mass sumation*, *volume summation*, and *time flow*. After creation, under the influence of gravity, flippons are being accumulated into *flipptant* and *flippmint* clouds of dark matter. Too large presence of flippons triggers a new process called *Massaggregation*, which is beginning of elementary particles.

In general terms, a *flippon* is the elementary particle of dark matter and basic building block of the universe from which was produced all other particles by own breakage.

Introduction

Try to imagine, you are in the center of something called the universe. You are the tiny object, entity that tries to understand yourself and the rest of the universe. Between you and universe there is a continuous exchange of information and experience, there is an energy-stream that manifests itself in various forms. The question is, where is the cleanest part of that stream, which may explain our origin and our existence? What is the fundamental thing that connects cosmology and particle physics? To answer these questions we must look beyond the most popular Big Bang Theory and Big Crunch possibilities.

Creating a new alternative cosmological scenarios versus standard Big Bang scenario is more than crazy idea. It is not easy...almost impossible. Why? *We are trained in the Big Bang belief.*

Big Bang is widely accepted in the scientific community. Big Bang is most tuned with observations of the past and present states of the universe. Big Bang is a wonderful story that is hard to give up. Big Bang is a multi-billion dollars business with thousands of researchers and billions supporters. This industry is in every pore of our lives. Science, engineering, arts, sport and entertainment are overwhelmed by the idea of Big Bang.

Nevertheless, there is a small glimmer of hope. The secret lies in the fact that Big Bang theory does not provide

an explanation for the initial conditions of the universe. Fine-tuning and interpretation of results of measurements reaching the level of unproductive research. We need new ideas and new ways. The theory that will explain dark matter and dark energy, will take a leading position in physics.

It seems that dark energy is a result of insufficient knowledge about properties of light, and misinterpretation and misuse of the Doppler effect. This cognition is changing the history of the universe.

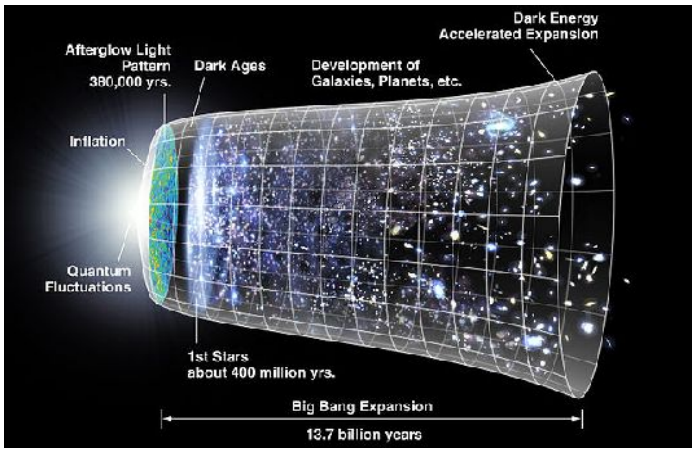
At the same time, dark matter is a mysterious type of matter that magically explains same of the gravitational effects on light, on visible matter, and large-scale structures of the universe. It appears that the nature of dark matter is fundamental to cosmology and particle physics also. *There is a small society of believers.*

Worldwide research does not provide answers about origin and composition of dark matter. Opinions are divided between baryonic and non baryonic dark matter. Some physicists believe in a modified version of Newton's gravity. Some connect it with neutrinos. Many astrophysicists believe that dark matter is made of weakly interacting massive particles (WIMPs). From recent research seems to be the WIMP is in difficulty. The latest research indicates that dark matter is pure energy without elementary particles. This concept is supported by M-theory.

Let's move it in new direction: "*Dark matter is made of extremely simple massive particles (MP), called flippons*". The nature of flippons is fundamental for cosmology and particle physics too. Flippons are sustainable particles in virtually all theories. They are missing link between creation and existence of our reality. Ordinary matter is formed by crushing (*Massaggregation*) of flippons into elementary particles.

Physics gets stuck. What is Wrong?

Today's physics attempts to put too much into nothing. Singular point of beginning is loaded with infinite energy density and infinite temperature. Big Bang is so forced and violent that it is difficult to imagine and believe in such properties of nature. Also, the Cosmic inflation as the extremely rapid exponential expansion breaks all laws of nature, including human-mind. It is difficult to imagine that the entire energy of the universe was created (or transformed) in the almost no time. Right after that, space expanded faster than the speed of light.



Credit: NASA/WMAP Science Team

One last look at the Big Bang

Big Bang theory does not provide an explanation for the initial conditions. Universe is widely accepted as a homogeneous and isotropic system. These assumptions are known as the Cosmological Principle .What does this mean and is it true?

Isotropic universe (identical in all directions) is easy to show and prove. Just look into the depths of the universe, and you will be convinced of the monotonous image in all directions. All over are visible 'crumbs' of energy. Physical structure and the effects of physical laws are identical. Amplitude variation of the energy density is surprising small, just 1/100000.

The second part, homogeneity of the universe can not be proved by observing from a single point. Observation must be performed in various places, possibly from a deep space. The question, *whether we are in the center of*

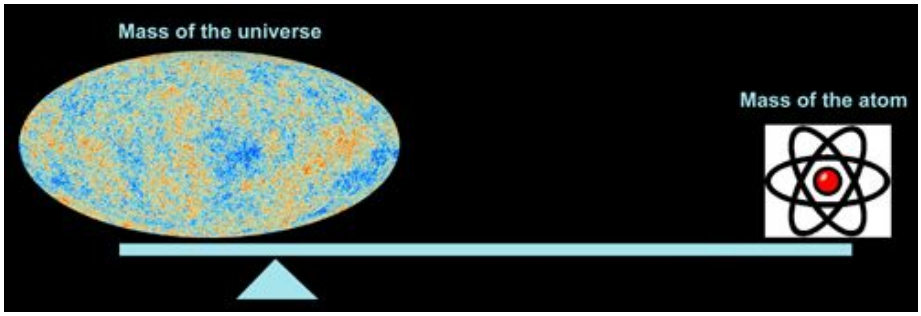
the universe, crashes theory of homogeneity. Universe does not have to be homogeneous if we are in the center. Otherwise, the lack of homogeneity would be visible. Inability of confirmation imposes an idea of human-centric universe. Simple terms, we are in the center of the universe. Our part of the cosmos is the oldest, in a broad sense. Being the oldest in the center, changing history of the universe. Of course, this assumption has not been verified, but surprisingly is very possible.

Two branes in Ekpyrotic - Endless - Cyclic Universe

In recent years, was proposed by Justin Khoury, Burt Ovrut, Paul Steinhardt and Neil Turok theory of Ekpyrotic-Endless-Cyclic Universe, where space and time have always existed, and exist forever. Big Bang is no longer the beginning of time, it is a bridge to a per-existing contracting era. This universe is a continuous cycle contraction in a big crunch and re-emerging in an expanding Big Bang. The Inflation has not taken place, infinite temperature and infinite density of the universe is avoided.

Endless Cyclic Universe tries to put too little into infinity. It's almost the same like trying to put too much into nothing. What is Wrong? Infinite space and infinite time lead us into no touching part of universe with countless number of solutions. Everything is transformed into mathematical modelling to taste. In such circumstances, the extrapolation results of measurement becomes meaningless.

Fundamental nature of man can be described as states that allow all forms of freedom (freedom of thought, freedom of religion...) including freedom to choose benchmark frame for the deepest questions. Most of answers about the universe is based on the unproven initial conditions. Desiring to create theory of everything string theorists are going farthest. They have an avalanche of ideas with ten dimensions. They literally try to cover everything. Instead of being a theory of everything, it is more like a math exercise and theory of anything. How much is enough? Is it too much...? Of course, never too much. But, whether we can set up a new foundations that will change our vision of the truth? One thing is sure, we need stronger principles, the theory mast be simplified and made more complete. Elementary beauty and simplicity of natural laws must be the engine of future research. It is contrary to human freedom of choice, but useful.



Christof Wetterich (University of Heidelberg) proposes that the expansion of the universe is an illusion caused by the steadily increasing mass of everything as the universe ages

We still do not have a choice for experiments of large scale. Watching the universe is based on information that we receive. Incoming information we collect, sort and analyze. These tree elements of action (collect, sort and analyze) are crucially important for bilding a big picture. We process data and compare with available theories. In very rare cases we discovered of new laws. Is the nature poor, or our blindness is higher than creativity?

Current physics is too dogmatic, elevated to clouds of phenomenology. There is a great war between the experts of physics. In some moments it seems to me that we hit a wall behind which there is nothing but big questions. We desperately need stronger principles and new laws that will separate unproductive fantasies from productive physics. Let's follow reality. Leave 'Easter Bunny' for fun.

Rules and Statement

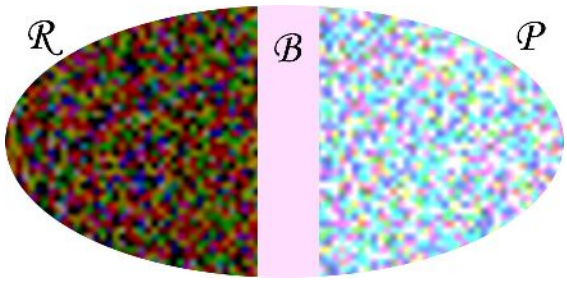
According to Oxford Dictionaries 'Rules' are *set of explicit or understood regulations or principles governing conduct or procedure within a particular area of activity.* They may also refer to laws *or principle that operates within a particular sphere of knowledge, describing or prescribing what is possible or allowable.* For any set physical rules, we can construct a mathematical statement which, if we believe in the validity of rules, we accept it as a true. The resulting statement cannot be proved by rules alone, but may be or may not correspond with reality. In many cases the agreement with reality is manipulated with the wrong vision of reality. This is exactly what has happened with the Big Bang Theory. This will happen with the fictional "One ball universe" also (see picture).

The One ball universe - Look at this picture. Try to define the universe and laws of nature, based on a room with a view through a window. Outside is the stone ball only, with shadows on a flat surface. Shadows are changing in the cycle of day and night. The light source is not visible. This simple example raises many questions such as: Why there is only a flat surface and the ball; Is a flat surfice really flat; How big is a flat surface; How big is the ball; When and how is formed ball; What is inside, under and around the ball; What creates a shadows?... Answers to these questions can be manipulated at will.

Credit: Irina Zeger Plese, DZZP

Acceptance of Big Bang stories led us to unsolvable problems whose number is growing by the day. Continuous tuning of natural phenomena leads us to the wonderful world of mathematics. This is a fantastic exercise, but science must be returned in real reality and new stores that will explain dark matter and dark energy. The question is: What is the fundamental thing that connects cosmology and particle physics? ... Believe it or not it is the *flippon*.

The Flipping theory universe



The Flipping theory universe by Krunomir Dvorski. R is space of reality, P is space of property and B is barrier between spaces

Definition of the universe is first stone of stumbling to the truth. There are many of them. Essentially starting point is one universe or one multiverse. Multiverse emphasizes the existence of many universes that are more or less similar to our reality. Years of thinking about the laws of physics, many theories, various speculations and intuition led me to the minimized definition:

Universe is indestructible trinity of two spaces (reality and property) and barrier between them.

First space is our space of reality **R**, with everything that physically exists, what we see, what we hear, what we feel,

and everything what we can measure. *Second space* is the space of property **P**, located on the other side of barrier **B**. Space of property (*SofP*) cannot touch, interact and detect space of reality (*SofR*), but can communicate by "flipping" in the certain way. Flipping is the transformation (skipping) from *SofR* to *SofP* and vice versa. The barrier is a temporary energy storage that allows separation and transformation between two spaces. To skip from our space (*SofR)* into the *SofP* a certain amount of energy must be spent (lost). This energy must be in the form of *disappearance of matter, space and time.*

As I said, *SofR* is everything that physically exists from tiny particles to galaxies. It includes observable space, time and all forms of matter and energy. *SofR* is often identified with the universe, which is not correct. Universe goes much further than our space. Universe is trinity of *SofR*, *SofP* and barrier between them.

Whole reality is built from chunks of reality that are connected and described by well known physical laws. Every chunk of reality has its own properties like volume, mass, temperature, hardness etc. Properties are sealed (captured). Any attempt to isolate properties (like space or time) from real chunk results in the change or disappearance of reality. Disappearance as a physical phenomenon in a broader sense of the term is the Flipping Transformation.

