

# The Real Universe

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**Abstract:** The findings of strong gravitational lensing by Sgr A\* indicate gravitation power/energy exist in the center of our milky way, though it is invisible. The presence of energy equal presence of mass ( $M = E/C^2$ ,  $C^2$  is constant). However, current perception of particles can be massless e.g. gauge bosons, the photon and the gluon<sup>(1)</sup> which create a centerpiece of confusion when we come to study dark matter and origin of universe. In this paper, the author will explain why all particles possess mass which is supported partially by 2013 Nobel Prize in Physics- the Higgs mechanism, which gives mass to fundamental particles. The big bang is the greatest event happened in the universe; it is unthinkable that such event left no trace in space; we must be blindfolded by something. In this paper, the author will point out what to look for so that we won't miss out on the Universe greatest party. Few will argue our matters (whether visible or invisible) are all made from particles. Many doubt that electromagnetic radiation or particles follow same laws of basic physics. Those doubts directly lead to a set of principles that land us in a fantasy world of uncertainty. However, the correct understanding of fundamental particles is the key for understanding big bang (2). In this paper, the author will pave a clear road map for how to study our fundamental particles, particular Gamma Ray. Furthermore, the author will explain the reasons that dark matter/black hole is made from gamma ray nucleosynthesis! The author also will explain the reasons that our current background cosmic ray/gamma ray originated directly from big bang (for most part)! The master of infrared/fire power set human apart from animals and land us on top of the world. The master of the gamma-ray will undoubtedly land us on top of the universe. The Physics will unite all science branches. The particle physics will lead artificial intelligence to its terminal end in the universe civilization of all kind.

**Keywords:** Particles, Dark Matters, Black hole, Gamma Ray, Big Bang, Origin of Universe, Time, Space, Odds, Numerous Bangs, Endless Cycles

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## 1. Introduction

All matters (include fundamental particles) intrinsically possess positional energy/power and kinetic energy/power. For better understanding, the author here describes all positional energy as orbiting energy. The usual term of gravity means earth's gravity affects objects that are positioned on earth, but it really means that positioned objects are orbiting around earth. The single orbiting energy/power unifies matter and particles, because particles possess orbiting power when they are coupled. Those orbiting energy of particles are same as gravity, which should be scaled in gravity term. Furthermore, the gravity affects particles in same way as does to their heavier mass brothers, even though the effects on heavier matter are negligible. It's that reason, any study of particle must be in a lab environment of 0G0K (Zero Gravity Zero Kelvin). The study of particles behavior in a non-0G0K environment is invalid<sup>(3)</sup>.

The exception is to generate new particle in a contaminated lab environment.

0G0K is beyond human reach, but it will not stop us from understanding those little creatures. The author can assure you, when they are coupled, all particles orbit in a circular way, as it appears for any orbiting celestial body. When particles are liberated from their orbits, they will fly out in a straight way in a void space. The flying path of liberated particle can be bent. The particle will be affected by gravity if foreign particle or mass exist, exemplified as gravitational lens phenomenon, that refers to a distribution of matter (such as a cluster of galaxies) between a distant source and an observer, that is capable of bending the light from the source, as it travels towards the observer. That is one of the direct evidence that light particle possesses mass. The gravity only exists among masses whether big or negligible small. The light particles can be absorbed as well, it can be absorbed by inorganic and organic material.

The liberated particles advance in a wave way, a straight direction in a void space. We often describe them as electromagnetic radiation or ray. We often know matters better, because many of them are visible to our naked eyes, e.g. soccer. When matter breaks down to an invisible level, many panic. Some create principle of uncertainty for those invisible devils, but the author assures you, invisible particles follow same laws of physics and mathematics odds of random. Many bizarre behaviors of observed particles are resulted from contaminated labs (non-zero gravity, non-absolute zero temperature).

The conservative of energy dictates that liberated particles possess greater kinetic energy when they leave their orbit. The orbiting energy they once possess now fuels their kinetic energy. The destiny of liberated particles is to reunite other particles. The reunion will eventually lead to recapture its positional energy/power. The fate of particle closely mirrors our universe visible matters. The destiny of cosmos objects is destruction/big bang, every destruction/big bang breeds new born of cosmos objects/construction. The universe is in an endless cycle of matters/energy, where universe law applies both visible and invisible matters. There is no mystery in universe.

Other than gravity profiling, we also need to know the intrinsic temperature of particle. Particle physics are the cutting edge of all science, but its focus should be on profiling particles in a correct way-quantifying its G and K.

## 2. Big Bang, $\gamma$ -ray, Dark Matter, Black Hole

The universe is a complete and enclosed system, because there is nothing existing outside universe which may interferes universe matters/energy. The conservation of mass and energy perfectly apply universe as a unit. We can safely say that universe energy and mass are constant. The universe is never a boring place, there are many events happening in the universe, but nothing is more significant than a big bang. First, few will argue the big bang gives out the greatest kinetic energy. The question is where the big blast of kinetic energy goes today? The kinetic energy cannot disappear without trace. Second, the big bang spits out matters which carry tremendous energy, where are those high energy matters today? Again, the matters cannot disappear without a trace.