SofP is located on the other side of barrier and built from chunks of property. In that space all physical processes were stopped. Mass, space and time as part of our reality are unknown there, the reality is sealed and frozen, and cannot touch, interact and detect our space. Foolish and unknown laws control that space. Explanations can be logical and illogical. Almost anything is possible as much as we want. The links between theory and experiments are eliminated. *SofP* appears as an unusual blend of the real world without mass, space and time. In this space are all our unprovable theorys, including the theory of the existence of multiverse.

Many people used to say, *the universe is perfect, simple, smooth and beautiful*. Our reality is real, more real than we think. Pushing science further, without new laws of large scale, creates illusion and speculative science.

SofR is a continuous stream of changes driven by known physical laws and new ultimate laws of physics such as Law of Last Evidence, Law of Aging Photons, Law of Abandonment Origin, Incipient Law of Creation (previous name: Ohm's Law of the Universe), and The theory of breaking flippons (*massaggregation*). *All that stuff is unknown and unexplored.* Summarized touch is here in this article.

Flipping theory begins with all parameters zero; gives us a smooth transformation of nature, and the beginning of reality without violence. Space time and mass (energy) started with *Prime Spark* and with continuous transformation of *SofP* into flippons, as elementary carriers of our reality. Distant future is not predictable without laws of very large scale.

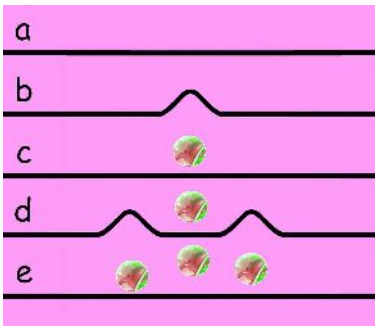
Prime Spark and origin of the mass, space and time

Questions about the origin of mass, space and time are big. There are many interesting theories. Neither of them does give complete, accurate and testable response. I have experienced them in a different way. After my discovery of *Flipping theory* and *Incipient Law of Creation* (previous name: *Ohm's Law of the Universe*), things become different. *I found that space, time and mass are a consequence of the uncertainty principle and relativity, driven (powered) by Incipient Law of Creation.*

Let's see what set the mass, space and time?

"Before" creating our real world (space of reality - *SofR*), there is a simple space of property (*SofP*). The entire universe looked like a big ocean without islands, or like a straight line as seen in Fig.a, filled with chunks of property. That line is not visible or palpable from the real world. Mass, space and time did not exist. Some

unknown force of *Incipient Law of Creation* have caused slight rippling of line (Fig.b). The biggest ripple sparked a desire to create a singular point. Before the occurrence of singular point the rippled line began liberated mass and space (Fig.c). Time as a result of the order of things appeared immediately after the mass and space (Fig.e).



Prime Spark

The first spark was beginning or birth of our reality. I call it the *Prime Spark*. It was something like a Big Bang but not as great and violent as the Big Bang. It was smooth and continuous process of creation of mass, space and time, driven by *Incipient Law of Creation*, which continues today with the same intensity.

Mass of the universe after one second was 4.037×10^{35} *kg*, which is about two hundred thousand solar masses. Volume was very small compared to the current dimensions of the universe. Mass density was constant, uniform but not infinite. The evolution of our reality has begun. Mathematical interpretation follows.

Incipient Law of Creation (previous name: Ohm's Law of the Universe)

The general idea is to create a new frame of reference for the smooth continuous nonviolent creation of our reality. Singular point, infinity and the Big Bang are so forced and violent, that it is difficult to predict, imagine and believe in such properties of nature. Also it is hard to imagine that the material world was created out of nothing in almost no time. There is no place for the infinitely small and infinitely large values in the physical world.The broken laws of nature are not acceptable. Universe must be smooth. Reality must be a continuous stream of changes. The beginning must be in reasonable physical boundaries.

Imagine *Prime Spark Beginning* and a continuous growth of mass and growth of volume by flipping from *space of property* (*SofP is* an unusual blend of the real world without mass, space and time). The formed space of reality is homogeneous and filled with particles, ... photons did not exist. Created 'particles' are the only carrier of space, mass and time. Average density of space has a critical density of flat universe and does not change in time. Created volume is equal to the total volume of particles. It means that particles have a critical density also.

This new frame of reference promises a nonviolent creation of our reality, and accepts the idea of birth, growth and evolution of our reality. In this a modest description we can not avoid many questions such as: What are those strange particles, and how they fit into the standard model of elementary particles? How they have become? What is the fate of our reality?... You'll find the answers on below.

In physics, Planck units are physical units of measurement based on the five universal physical constants: speed of light in a vacuum c, gravitational constant G, reduced Planck constant $\hbar$, Coulomb constant k_e, and Boltzmann's constant k_B. All of them are related with at least one fundamental physical theory, such as: Newtonian gravity, special and general relativity, quantum mechanics, electrostatics, statistical mechanics and thermodynamics. The first three of these constants (c, G, and $\hbar$) are sufficient to define the Planck length l_p, Planck time t_p, and Planck mass m_p. They are presented through the basic structure of the laws of physics with the following equations:

$$l_p = c \cdot t_p \qquad F_p = \frac{m_p \cdot l_p}{t_p^2} = \frac{G \cdot m_p^2}{l_p^2} \qquad E_p = \frac{m_p \cdot l_p^2}{t_p^2} = \hbar \cdot \left(\frac{1}{t_p}\right)$$

Where F_p is Planck force and E_p is Planck energy.

Solving the three equations above gives us the value of Planck units as follows.

The Planck length l_p:

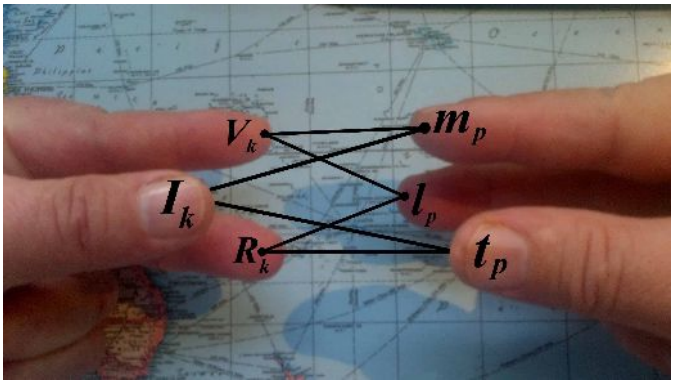
$$l_p = \sqrt{\frac{\hbar \cdot G}{c^3}} = 1.616199(97) \cdot 10^{-35} m$$

The Planck time t_p:

$$t_p = \sqrt{\frac{\hbar \cdot G}{c^5}} = 5.39106(32) \cdot 10^{-44} s$$

And the Planck mass m_p:

$$m_p = \sqrt{\frac{\hbar \cdot c}{G}} = 2.17651(13) \cdot 10^{-8} kg = 21.7651 \mu g$$



The six fingers interpretation

The aforementioned units above play an important role in explaining the origin of material world. *Planck length* is the smallest measurable length. *Planck time* is the smallest measurable time required for light to travel, in a vacuum, a distance of Planck lenght. *Planck mass* ***is the greatest amount of mass which can be in one vast particle called flippon***. This framework is a major milestone in creating a new image of the universe.

It is possible to combine universal physical constants (G, ħ and c) to produce many new units. Look at the picture *"The six fingers interpretation"*. On the right side are well known *Planck units*. On the left side of the picture are new units relevant to the *Flipping theory*. They have special properties and physical meaning. Let's define them:

The length-time goo (unit):

$$R_k = l_p \cdot t_p = \sqrt{\frac{\hbar \cdot G}{c^3}} \cdot \sqrt{\frac{\hbar \cdot G}{c^5}} = \frac{\hbar \cdot G}{c^4} = 8.71 \cdot 10^{-44} m \cdot s$$

The mass-length goo (unit):

$$V_k = m_p \cdot l_p = \sqrt{\frac{\hbar \cdot c}{G}} \cdot \sqrt{\frac{\hbar \cdot G}{c^3}} = \frac{\hbar}{c} = 3{,}518 \cdot 10^{-43} kgm$$

And the mass-time unit:

$$I_k = \frac{m_p}{t_p} = \frac{\sqrt{\frac{\hbar \cdot c}{G}}}{\sqrt{\frac{\hbar \cdot G}{c^5}}} = \frac{c^3}{G} = 4.037 \cdot 10^{35} kg/s$$

There is a reason for the choice of these units. All three of them are not relativistic. Lorentz factor as a function of velocity is not applicable to them. Why does this matter? As you know, relativity is an integral part of our reality. This is been confirmed a thousand times. Simultaneously, the singular point is a consequence of

relativity. Our knowledge and new insights were blocked with that 'stupid truth'. There must be an explanation and a way out of this situation. The answer lies in predicted a not relativistic space of property (*SofP*).

If someone went to the *SofP* that will not see measurable physics; physical measurement is not possible. For finding out more about *SofP*, we must create a system that will give us an answer without knowing the measurable details. These details have a strange properties beyond our reality.

Let's go back to our newly defined units. The first two units (goos) R_k and V_k are candidates for *SofP*. Lorentz factor is not applicable. Meanings of 'meter-second' and 'kilogram-meter' is hard to imagine, but both of them introduce quantum fluctuations, uncertainty principle and relativity through a minimum value of the length-time ($8.71\times10^{-44} m\cdot s$) and a minimum value of the mass-length ($3.518\times10^{-43} kgm$). In the real world, they do not exist as particles, they exist as a principles and some natural limitations. Let's try to explain.

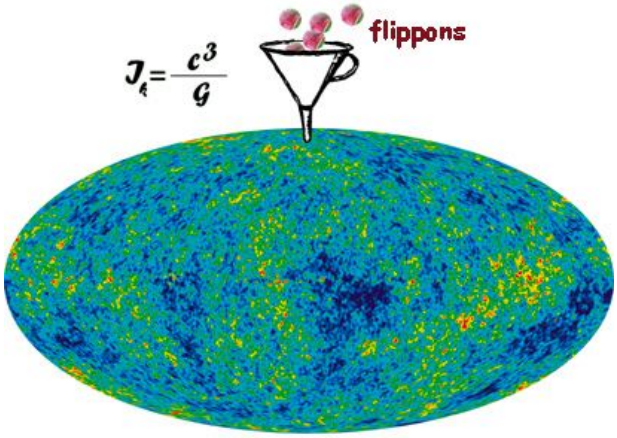
If we apply the mass of the electron $m_e = 9.1\times10^{-31} kg$ on the mass-length goo:

$$V_k = m_e l_e = 3{,}518\cdot10^{-43} kgm$$

we simply calculate length $l_e = 3.86\times10^{-13}$m = 0.386pm. Let these length equal to the wavelength of photons, produced by the electrons. This corresponds to a frequency of 7.76×10^{18}Hz = 7.76 exahertz, where is upper limit for X-ray and the lowest frequency of gamma rays. Gamma rays typically have frequencies above 10 exahertz. By the same analogy mass-length goo can be applied to other subatomic particles. It is an interesting topic for research.

The length-time goo (R_k) is even more difficult to understand. In simple terms it is a particle of *SofP* in which length and time fluctuates, and make them folded, sealed and inseparable. Inseparability of space and time in the real world is manifesting themselves through the relativity.

The goos R_k and V_k in many ways associated to strings. They create the illusion of invisible energy and illusion of *fluctation in a vacuum*. Flipping theory does not accept the *fluctation in a vacuum*. The vacuum is empty space without energy. R_k and V_k do not exist in a vacuum, they are a part of *SofP*. Goos R_k and V_k fluctuate in their own ambiguity.



Artistic interpretation of the Flipping theory growing universe - Continuous creation of flippons increases the space and mass of our reality. Time as a result of the order of things appeared immediately after the mass and space.

There is a possibility of interaction between goos, something like a collision. It is not a classic collision between accelerated particles, it is a *goo-collision* between fluctuating length-time and fluctuating mass-length in *SofP*. Result of their goo-collision is the *flipping transpformation* from *SofP* to the *SofR*, whereby *flippons* are formed. The process of a *goo-collision* and forming flippons is accompanied by generating mass and space, and can be described by *Incipient Law of Creation* (*Ohm's Law of the Universe*) and mass-time unit:

$$I_k = \frac{V_k}{R_k} = \frac{c^3}{G} = 4.037\cdot10^{35} kg/s$$

The previous name *Ohm's Law of the Universe* was borrowed and has nothing to do with Ohm's Law. As stated, V_k is the mass-length goo which recalls the voltage, R_k is the lenght-time goo which recalls the resistance, and I_k is the mass-time unit (mass flow) which remind on current. The I_k is derived by mutual

dividing V_k and R_k. This unit is a very real and belongs to the space of reality. In reality, it is the mass rate at which the mass of the universe is constantly growing. This growth was accompanied by a volume increase also. Number $4.037\times10^{35} kg/s$ is equivalent to two hundred thousand solar masses per second. Lorentz factor is not applicable. This is very important because the mass flow is protected against Lorentz asymptote.
The *Incipient Law of Creation* promises a nonviolent creation of our reality, and accepts the idea of birth, growth and evolution of our reality. Faith into the future is open. This will be discussed later.

Age, mass and size of the universe

Age, mass and size of the universe refers to the space of reality (*SofR*). We can not talk about them in space of property (*SofP*), they are too real and they do not exist there. If we accept the "WMAP+eCMB+BAO+H_0" measurements we can estimate the age of the universe to about T_u = 13.772(59) billion years or $4.346(19)\times10^{17} s$. Flipping theory provides a different approach (about this later).

In accordance with *Incipient Law of Creation* we can simply calculate the t*otal mass of the universe*, from mass flow and from age of the universe:

$$M_u = I_k T_u = \frac{c^3 T_u}{G}$$

$$M_u = I_k T_u = 4.037 \times 10^{35}\, kg/s \cdot 4.346 \times 10^{17}\, s = 1.754 \cdot 10^{53}\, kg$$

Interestingly, the total mass of the universe depends only on natural constants *c* and *G* and age of the universe. The mass of the universe value of 1.754×10^{53} *kg* is approximately equal to the mass of the universe calculated by other methods. If this statement is true, I get the most accurate mass of the Universe with uncertainly 0.4%.

Volume of the universe can be determined from its mass and mass density:

$$V_u = M_u / \rho_u = c^3 T_u / G \rho_u$$

The present overall mass density of the universe is very low, roughly 4.5–18 $\times10^{-27}$ kilograms per cubic metre. This mass consists of dark matter and ordinary matter with all forms of energy, except dark energy. The most promising density of the universe is critical density of the flat universe. By applying critical density, we can easily calculate the volume and diameter of the universe:

$$V_u = M_u / \rho_o \approx 1.754 \times 10^{53}\, kg / 9.9 \times 10^{-27}\, kg/m^3 = 1.772 \times 10^{79}\, m^3$$

$$D_u = \left(6 V_u / \pi\right)^{1/3} = \left(6 \cdot 1.772 \times 10^{79} / \pi\right)^{1/3} = 3.235 \times 10^{26}\, m$$

$$D_u \approx 34.19 \times 10^{9}\, ly$$

Both values volume and diameter are very acceptable. They are in the frames of observable and measurable universe. The main players are flippons. The confirmation should be sought in the detailed observation and analysis of available data. Small corrections in the approach are necessary. It will confirm the correctness of *Flipping theory* and *Incipient Law of Creation*.

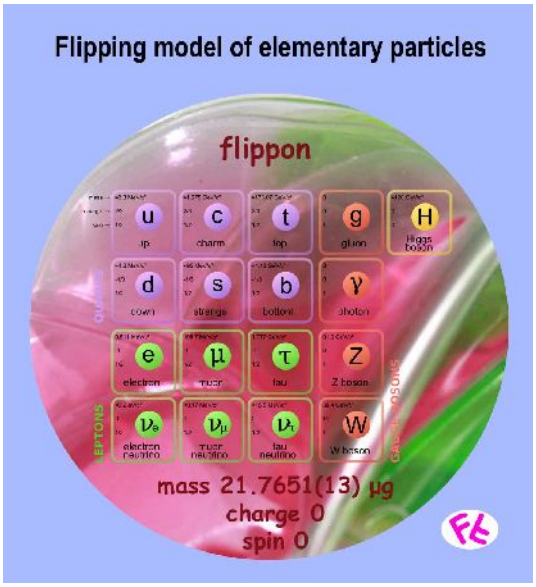
Flipping model of elementary particles

As you know, the *Standard model of particle physics is a theory concerning the electromagnetic, weak, and strong nuclear interactions, which mediate the dynamics of the known subatomic particles...* [*Wikipedia]

Standard model is limited to the microcosm. Macrocosm and physics of large scale is not covered. Fortunately Flipping theory opens up new possibilities. To obtain *Flipping model of elementary particles,* should add one more particle into *Standard model of elementary particles* (see the picture below); it is *flippon*. You must agree that this is a simple but significant changes.

Flippon is a huge massive particle generated by flipping transformation from space of property (SofP) to our space, space of realiti (SofR). The transformation is caused by "goo-collision" between fluctuating length-time and mass-length goos. The process of a forming flippons is accompanied by generating mass and space, and can be described by *Incipient Law of Creatio*. Flippon carries the mass m_F = 21.7651(13) *μg*, brings the volume V_F=2.198 x 10^{18} m^3 (approximate diameter ≈1613 *km*) and generates a minimum quant of time t_F = 5.39106(32)×10^{-44} *s*. Flippons do not carry any electrical charge, weak nuclear force, and strong nuclear force. Flippons are mutually transparent, do not collide, and do not bounce with each other and with ordinary matter. Furthermore, they are utterly transparent without any friction or viscosity, and behave almost as an empty space. Flippons interact through gravity only. It is assumed that the flippons do not spin.

At the moment of creation, flippons use a three basic processes: *summation of mass*, *summation of volume*, and *time flow*. After formation, under the influence of gravity, flippons are being accumulated into the dark matter clouds. There are two types of clouds, *flipptant* and *flippmint*. *Flipptants* are clouds with large presence of flippons which can trigger a new process called *Massaggregation*; generating elementary particles. *Flippmints* are small clumps of dark matter from which can not arise ordinary particles.



Flipping model of elementary particles. Flippon is the elementary particle and basic building block of the universe from which was produced all other particles by own breakage.

Artistic comparison of Moon and flippon. Flippon diameter is 1613 km, the radius of Moon is 1737 km.

As discussed, *flippon mass* is 21.7651 *μg* or 12.2×10^{15} *TeV/*c^2 which is equal to Planck mass:

$$m_F = m_P = \sqrt{\frac{\hbar c}{G}} \approx 21.7651(13)\,\mu g$$

Let's look at the comparison table of mass:

Item	Value
US RDA for vitamin D for adults	15 μg
Uncertainty in the mass of the International Prototype Kilogram	~20 μg
Flippon mass (Planck mass)	21.7651(13) μg
One eyebrow hair	~70 μg
Fruit fly (dry weight)	200-300 μg

Comparing with other particles flippon is really really huge particle, and owns a complete energy through its own mass. Other types of energy can be produced by *massaggregation* (*crushing flippons* into a large number of elementary particles).

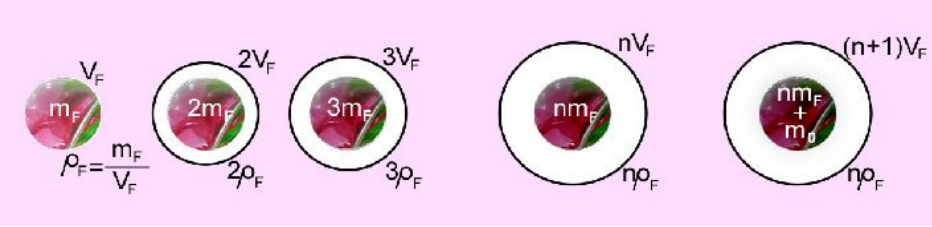
Since the flippon is the only generator of volume, we can easily calculate their volume from mass and critical density of flat universe:

$$V_F = m_F / \rho_c = 21.7651 \times 10^{-9}\, kg / 9.9 \times 10^{-27}\, kg/m^3 = 2.198 \times 10^{18} m^3$$

The ball of so volume has a diameter approximately 1613 *km*. It is really a huge particle. Can you imagine a particle diameter of 1613 *km*? For comparison, the radius of Moon is 1737 *km*. Interestingli, flippons pass through the Moon (through ordinary matter) freely and interact by gravity only. Also, elementary particles, atoms, molecules and small objects pass through flippons freely. They share space and interact by gravity.

Overlapping flippons, Massaggregation and Tuva Diagram

During *Incipient creation* each flippon brings the mass and volume. They are added to the total mass (energy) and total volume of universe. Two or more flippons may overlap each other. The overlaping is a very special property. In doing so, the masses of flippons are overlapped in a higher density, volumes are added.

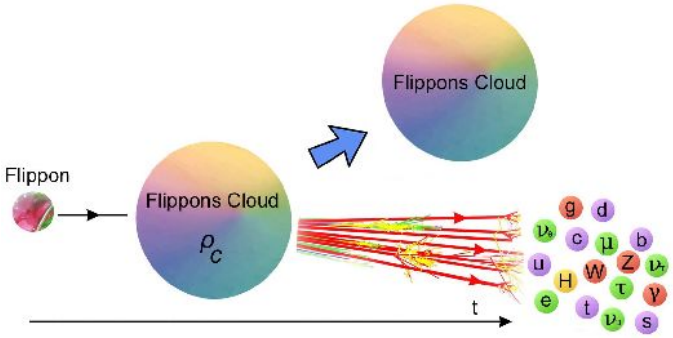


The overlapping flippons up to Massaggregation (crushing flippons into a large number of elementary particles. m_F-mass of flippon; V_F-volume of flippon; ρ_F-mass density of flippon; m_o- mass of generated elementary particles

Flippons do not wear the volume, they occupy and use volume, they travel through created volume. Volumes cannot be moved, overlapped, stretched or shrunk. *Winds of volume* (moving, overlapping, stretching or shrinking) are amiable but not acceptable. Only objects in space (energy) can be moved, overlapped, stretched or shrunk. Volume in space does not change. Only the total volume of the universe grows through the *Incipient*

creation of flippons. This statement makes a tremendous change in the approach to physics and deserves serious attention. At first glance it looks like a threatened theory of relativity, but relativiti refers to objects in space. Many physicists would dismiss it without grounded arguments. *Please, think about it and make the necessary changes in the existing theories.*

Let us see just a little setback. Wherever you go into the center of the galaxy or into deep space you will hit the insurmountable barrier of sense for volume. This is supported by the fact that if we wrap one or more galaxies, and we wonder what is the volume, we will use a simple, nonrelativistic calculation with which we will be satisfied. What happens to the volume of black holes? At this point the volume depends on which physics theory you follow. Is it science or a person's choice of theory? Relativity sees the black hole as a severe curvature of space-time. The black hole's volume is between zero and something that can be infinite. Our intuitive sense of volume breaks down. This is a forbidden territory for traditional interpretation. The same thing happens when we look at accelerating deep space. Volume tends to infinity. Whatever we wrap, local space with black holes or the whole universe, we will get something that tends to infinite volume.



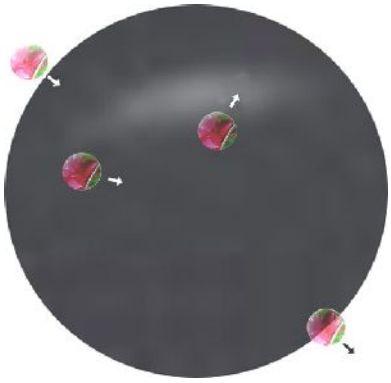
Tuva Diagram -showing the process of Massggregation in a symbolic way. Flippon is being transformed into elementary particles when hits the critical dense flippon cloud. The name of this diagram is given in honor of Richard Feynman and his stories of Tuva.

Overlapping flippons creates greater mass density. At some 'critical point', the physical state of flippon's mass changed to a large number of elementary particles that fly apart into less dense space. Created particles carry mass, charge, spin, and their associated forces. This process of generating elementary particles is called the *Massaggregation*. Broadband diagram is shown in the Tuva Diagram. The name is given in honor of Richard Feynman and his stories of Tuva. Critical point of *Massaggregation* is unexplored and unknown. Acceptable value is around the density of elementary particles, such as electrons and quarks. There are opportunities for observations of this phenomenon.

We are witnessing incredible progress and development of new technologies that open up new ways to confirming discoveries. Interesting places are around the *Galactic center* in zones of high energy density, where flippons can reach the 'critical density' overlaps. A long standing goal is to directly observe the immediate environment of a black hole and associated processes around.

The place of interest is colliding galaxies also. Data collection should be sought in a wide range of electromagnetic radiation. It is important to separate a part of the spectrum for which we know how it came about.The remaining information speak about the unknown effects and phenomena. An interesting part of the spectrum are gamma and X-rays. For example, Dr. Esra Bulbul (Harvard Center for Astrophysics) recently detected an unidentified emission line at 3.56 keV in the stacked X-ray spectrum observations of the Perseus Cluster (Chandra data). Maybe it's a matter of flippons and Massaggregation. My knowledge is not enough for further suggestions.

In addition, there is a possibility that the general and special relativity are not applicable to flippons in a well known manner. Imagine the statement: *The speed of movement and gravity do not deform flippons; The flippon can go through a black hole without any interference; Small black holes can be wrapped with a flippon.* Artistic interpretation is shown on the pictures below.

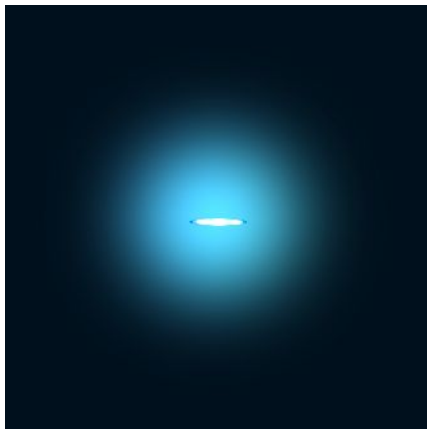


Artistic interpretation of non relativistic flippons passage through a black hole

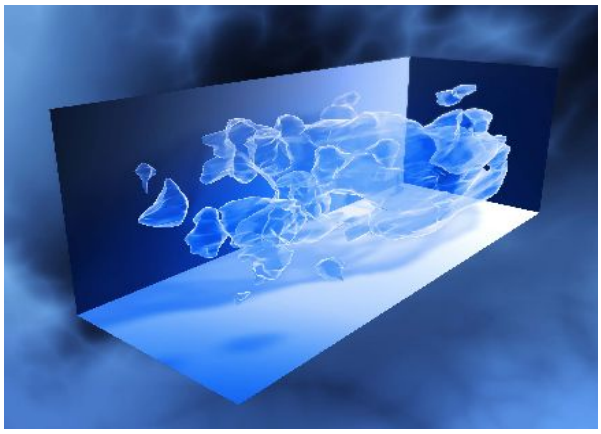
Small black hole wrapped with a flippon

Dark matter is made of flippons - proposal of the century

Dark matter is hypothesized for a large part of the mass that appears to be missing from the universe. It is widely known that dark matter halo is a component of a galaxy that enwraps the galactic disk and extends beyond the edge of the visible galaxy. The halos cannot be observed directly, but their existence is assumed through effects on the motions of stars in galaxies. Dark matter clouds, also can be seen from measurements of weak gravitational lensing, and observing gamma and X-rays in some cases. *I wonder, what is dark matter made of ?*



Artistic interpretation of the dark matter halo with disk galaxy in the center



Credit: NASA/ESA/Richard Massey

3D map of the large-scale distribution of dark matter, reconstructed from measurements of weak gravitational lensing with the Hubble Space Telescope

Let us repeat sections of text about flippons:

Flippon is a huge massive particle generated by flipping transformation from space of property (SofP) to our space, space of realiti (SofR). The transformation is caused by "goo-collision" between fluctuating length-time goos and mass-length goos. The process of a forming flippons is accompanied by generating mass and space, and can be described by Incipient Law of Creatio. Flippon carries the mass, brings the volume and generates a minimum quant of time. Flippons do not carry any electrical charge, weak nuclear force, and strong nuclear force. Flippons are mutually transparent, do not collide, and do not bounce with each other and with ordinary matter. Furthermore, they are utterly transparent without any friction or viscosity, and behave almost as an empty space. Flippons interact through gravity only. It is assumed that the flippons do not spin.

Properties of dark matter fully agrees with the properties of described flippons. It seems that the dark matter is made of flippons. This approach is acceptable. Introducing flippon, as elementary particle of dark matter, and basic building block of the universe, opens wide door for new discoveries in the field of cosmology and particle physics also. The extended process of Massaggregation completes the entire story of creating our reality.

Comparison size of flippon with Great Lakes on the Google Maps

The solitary flippon - artwork by Krunomir

Direct detection of flippon particles will be very difficult, perhaps impossible. Their production in the terrestrial environment is even more difficult. The reason is the enormous energy and size. No accelerator experiments have yet probed energies of sufficient magnitude to provide any experimental insight into the behavior of matter at the energy levels of flippon. All existing instruments, laboratories like the Large Hadron Collider (LHC), even cities, and small states are smaller than flippon. What kind of instrument can detect the passage of flippons whose diameter is 1637 km and density small as density of flat universe. Where in the universe should look for creation flippons and elementary particles? We are lucky to have the physical appearance accompanied by all sorts of side effects and phenomena. Indirect occurrences may talk about flippons and dark matter also.

Galactic density of dark matter

The presence of galactic dark matter is hypothesized and shown from rotation curve of a typical spiral galaxies. The picture below shows the predicted (A), and observed (B) orbital speed of stars and dust around the galactic center. Without large amounts of mass throughout the halo, the orbital speed would decrease at large distances from the galactic center (A). That does not happen. The flat appearance of the speed curve (B) is caused by radial density profile $\rho(r)$ of dark matter which is not constant and dependent on the chosen galaxy. This profile can be measured and calculated from the equality of gravitational force and the centripetal force of rotating mass m around the galactic center whose total mass is $M(r)$:

$$\frac{m\,v(r)^2}{r} = G\frac{M(r)\,m}{r^2}$$

$$\frac{M(r)}{r} = \frac{v(r)^2}{G} = const \qquad (1)$$

Mass *M (r)* can be determined by integration of mass shell *dM* with density *ρ (r) and* thickness *dr,* from r_o to *r*:

$$dM = 4\pi r^2 \rho(r)\, dr$$

$$M(r) = 4\pi \int_{r_o}^{r} r^2 \rho(r)\, dr$$

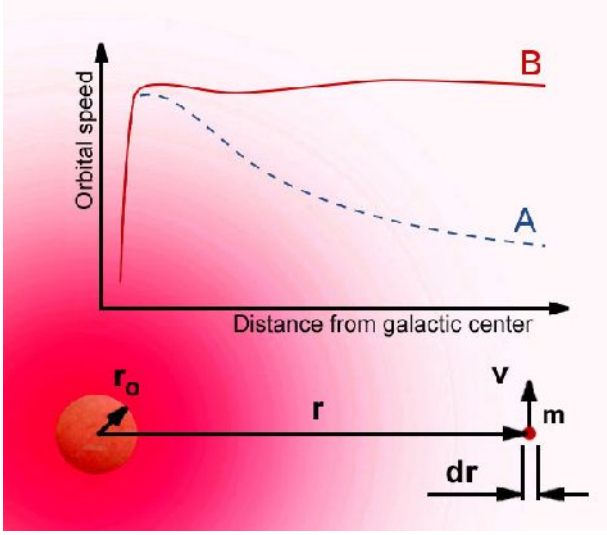
Constant speed (B) can be achieved with a density distribution:

$$\rho(r) = k / r^2 \qquad (2)$$

k is a constant. After a substitution follows:

$$M(r) = 4\pi k \int_{r_o}^{r} dr = 4\pi k (r - r_o)$$

$$\frac{M(r)}{r} = 4\pi k \left(1 - \frac{r_o}{r}\right)$$



Credit: http://en.wikipedia.org/wiki/File:GalacticRotation2.svg

Predicted A and observed B rotation curve of a typical spiral galaxy - The flat appearance of the velocity curve can be explained by dark matter.

Let $r >> r_o$:

$$\frac{M(r)}{r} = 4\pi k = const \qquad (3)$$

Solving equations (1), (2) and (3) above gives us a galactic density distribution of dark matter, as a function of the orbital speed and distance from the center of the galaxy:

$$\rho(r) = \frac{v(r)^2}{4\pi G\, r^2}$$

Let us get a sense of the density of dark matter in the Sun's orbit (Sun rotates with speed $v \approx 220$ *km/s* at a distance $r = 2.57 \times 10^{20}$ *m* from center of Milky Way):

$$\rho_{\odot} = \frac{(220 \times 10^3\, m/s)^2}{4\pi\, 6.674 \times 10^{20}\, Nm^2/kg^2\, (2.57 \times 10^{17}\, m)^2} = 8.737 \times 10^{-22}\, kg/m^3 = 78.5\ \mu J/m^3$$

As we see, the density of dark matter ($\rho_{\odot} = 78.5\ \mu J/m^3$) in the path of the Sun roughly corresponds to the half a million protons per cubic meter:

$$\rho_{\odot} / m_p = 8.737 \times 10^{-22}\, kg/m^3 / 1.673 \times 10^{-27}\, kg = 522000\ protons/m^3$$

or ninety thousand overlapping flippons:

$$\rho_{\odot} / \rho_o = 8.737 \times 10^{-22}\, kg/m^3 / 9.9 \times 10^{-27}\, kg/m^3 = 88253\ \ overlapping\ flippons$$

m_p is mass of proton, ρ_o is critical density of the flat universe. In other words, we swim inside ninety thousand overlapping flippons. We are so small, much much smaller than flippons. We can not see and feel them. They are huge. Just to remind, the diameter of flippons is almost equal to the moon radius.

For next comparison, let us see how much is a dark matter in planet Earth? We can determine by simply multiplying density of dark matter ($\rho_E = \rho_{\odot} = 78.5\ \mu J/m^3$) with the volume of the Earth:

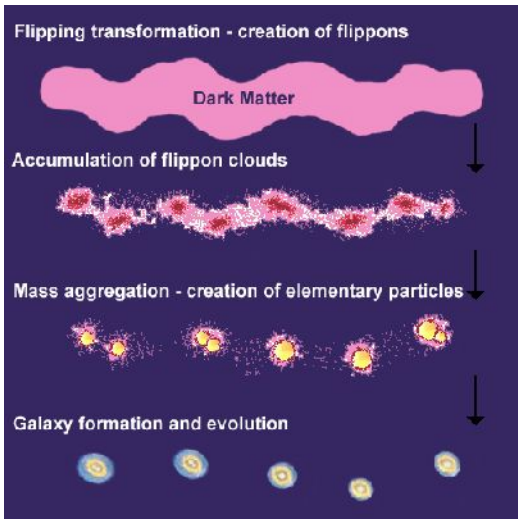
$$E_E = \rho_E V_E = 78.5\ \mu J/m^3 \cdot 1.08 \times 10^{21}\ m^3 = 8.478 \times 10^{16}\ J = 23.55\ TWh$$

Calculated amount of energy meets the needs of Croatian population of ~4.2 millions in one year. It is negligible in the Earth scale, but plays an important role in galactic vastness. This amount of energy in free space can speed up the Earth up to 0.119 *m/s*.

Chronology of processes in the universe

For a better understanding let's summarize the chronology of processes in the universe. The figure shows transformations from formed dark matter to galaxies. Transformation takes place in four basic stages and runs continuously:

a) Flipping transformation - the creation of flippons
b) Accumulation of flippon clouds
c) Massaggregation – the creation of elementary particles
d) Galaxy formation and evolution



Transformation of the space from formed dark matter to galaxies

In contrast to the Big Bang theory all these processes are taking place right now, somewhere in the universe. They are ongoing, and they will exist until exist space and time. They go through a much longer period than was officially declared age of the universe of ~14 By. More on this below, and in the section *The Fate of the Universe*.

a) ***Flipping transformation - the creation of flippons*** - Very first process of our reality is *flipping transformation* from space of property (*SofP*). This process is described by *Incipient Law of Creation*. Created flippons form a homogeneous space of dark matter, as a mysterious cosmic molasses from which came our measurable and observable realm, and all the processes that have created a variety of micro and macro structures around us and in nearby galaxies. Let us see what happened in the example of the Milky Way. You know, Milky Way is our destination. It is a barred spiral galaxy with a central bar-shaped structure composed of stars. Stellar Disk contains about 100-400 billion stars. The total mass of Milky Way with the current dark matter is estimated to be $M_{MW} \sim 6 \times 10^{42}$ kg.

Ohm's Law of the Universe written in stone by Krunomir Dvorski

In accordance with the flipping theory to create Milky Way should have been 2.76×10^{50} flippons:

$$N_{FMW} = M_{MW} / m_F = 6 \times 10^{42}\ kg / 21.76 \times 10^{-9}\ kg = 2.76 \times 10^{50}\ flippons$$

Where N_{FMW} is the required number of flippons to create Milky Way, M_{MW} is total mass of Milky Way, m_F is Flippon mass. The time required to create flippons for the Milky Way can be calculated from the Milky Way mass and mass flow I_k (see *Incipient Law of Creation*):

$$t = M_{MW} / I_k = 6 \times 10^{42}\, kg / 4.037 \times 10^{35}\, kg/s = 14.863 \times 10^{6}\, s = 172\, days$$

172 days is a very short time. It is the blink of an eye in cosmic scale. In such a short time cannot be formed regular matter and stars, it takes much much longer.

Creating a mass of Milky Way is accompanied by formation of volume, which can be calculated from the number of flippons N_{FMW} and volume of flippon V_F:

$$V_{FMW} = N_{FMW} V_F = 2.76 \times 10^{50}\, flippons \cdot 2.298 \times 10^{18}\, m^3 / flippon = 6.336 \times 10^{68}\, m^3$$

It corresponds to the diameter of the sphere 5.63 million light years. Current volume of the stellar disc (1 *kly* thickness and 100-120 *kly* diameter) of Milky Way is much smaller, about 100 million times smaller. The empty space around is called an intergalactic space.

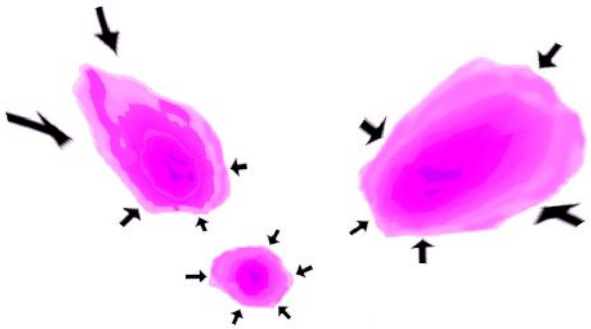
The dark matter halo of Milky Way is spread out to a distance beyond one hundred kiloparsecs (~326 *kly* = 3.09×10^{21} *m*) from the center. This corresponds to volume 1.23×10^{65} m^3, which is approximately 5150 times smaller than the Milky Way intergalactic volume. It also means that the average density of halo with ordinary matter in Milky Way is 5150 times greater than the critical density of a flat universe.

All these numbers fit well in the Milky Way and can be extrapolated to clusters and large-scale structures of the universe, also to the entire universe. This approach simplifies the sense of the size of objects in the universe. Time required for flippons creation of objects in the universe is amazing parameter; talks about the size and mass. *The measured dimensions can be a good parameter for determining the mass and vice versa.*

b) ***Accumulation of flippon clouds*** - At the local level, a short time after flipping transformation, flippons are at rest and have uniform mass density ρ_o. They interact only by gravity and do not communicate with each other in any other way. Tiny fluctuations start accumulation of flippon clouds. Assuming that clouds have a spherical shape, under the influence of gravity they will collapse into center. The question is, what is a typical timescales for the collapse?

The answer we can find from equation of motion of a free-falling spherical mass shell with radius *r* in a co-moving (Lagrangian) frame of reference:

$$\frac{d^2 r}{dt^2} = \frac{dr}{dt}\frac{dv}{dr} = v\frac{dv}{dr} = \frac{1}{2}\frac{d(v^2)}{dr} = -\frac{Gm}{r^2}$$



Accumulation of flippon clouds

m is the total mass of the cloud with radius *r; v is the collapsing velocity of the shell; G* is gravitation constant.

We can arrange as:

$$\frac{1}{2} d(v^2) = -\frac{Gm}{r^2} dr$$

Integral by separation of the variables with initial conditions ($r = R$, $v = 0$, $m = M$ at $t = 0$) leads us to the velocity as a function of *r*:

$$v^2 = 2GM\left(\frac{1}{r} - \frac{1}{R}\right)$$

$$v = \frac{dr}{dt} = \pm\left[2GM\left(\frac{1}{r} - \frac{1}{R}\right)\right]^{1/2}$$

For $v<0$ after rewriting and substitution ($\kappa = r/R$, $d\kappa = dr/R$, *and* $M/R^3 = 4\pi\rho_o/3$) follows:

$$dt = \frac{-dr}{\left[2GM\left(\frac{1}{r} - \frac{1}{R}\right)\right]^{1/2}} = -\left(\frac{3}{8\pi G\rho_o}\right)^{1/2}\left(\frac{\kappa}{1-\kappa}\right)^{1/2} d\kappa$$

Integrating from r = R (κ=1) to r =0 (κ=0) obtains an expression for calculating a collapse time:

$$t_{coll} = \int_{t=0}^{t_{coll}} dt = -\left(\frac{3}{8\pi G\rho_o}\right)^{1/2} \int_{\kappa=1}^{0} \left(\frac{\kappa}{1-\kappa}\right)^{1/2} d\kappa$$

People call it the free fall time, we will call it the *flippon free fall time* t_{fff} :

$$t_{fff} = t_{coll} = \left(\frac{3\pi}{32\,G\rho_o}\right)^{1/2}$$

The *flippon free fall time* is a very useful estimate for a number of astrophysical processes.

Dimensions of flippon clouds do not affect a flippon free fall time; main story tellers are the gravitational constant $G = 6.673\,84\times10^{-11}\ m^3/kgs^2$ and initial mass density $\rho_o = 9.9\times10^{-27}\ kg/m^3$ of flippon clouds. It follows:

$$t_{fff} = t_{coll} = \left(\frac{3\pi}{32\cdot 6.673\,84\times10^{-11}\,m^3/kgs^2\cdot 9.9\times10^{-27}\,kg/m^3}\right)^{1/2} = 6.68\times10^{17}\,s \approx 21\ By$$

21 billion years is a time period between the occurrence of flippons and their collapse. During the collapse, velocity v of flippons and mass density ρ of overlapped flippons increases. Maximum density and maximum speed occurs when "all" flippons overlap. Only a moment after that flippons extend a travel through each other. Forced by the kinetic energy they are pushed apart radially and create a cloud that has spread to the initial radius. If nothing happens flippon cloud will continue oscillate between the initial diameter and collapsing points and so on. Such clouds we called flippmints. Universe that is based on the oscillating clouds of dark matter is called the flippmint universe. Such a universe has to be boring. Luckily, the excessive overlap of flippons triggers a new process called Massaggregation, which is a beginning of elementary particles.

c) Massaggregation – the creation of elementary particles **-** During the collapse, an overlapping flippons creates greater mass density and reaches greater velocity of fllippons. At some 'critical density', the physical state of flippon's changed to a large number of elementary particles that fly through space. Created particles carry mass, charge, spin, and their associated forces. Tuva Diagram is showing the process in a symbolic way. Flippon is being transformed into elementary particles when hits the critical dense flippon cloud. As you know, this proce of generating elementary particles is called *Massaggregation.*

To create a critical density, we need the flipptant (flippon cloud) whose minimum diameter can be calculated from the ratio of densities and diameter of critical dense flippon cloud:

$$D = D_c\sqrt[3]{\frac{\rho_c}{\rho_o}}$$

Where D_c is diameter of critical dense flippon cloud, ρ_c is critical density of *Massaggregation*, ρ_o is density of flippons (9.9×10^{-27} kg/m^3).

The critical density should be sought in elementary particles. Suppose that quarks play a major role whose density is about 1×10^{18} kg/m^3. If diameter D_c is equal to the diameter of flippon (1613 *km*), we can easily compute the diameter of flipptant:

$$D = 1613\,km \sqrt[3]{\frac{1 \times 10^{18}\,kg/m^3}{9.9 \times 10^{-27}\,kg/m^3}} = 7.512 \times 10^{20}\,m = 79.4\,kly$$

It means that flippon clouds with a diameter greater than 80 kly belong to the group of flipptants. Flippmints are smaller than 80 kly. At the time of creation of flippons, the Milky Way could have more than 300 thousand of such flipptants. Each flipptant was able to create about one million stars.

This analysis is very rough and requires serious research. I am very confident, astronomy will confirm existence flippmints and flipptants. Flippons will occupy the main stage between cosmology and particle phisics.

d) Galaxy formation and evolution **-** It is the most active research areas in astrophysics. Homogeneous flipponic startup of our reality, supported by *Flipping Theory*, opens up possibility of a wide range of theories about the formation of galaxies and afterwards. *Massaggregation* can be connected and extended with many known processes in particle, nuclear and atomic physics. Therefore, I invite all scholars of goodwill to find their place in this theory and help create a new image of our universe.

Time, time flow and flippon

The development of my thoughts was significantly influenced by Croatian scientist Mladen Hegedusic and his "The theory of reaches of general quantum physics" (Teorija dosega opće kvantne fizike, Naučna misao, Zagreb, 1971). Even as a student (seventies) I was amazed with his views about physics. One of his postulates is: "*There are no space and time without the matter; there is no a matter without space and time; the matter subsumed all in itself..."* In own thoughts Hegedusic profoundly believes, *time is a physical tendency of putting things in order.* Things in a order can be in constant repetition or continuous change. Both cases are supported by measurable physical laws with mathematical description.

Credit: Wikipedia

A Dance to the Music of Time - Nicolas Poussin, Oil on canvas, 1634-1635

The human mind is able to describe time without time by frozen patterns.[*Julian Barbour: The end of time] Static images often suggest that something happened, happening or will happen. Time becomes an abstraction with which we arrived through the movie in our brain. For instance, Many years ago, on painting "*A Dance to the Music of Time*" a famous painter Nicolas Poussin managed to put things in order with fantastic timing precision. The brain plays the movie for us: *Four figures, holding each other by the hand, dance in a circle, as Time plays a lyre on the right. The scene is set in the early morning, with Aurora, goddess of dawn,*

preceding the chariot of Apollo the sun-god in the sky behind; the Hours accompany him and he holds a ring representing the Zodiac...[*Wikipedia] Today, this painting is widely accepted as the passage of time with fantastic description of the place and things in order.

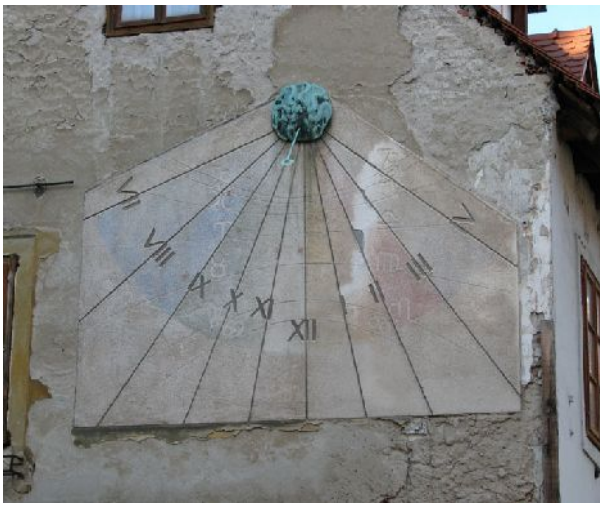
Time is one of the seven fundamental physical quantities in the *International System of Units*. If we try to find a definition we will be faced with a serious problem. Where is the problem?

Actually, the problem of defining the "time" has always existed. Many people have tried to answer this question. Look at some examples: Time is the duration of change; Time is the rate at which things change; Time is a linear continuum; Time is a human invention to explain movement through space; Time is flow in one direction; Time is presence of motion and forces in the universe; etc; etc.

Canadian edition of Webster's Encyclopedic Dictionary gave us the following definition: *Time is physical quantity measured by clocks.* Webster's Online Dictionary says: *Time is a common term for the experience of duration, and a fundamental quantity of measuring systems.*

None of the above definition does not satisfy. Something is missing in them and does not cover the entire spectrum of human thinking about it.

Some scientists believe, the entropy is the most fundamental phenomena which defines the time and direction of time. But it should be borne in mind that entropy is not defined in many of its segments. Entropy is just a measure of how disorderly things are. We are not able to establish a strong and usable relationship with time.



Credit:http://commons.wikimedia.org

Sundial in Tkalčićeva, Zagreb, Croatia

The main obstacle in the definition of "time" had caused by merging space and time and observing motion of objects in space. Space-time and objects in space-time are messy. They are relativistic, unpredictable and uncertain. We are doomed to be in space and time, only our mind can go beyond those limits.

From the experiences we feel a time as an unstoppable process of changes pushed by forces of nature. It is not clear, are these forces come from surroundings or from total reality of universe? The believable answer is *from both*. In close environment we can control our perception of relativistic space and time, but the total time as the A*ge of the universe* or *Aging photons* we cannot control. For a good understanding, definition of time must be harmonized with fundamental thing of local and large scale. The search for such a definition is not simple... Generally speaking:

Time is a limited period or interval, as between two successive events.

This definition is borrowed from http://dictionary.reference.com/. I really like it. It is associated with the period between the creation of two flippons which is the shortest time in the our reality:

$$t_F = t_P = \sqrt{\hbar G / c^5} = 5.39124 \times 10^{-44} s$$

The aforementioned definition includes all other time intervals up to A*ge of the universe*:

$$T_u = \frac{1}{I_k} \cdot M_u = \frac{G}{c^3} \cdot M_u$$

where I_k is mass-current unit (mass flow), M_u is mass of the universe... Look the *Incipient Law of Creation.*

Law of Last Evidence

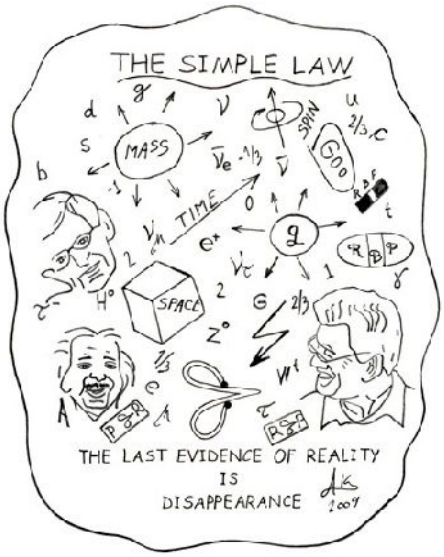
The last measurable evidence of reality is disappearance of matter, space and time.

Ordinary speaking, if something disappeared, it can be perceived only by subtracting totality before disappearance with the totality after disappearance. Mathematically it can be expressed as:

$$LME = D = T_B - T_A$$

where are: *LME* - last measurable evidence, *D* - disappeared matter, space and time, T_B - totality before the physical process, and T_A - totality after the physical process.

Interestingly, this fact was not perceived as a law of nature. What stopped us on the way? Can the matter (energy), space and time in simple terms disappear? Answer to these questions is a matter of taste. This is a result of our lack of knowledge and the law of conservation of energy which says: *The total energy of an isolated system is conserved, cannot be created or destroyed in the course of time, but can change form.* If our physical reality is a closed system, energy cannot be lost into the nothing or created out of nothing. This approach to the overall energy of the universe as a closed system, does not allow the existence of the Big Bang theory. What absurdity? Big Bang is here, everything is made out of nothing... the *Law of Last Evidence* still does not exist.



The Simple Law - artistic sarcasm

It seems that the diversity of forms of energy (matter) reaching the limits of our physical universe and our knowledge, when we are not able to explain the missing energy. In most cases, reasons for it is poor measuring equipment, but there are cases when we play with energy on the edge of our reality, when part of energy just disappears.

Mystery of "disappearance" was always there around us in various forms of science and mysticism. In history we have had many conceptual models. Philosophies and worldviews have a set of elements on which was based and built theories. For example, the ancient Babylonians had five personified cosmic elements: the sea, earth, sky, fire, and wind. Much of a muchness ancient Greeks had classical elements: earth, water, air, fire, and aether. Both models (Greek and Babylonian) are almost identical and very acceptable at that time. In such models, it was very difficult to search for "missing matter" without religious approach.

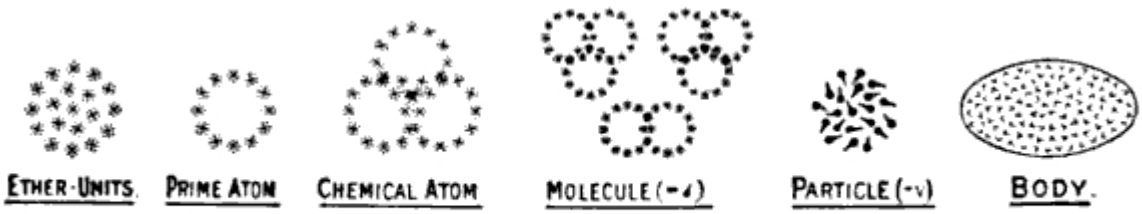


FIG. 21.

The conceptual model of the physical universe by Karl Pearson
(The Grammar of Science (1892), Meridian Books, New York, 1957, p. 282)

Circumstances have not changed significantly even in the late nineteenth century. British mathematician Karl Pearson in his book "The Grammar of Science" displays conceptual model of the physical universe through the picture of ether, prime atom, chemical atom, molecule, particle and body. Pearson argues that the laws of nature are relative to the perceptive ability of the observer. It has a significant impact on A. Einstein, even on V. I. Lenin and many scientists and philosophers of twentieth century.

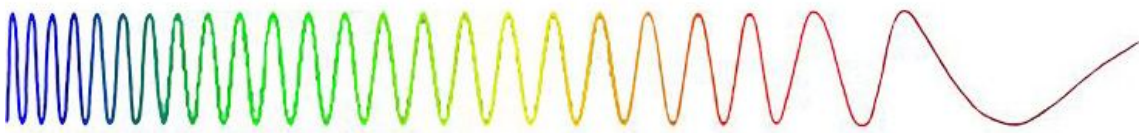
Influenced by Pearson, in the book "Materialism and Empirio-Criticism", Moscow, 1909, V.I.Lenin discuss the topic "Matter Has Disappeared" and says: *"Matter is disappearing" means that the limit within which we have hitherto known matter is vanishing and that our knowledge is penetrating deeper; properties of matter are likewise disappearing which formerly seemed absolute, immutable, and primary (impenetrability, inertia, mass, etc.) and which are now revealed to be relative and characteristic only of certain states of matter. For the sole "property" of matter with whose recognition philosophical materialism is bound up is the property of being an objective reality, of existing outside our mind.*

Missing energy is common in experimental particle physics; Refers to energy which is not detected by particle detectors, but it is expected with respect to laws of conservation of energy and conservation of momentum. Energy in such experiments may be undetected or undetectable. Problem undetected energy can be solved by better measuring equipment. For undetectable energy we must use the *Law of Last Evidence*. Someone will say, so what, we already have a *Law of conservation of energy*, why we need *Law of Last Evidence*. It is a matter of taste and respect of untouchable parts of the universe.

We live in a space of our reality which can be treated as a closed or open system. If we accept our reality as a closed system, Law of conservation of energy does not allow existence of *Law of Last Evidence*. Missing energy is somewhere there, just a matter of time and equipment when we measure it. Missing energy can not be treated as disappeared.

If we accept that our system is open, door is open for the *Law of Last Evidence,* even for *Incipient Law of Creation*. Disbelief will exist as long as there is a dilemma between "undetected and undetectable". Flipping theory predicts such a possibility in which, under certain condition, mass (energy), time and space can disappear.

Law of Aging Photons



It seems that expanding and accelerating universe is a result of insufficient knowledge about properties of light, and misinterpretation and misuse of Doppler effect. This cognition is changing the cosmology and history of the universe... Oh my, I'm in big trouble.

It is widely known that the photons are gauge boson carriers for electromagnetism. They are a oscillating discrete bundle (packet) of electromagnetic energy. Whenever charged particle react, photons are exchange. They have not mass, no electric charge, no weak charge, no colour charges. Photons are always in motion. They travel with constant velocity through a vacuum at the same speed, speed of light for all observers. Photons are currently best explained by quantum mechanics and wave–particle duality. They show the wave or corpuscular properties. For example, a single photon may be refracted by a lens or show wave interference with itself. Also photons act as a particle having a certain result when its position is measured.

The photon carries spin angular momentum that does not depend on its frequency. The magnitude of its spin is

$\sqrt{2}\hbar$ *and the component measured along its direction of motion, its helicity, must be ±ħ. These two possible helicities, called right-handed and left-handed, correspond to the two possible circular polarization states of the photon...*[*Wikipedia] Consequently, there is a quantum entanglement as phenomenon. It is Quantum states of two or more photons, right from the moment of separation. They have to be described with reference to each other although they are separated at a distance from each other.

Photon energy does not depend on its speed. As a discrete pocket of oscillating electromagnetic energy, photon has its own frequency, which determines the energy of photon E = hν. Emitted photons from distant objects lose energy on the way. It is manifested through the decrease of photon frequency. Farther object give us a photons with lower frequency. Furthest objects give us the microwave radiation. Why?

Official scientific world has accepted Big Bang expanding and accelerating universe. Measurements indicate the *Doppler effect,* which is explained with Hubble's law, and dark energy:

"*Hubble's law is the name for the observation in physical cosmology that: objects observed in deep space are found to have a Doppler shift interpretable as relative velocity away from the Earth*"...[*Wikipedia]

"*Dark energy is a hypothetical form of energy that permeates all of space and tends to accelerate the expansion of the universe*"... [*Wikipedia]

To say *space expands and accelerate,* means that each pair inertial observers are moving farther apart with accelerating velocity. Is that possible? I apologize to believers of such understanding. It seems that expanding and accelerating universe is a result of insufficient knowledge about properties of light, and misinterpretation and misuse of *Doppler effect*. This cognition is changing the cosmology and history of the universe.

Travel is not free. Photons know what is a fatigue and old age. We can measure it.

Time of creation emitted photons is short and match with the time-period of photon wave to travel one wavelength (T = 1/ν). The newly kicked photons have an initial energy and direction of motion. It is enough for journey. Some photons collide with matter and lose energy, some deflect or reflect and change direction, and just some leave the *place of origin* and travel through the space at a great distances. The question is, can photon travel to endless space and time? It would be a great privilege.

During a trip photons carry energy from one place to another. It makes the redistribution of energy in space. At the same time measurements suggest that photons are losing energy in their path. Taking energy from photons by expansion of the universe sounds nice but not convincing to me. Which forces can stretch the space? Is it Big Bang and dark energy? Give me a break, I didn't buy it... In the wider sense of thinking, the correct answer is a consequence of existence of a *force of origin***:**

Force of origin resists the removal of energy from place of origin.

In other words, any type of energy must stay close as possible to the place of origin. Leaving this area is accompanied by the *force of origin* which takes away the energy from body which goes.

It is widely known that physics uses frames of reference to represent and measure properties of objects. Frame of reference is usually made up of observers, coordinate systems and clocks. There is something much deeper, it is a *reference*. Generally speaking, r*eference is a relation between objects in which one object designates, or acts as a means by which to connect to or link to, another object...*[*Wikipedia] Any object may be a reference. That *objects* are connected with local objects around. Local objects are connected with macrostructures and with

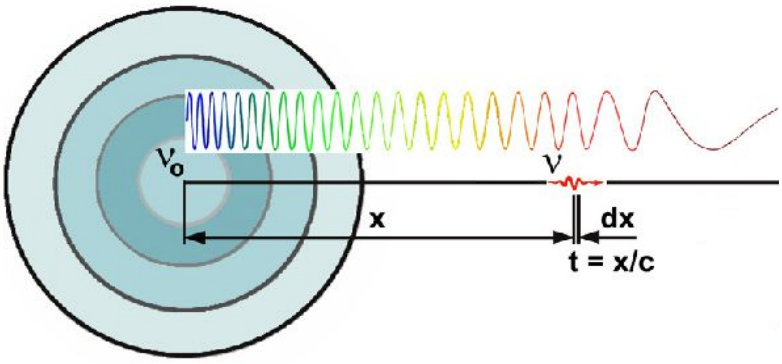
entire universe. Many physicists have neglected the fact that object as *reference objec*t is connected with entire Universe. Universe is a fulcrum for all processes between objects. In such a distribution *force of origin* resists the removal of energy from the *place of origin* as *reference*.

Credit: http://commons.wikimedia.org/wiki/File:TwinsTwins.JPG

Travelling twins and force of origin

Imagine twins in the entire universe, as shown above. If they push each other, they will travel to opposite directions until their kinetic energy is converted to a potential gravitational energy. Without communication twins will remember place and moment of separation and they will dream about reunion. There is a possibility that after all under the influence of gravity twins meet each other. The only place of their meeting is the *place of origin*. Any other solution will cause a change in the integrity of twins. Something similar is happening with photons. The only difference is, photons change their integrity with a loss of energy in time and space.

The generated photons are accompanied by the forces of origin that takes energy from photons and does not allow them to leave. Since the speed of light is constant, photons lose energy by reducing frequency. The remaining energy talks about origin and age of photons.



Aging Photons

Assume a homogeneous space with a density ρ_o of flat universe. The total mass *m* of volume *V*, which was abandoned by the photon, can be calculated (look at the picture):

$$m = \rho_o V = \rho_o \frac{4\pi}{3} x^3 = \frac{4\pi}{3} \rho_o c^3 t^3$$

where is $x = ct$ traveling distance of photon. From energy of photon we can find equivalent mass of photon:

$$h\nu = m_{ph} c^2 \qquad m_{ph} = \frac{h\nu}{c^2}$$

There is a gravitational force between the mass of the abandoned space and "mass of photon":

$$F = G \frac{m\, m_{ph}}{x^2} = \frac{4\pi G h \rho_o}{3c^2}\, v\, x = K v x \qquad K = \frac{4\pi G h \rho_o}{3c^2}$$

The forces *F* on the way *dx* takes the energy from photon, which is manifested through the decrease of frequency:

$$F dx + h dv = 0$$

A simple account with the inclusion of force $F = Kvx$ leads us to the expression for the photon frequency as a function of distance from the *place of origin*:

$$Kvx\, dx = -h dv$$

$$-\frac{dv}{v} = \frac{K}{h} x\, dx$$

Let it integrate from $x = 0$ (frequency of the photonis is v_o) to $x = x$ (frequency of the photon is *v)*:

$$-\int_{v=v_o}^{v} \frac{dv}{v} = \frac{K}{h} \int_{x=0}^{x} x\, dx$$

$$-\ln(v)\Big|_{v_o}^{v} = \frac{K}{2h}\, x^2\Big|_0^x$$

Fhoton frequency as a function of distance is:

$$-\ln\frac{v}{v_o} = \frac{K}{2h}\, x^2; \qquad \frac{v}{v_o} = e^{-\frac{K}{2h}x^2}$$

After substitution *x* and *K* with aforementioned expressions, a fhoton frequency as a function of traveling time is:

$$\frac{v}{v_o} = e^{-\frac{Kc^2}{2h}t^2}; \qquad \frac{v}{v_o} = e^{-\frac{2\pi G\rho_o}{3}t^2}$$

or:

$$\frac{v}{v_o} = e^{-\frac{t^2}{2\varsigma^2}} \quad (1) \qquad \varsigma = \sqrt{\frac{3}{4\pi G\rho_o}} = 6.011048\times10^7\, s = 19.04828\, By \quad (2)$$

Where ς is the *photon aging constant* (or *photon dimming constant*). Function (1) is a *Gaussian function* with symmetric "bell curve" shape. The greek small letter ς of *final sigma* looks like standard deviation *σ* from the *probability distribution functions*. I prefer letter ς to σ because it avoid irrelevant assumption.

The figure below shows fhoton frequency as a function of time traveling. After 19 *Byr* (1ς time) frequency of the photons falls to ~ 61% of the initial amount, after 38 *Byr* (2ς time) is 13.5%, and after 95 *Byr* (5ς time) left only ~ 3.7ppm from baseline.

Hydrogen photon (λ_o = 92 nm) must travel more than 100 billion years to wave length of 5.3 cm, which corresponds to the maximum intensity of the cosmic microwave background spectrum measured by the FIRAS instrument on the COBE.

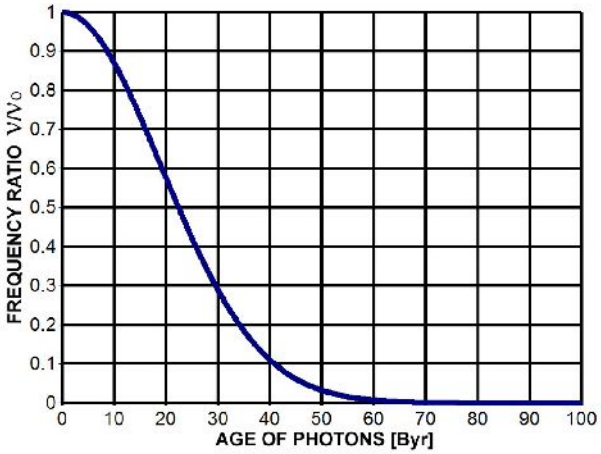


Diagram of Aging Photons (Photon frequency as a function of time traveling) - Hydrogen photon (λo=92 nm) has to travel more then 100 billion years to its wavelength of λ=5.3 cm.

Equation (1) can be written in a form that is called *Law of Aging Photons*:

$$\nu = \nu_o \mathrm{e}^{-\frac{t^2}{2\varsigma^2}}$$

Multiplying with a Planck's constant, *Law of Aging Photons* can also be given in the form of energy of photon:

$$E_\nu = E_{\nu_o} \mathrm{e}^{-\frac{t^2}{2\varsigma^2}}$$

On their way from the place of origin in free space, photons get older by a bell-shaped function with the *Photon Aging Constant* $\varsigma = 6.011048\times10^7 s = 19.04828$ *By.* This process is continuous and there is nothing discreet about it. Only a hard stops of photons show discrete phenomena. The cognition of aging and continuity of photon energy is a turning point between classical and quantum world. The door is ajar for many explanations of the physical world. I think I have reached the level when I can say with great certainty:

It seems that expanding and accelerating universe is a result of insufficient knowledge about properties of light, and misinterpretation and misuse of Doppler effect. This cognition is changing the cosmology and history of the universe.

I know, you are going to argue that I am talking about *gravitational redshift* that makes a shift in the frequency of a photon to lower energy when climbs out of a gravitational field. Also, you are going to argue that my photons travel in space with no gravity (gravitational field is equal to zero). Such a feeling is the result of perception of a static local objects in the vast space. Consider photon that is kicked out from center of Earth through an imaginary hole. On its path photon loses energy (*gravitational redshift*). We may use the *Law of aging photons*. The aging time is much shorter than ς. Let Earth is big enough to take away all energy of a photon. The photon will be shut down and its energy will accumulate in Eart. Energy will not leave the place of origin. If we repeat same experiment with particles that have a mass, on the way particles will lose kinetic energy until they stop. After that, particles will be back in the center of Earth (*place of origin*) and continue their journey to the other side, and so on. Experiment can be repeated from any point in the Eart. If particles does not start in the center of Earth, we will notice asymmetry.

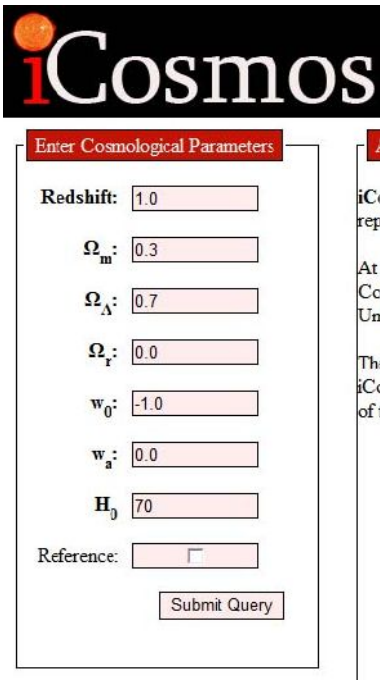
Here is the groundbreaking moment.

Let's put our experiment into the entire universe. I hate to say but universe is widely accepted as a homogeneous and isotropic system. *Each point is the center of the universe*. When a photon goes from the "center of the universe", *force of origin* resists the removal of energy from the *place of origin* as *reference*; So photon loses energy by *Law of Aging Photons.* This is the same as the effect of on photons from the center of Eart.

The light that comes from the depths of the cosmos loses energy required by *Law of Aging Photons*. It is not a matter of cosmic redshift caused by an expansion of space. Expansion of the universe is an illusion. Photon has a right to aging.

Cosmology Calculators and Law of Aging Photons

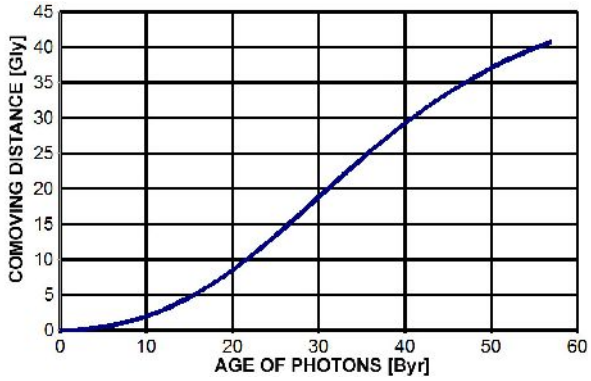
There are plenty of cosmology calculators that help us in getting a better picture about cosmos. Mihran Vardanyan is the winner of the *OxTalent 2012 IT Innovation Award* (University of Oxford) for his development of the *iCosmos cosmology calculator* which *computes different cosmological quantities and additionally gives graphical representation of the quantities for ... own choice of cosmological parameters...*[*http://icosmos.co.uk/] At the moment *iCosmos cosmology calculator* supports computation of Comoving Distance, Angular Diameter Distance, Luminosity Distance, Comoving Volume, Age of The Universe and Perturbation Growth Factor.



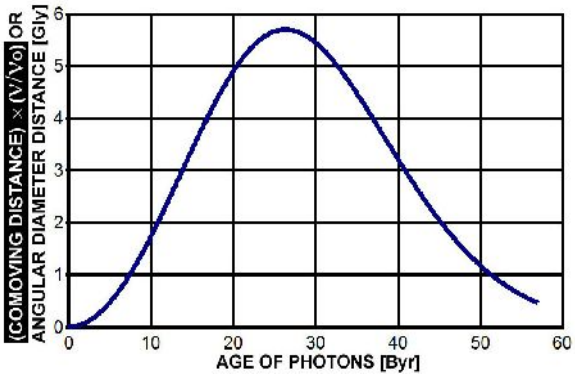
Credit: http://icosmos.co.uk/

The calculator gives us (*you*) *precise answers for* our (*your*) *choice of cosmological parameters and redshift; iCosmos also generates the plots for the quantities up to redshift 20 so* we (*you*) *can get insight into behavior of the quantities with redshift ...*[*http://icosmos.co.uk/]

With *iCosmos cosmology calculator* I generate plots of Comoving Distance and Angular Diameter Distance as a function of ageing photons (see below). These diagrams are connected with *Diagram of Aging Photons*. The simple multiplication of Diagram for Comoving Distance with *Diagram of Aging Photons* (look up) gives us a Diagram for Angular Diameter Distance (see below). Why is it important?



Comoving distance



Angular Diameter Distance

This coincidence has occurred due to a wrong interpretation of data. Big Bang theory and expansion of the universe is a fiction. In fact, incoming photons from the depths of space are redshifted by aging photons. Feeling of aging photons was interpreted as a feeling of expansion and aging universe. The edge of the universe was compressed on exponential scale.

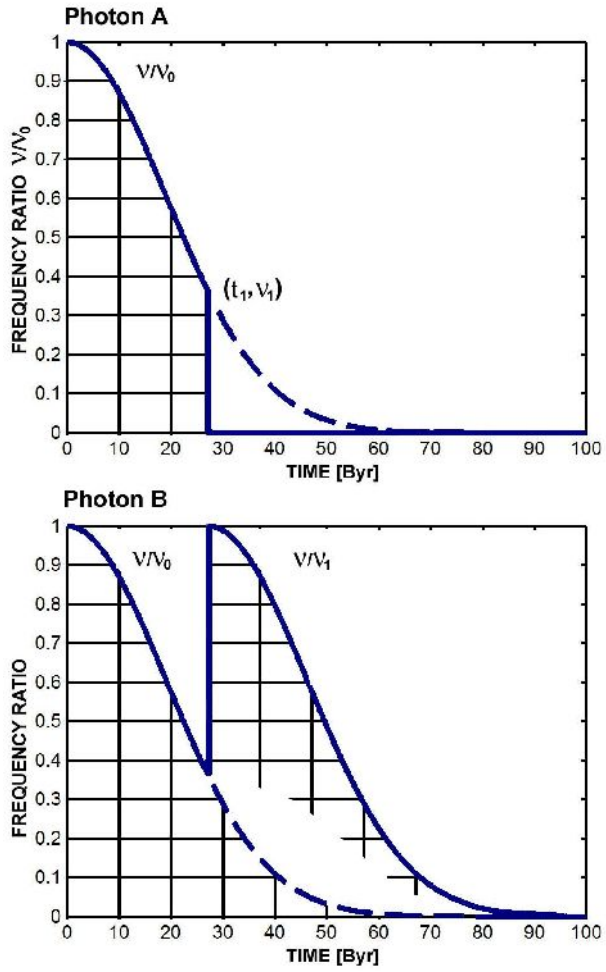
The universe is not the same as it was. Interpretation af agin photons will make serious changes in cosmology and quantum mechanics.

Law of Abandonment Origin - Entanglement and Aging Photons

The generated photons are accompanied by the f*orces of origin* that takes energy from photons and does not allow them to leave. Since the speed of light is constant, photons lose energy by reducing frequency. The remaining energy talks about origin and age of photons. This process was described by *Law of Aging Photons*.

The couple of entangled photons, **A** and **B** (see figure), follow the same rule (*Law of Aging P*hotons). Their frequency and age are the same. At the moment t_1 a frequency of both photons is v_1. If a photon **A** at the moment t_1 loses all energy (frequency jumps to zero), entangled photon **B** will feel it in a *spectacular fashion*. Photon **B** will abandon his origin and begins a new life from frequencies v_1. In other words, destruction of photon **A** does not destroy entangled photon **B**. Photon **B** stops relationship with photon **A** and continue its journey associated with new origin and new age profile (v/v_1). This spectacular phenomenon is called the *Law of Abandonment Origin,* in which instantaneous entanglement violates causality. The violation can be used for establishing and measuring hidden variables of entangled photons... It seems that Einstein's "spooky action at a distance" has the explanation.

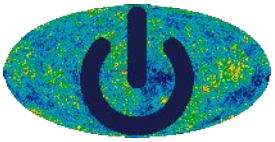
In *fact Law of Aging Photons* and *Law of Abandonment Origin* are hidden in the general theory of relativity, only is matter of time before they will be turn out from the forest of complicated equations.



Entanglement and Law of Aging Photons

Art work name: *Susskind Entanglement*
Author: *Krunomir Dvorski*
Year: *2014.*
Description: *Prof. Leonard Susskind interprets entanglement on a blackboard*
Technic: *Postfilterism*

Power of Creation - Turn on the universe



The energy of the universe is extremely big. Power of creation must be forceful. It is usually linked to the existence of God. In a science, the existence of God as Creator of universe must be described by the laws of physics that use power of transformation. This power is large but not infinite, as some think. In everyday life, *God is often conceived as the Supreme Being and principal object of faith...*[*Wikipedia] With full respect for other opinions, I see God as creator and ruler of the universe. Einstein wanted to know how God created the 'world'. I want to know how much power God uses to create the 'world'.

Big Bang and followers play rules with violent infinite power. Such power is not appropriate, nor for God. God's 'infinite power' is not needed. On a human scale, God is good-natured and do not have to use infinite power for creation.

Flipping theory offers nonviolent creation and flow. The process of a forming flippons is accompanied by non-violent generating mass and space, and can be described by *Incipient Law of Creation*:

$$I_k = \frac{c^3}{G}$$

Multiplying by c^2 we will get a power of Flipping Transformation. This is nothing more than the Planck power:

$$P_k = I_k c^2 = \frac{c^5}{G} = 3.62831 \times 10^{52} W$$

Friend of mine proposed the name "God's power of creation". With this power, the creation of Milky Way lasted 172 days. Everything else is a matter of evolution and natural selection. This approach harmonises the will of people and power of God. God's infinite power is not needed to create our reality.

Einstein has noted:
a) Space and time are not constant.
b) Mass and energy are not constant. They are identical and can be converted into each other.
c) The real constant is speed of light

Let us go one step further, Power of Creation is constant and continuous:

$$P_k = I_k c^2 = \frac{c^5}{G} = 3.62831 \times 10^{52} W$$

Fundamental physical constants and parameters

Recommended values of the Fundamental Physical Constants (2010 CODATA):

$h = 6.626\ 069\ 57(29)\times10^{-34}\ Js$	- Planck constant
$\hbar = 1.054\ 571\ 726(47)\times10^{-34}\ Js$	- reduced Planck constant
$l_p = 1.616\ 199(97)\times10^{-35}\ m$	- Planck length
$m_p = 2.176\ 51(13)\times10^{-8}\ kg$	- Planck mass
$t_p = 5.391\ 06(32)\times10^{-44}\ s$	- Planck time
$c = 299\ 792\ 458\ m/s$	- speed of light in vacuum
$G = 6.673\ 84(80)\times10^{-11}\ m^3/kgs^2$	- Newtonian constant of gravitation
$k_e = 8.9875517873...\times10^{-9}\ Nm^2/C^2$	- Coulomb constant
$\varepsilon_o = 8.854\ 187\ 817...\times10^{-12}\ F/m$	- electric constant
$\mu_o = 4\pi\times10^{-7}\ N/A^2$	- magnetic constant
$k_B = 5.670\ 373(21)\times10^{-8}\ W/m^2K^4$	- Stefan-Boltzmann constant
$m_e = 9.109\ 382\ 91(40)\times10^{-31}\ kg$	- electron mass
$m_p = 1.672\ 621\ 78(74)\times10^{-27}\ kg$	- proton mass

Cosmological Parameter Summary (WMAP+eCMB+BAO+H_0):

$H_o = 69.32(80)\ km/s\ Mpc$	- Hubble constant
$\rho_o = 9.9\times10^{-27}\ kg/m^3$	- critical density of the flat universe
$T_u = 13.772(59)By = 4.346(19)\times10^{17} sec$	- age of the universe

Conversion of units:

$1\ year = 3.15569\times10^{7}\ s$	- year in secund
$1\ ly = 9.460730472580800\times10^{15}\ m$	- light year in metas
$1\ eV/c^2 = 1.782662\times10^{-36}\ kg$	- eV/c^2 in kilograms
$1\ kg = 5.609588\times10^{35}\ eV/c2$	- kilogram in eV/c^2
$1\ kiloParsec = 3261.63344\ ly$	-*kiloParsec* in *ly*
$1\ kiloParsec = 3.08567758\times10^{19}\ m$	-*kiloParsec* in *m*

More parameters:

$M_{MW} \sim 6\times10^{42}\ kg$	-total mass of Milky Way
$D_{☼☼} \approx 5\ ly$	-average distance between stars of Milky Way
$1\ kly$ thickness 100-120 *kly* diameter	-stellar disc of Milky Way
$1.08321\times10^{21}\ m^3$	-volume of Earth

Flipping Theory Parameter Summary:

$R_k = 8.71\times10^{-44}\ m{\cdot}s$	- length-time goo (unit)
$V_k = 3.518\times10^{-43}\ kgm$	- mass-length goo (unit)
$I_k = 4.037\times10^{35}\ kg/s$	- mass-time unit (mass flow)
$m_F = 2.176\ 51(13)\times10^{-8}\ kg$	- flippon mass
$t_F = 5.391\ 06(32)\times10^{-44}\ s$	- flippon time
$t_{fff} = 6.68\times10^{17}\ s \sim 21.2\ By$	- flippon free fall time
$V_F = 2.198\times10^{18}\ m^3$	- flippon volume
$D_F = 1613\ km$	- flippon diameter
$V_u = 1.772\times10^{79}\ m^3$	- volume of the universe

$D_u = 3.235\times10^{26}\ m = 34.19\times10^{9}\ ly$	- diameter of the universe
$\varsigma = 6.011048\times10^{7}\ s = 19.04828\ By$	- photon dimming (aging) constant
$\rho_{\odot} = 78.5\ \mu J/\ m^3$	- dark matter density in the Sun's orbit
$t_{fff} = 6.68\times10^{17}\text{s} \approx 21\ By$	-flippon free fall time
$t_{MW} = 172\ days$	-time required for a flippons creation of Milky Way
$N_{FMW} = 2.76\times10^{50}\ floppons$	-number of flippons in Milky Way
$V_{FMW} = 6.336\times10^{68}\ m^3$	-flippon formation volume of Milky Way
$D_{FMW} = 5.63\ million\ ly$	-flippon formation diameter of Milky Way
$M_u = 1.754\times10^{53}\ kg$	-mass of the universe
$P_{of\ creation} = 3.62831\times10^{52}\ W$	-power of creation

References

1. [1]Krunomir Dvorski, Flipping model of elementary particles, The Official Flipping theory Web Site, http://www.science.uwaterloo.ca/~kdvorski/TheFlippingTheoryWebSite/FeedYourMind.html
2. [2]Krunomir Dvorski, Incipient Law of Creation, The Official Flipping theory Web Site, http://www.science.uwaterloo.ca/~kdvorski/TheFlippingTheoryWebSite/FeedYourMind.html
3. [3]Krunomir Dvorski, Law of Abandonment Origin - Entanglement and Aging Photons, The Official Flipping theory Web Site, http://www.science.uwaterloo.ca/~kdvorski/TheFlippingTheoryWebSite/FeedYourMind.html
4. [4]Krunomir Dvorski, Law of Aging Photons, The Official Flipping theory Web Site, http://www.science.uwaterloo.ca/~kdvorski/TheFlippingTheoryWebSite/FeedYourMind.html
5. [5]Krunomir Dvorski, Law of Last Evidence, The Official Flipping theory Web Site, http://www.science.uwaterloo.ca/~kdvorski/TheFlippingTheoryWebSite/FeedYourMind.html
6. [6]Krunomir Dvorski, A brief overview of the new order in the Universe, The Official Flipping theory Web Site, http://www.science.uwaterloo.ca/~kdvorski/TheFlippingTheoryWebSite/FeedYourMind.html
7. [7]Krunomir Dvorski, Ohm's law and mass of the Universe, The Official Flipping theory Web Site, http://www.science.uwaterloo.ca/~kdvorski/TheFlippingTheoryWebSite/FeedYourMind.html
8. [8]Krunomir Dvorski, Our Universe, The Official Flipping theory Web Site, http://www.science.uwaterloo.ca/~kdvorski/TheFlippingTheoryWebSite/FeedYourMind.html
9. [9]Krunomir Dvorski, Prime Spark and origin of the mass, space and time, The Official Flipping theory Web Site, http://www.science.uwaterloo.ca/~kdvorski/TheFlippingTheoryWebSite/FeedYourMind.html
10. [10]Krunomir Dvorski, Time, The Official Flipping theory Web Site, http://www.science.uwaterloo.ca/~kdvorski/TheFlippingTheoryWebSite/FeedYourMind.html

Krunomir Dvorski

Krunomir is self-driven, creative, enthusiastic, open-minded, dedicated, and motivated for teamwork, new technologies, success and glory. Graduated from University of Zagreb in electrical engineering with Bachelors and Master degrees. Worked on the USA-Croatian project "Electrostatic Determination of Voltage Unit". Taught Electrical Measurement, Electronic Instrumentation, and Electrical Engineering courses. Designed and supervised the construction of two education and research laboratories. Innovated and designed various electronic, measuring, and sensing equipment. Implemented personal innovations into the automated production lines. Published a student textbook, and papers in the electrical engineering field. Krunomir has extensive knowledge in analog and digital electronics, instrumentation, data acquisition systems, control theory, sensing devices, AC and DC drivers, measurement engineering and metrology. His work concentrates on designing and constructing various projects for the Faculty of Science.

In his leisure time, Krunomir turns to the Arts and Physics as his passionate hobbies. His artworks are displayed in Gallery Krunomir, published in several of books, magazines, blogs and Wikipedia.

As a hobby physicist and cosmologist Krunomir developed the Flipping Theory.

Krunomir Dvorski

The moment of rest – Pencil by Krunomir There is a stone in the Riverside Park in Cambridge where Krunomir rest after long walks. Formula on the stone is an artistic addition to symbolizing the discovery of Ohm's Law of the Universe.

The Flipping Theory

Fig. 5. Mars, 1905 Mai 31. 22^h — 22^h 38^h, Luft 3/4. 4″ Refraktor R. & H. V — 240.

Credit: Zagreb Astronomical Observatory

Drawing of Mars by M. Mance from 1905

Zagreb Astronomical Observatory founded in 1903
Credit: http://commons.wikimedia.org