Admittedly, much of a big bang's kinetic energy transforms into positional energy (conservation of energy) after the big bang. This is directly evidenced by numerous stars, planets etc. All those positional energy possessed by today's celestial mass originated from the big bang's kinetic energy; however, it is not a complete story here. There are numerous circulating celestial mass which carry tremendous kinetic energy besides their positional energy. Furthermore, there come cosmic rays! Those cosmic rays scatter with no pairing; they are free standing loners. The cosmic rays carry little positional energy but tremendous kinetic energy.

Among them, the Gamma Ray is most significant kinetic energy form existing in the universe.

The big bang Energy can be safely construed as pure kinetic energy (those kinetic energy is transformed from positional energy possessed in pre-big bang Mass). Now we can put all the pieces of puzzle together, it solves a very simple question in a simple equation.

$$E_{\text{bigbang}} = E_k + E_p$$

The  $E_k$  is the sum of kinetic energy presents in the current universe.  $E_p$  is the sum of positional energy presents in the current universe.

The matter that carries kinetic energy can be considered "visible", because we have a way to detect them directly, e.g. its body temperature. The temperature is a good example of kinetic energy. The other good example of kinetic energy is orbiting planets. The speed prevents them from falling into their orbiting mass. Many objects possess kinetic energy also possess significant positional energy e.g. sun. The sun carries kinetic energy and it has gravity (a form of positional energy). Many objects possess kinetic energy, but own little or none positional energy. Luckily, they possess kinetic energy, so we can detect them. Those creatures perfectly meet the needs of the big bang explosion. Among all those creatures, we can clearly see nothing is more qualified than Liberated Gamma Ray/Particles to fit into this role. The liberated Gamma Ray/Particles stand for free from orbiting (e.g. Radioactive decay).

What confuses many scientists today are objects that possess positional energy but little kinetic energy. Some of those objects that possess positional energy also possess kinetic energy e.g. sun. Those are considered visible and detectable. What about objects possessing positional energy but have little or no kinetic energy? Furthermore, when their positional energy powerful enough, they will absorb kinetic energy of any kind, pure or partial. They will have no lights reflex at all. If those objects present right in front of us, we can touch them but not able to see them. While we touch those objects, we will most likely be absorbed into them and dissembled to particles. If they present far away, beyond our physical reach, The objects could be a nightmare for scientists. The author agrees that dark matter is a perfect name for them. They are matters but invisible.

The big explosion/big bang is the most extreme event happening here and there in the universe. It experiences moment of silent/quiet followed by a gigantic explosion (positional energy transforms into kinetic energy in energy term for a blast). Nothing is more qualified than dark matter to be a pre-bang mass which meets the requirement for feeding a big bang.

The black hole is made of dark matters. The so-called dark/black simply means invisible to human eyes. Invisible doesn't equal to non-existing. Dark matters emit little lights, their temperature are very low as they are evidenced by their presence in the center of Milky Way. A black hole of  $4.5 \times 10^{22}$  kg (about the mass of the Moon) would be in equilibrium at 2.7 kelvin, absorbing as much radiation as it

emits (4). For comparison, at the core of our sun, the temperature can reach more than 27 million degrees F (15 million degrees C). The sun only holds our solar system together, but the black hole holds our milky way together. Our milky way is said to have 100 billion stars. It is undoubtedly to say, our black hole possesses enormous amount of gravitation power, which means enormous amounts of mass. The black hole is no mystery. The gravitation power is part of positional power. However, the recent observations of the star S14 (S0-16) circulates the center of our milky way indicate that our black hole radius is no more than 6.25 light-hours. The only widely hypothesized type of object that can contain 4.1 million solar masses in a volume of that small size is a black hole. (5)

The black hole of Milky Way is incredible cold comparing to our solar center (4). So, given such low kinetic energy/low temperature in the black hole of Milky Way, which form does its energy exist? According to conservation of energy, it must be in its positional energy. The author can therefore assure you that dark matters/black hole possesses enormous amounts of orbiting energy/positional energy, which is directly evidenced by Milky Way staying together. Without black hole, any galaxy will scatter away.

The life span of galaxy is lot longer than our solar system, which dictates our milky way's black hole cannot emit too much energy/mass out too fast or outpace its absorbing new mass/energy, while it needs to be continued to be fed by outside masses/energy. The gigantic level of black hole gravity ensures its longer life in two ways. One, few lights escape its gravity grip. Two, tremendous amount of celestial mass are continuously pulled in. Our sun, on other hand, it sheds tremendous amounts of energy/mass continuously, but it is not fed by outside masses at any significant level. The sun has much shorter life span vs. black hole. The mass's make up of sun is different from black hole.

Dark matters and black holes are no magic vs. their visible cousins. The denser element means heavier element. What is heavier? It means greater gravitation power. Few will argue dark matters are compactly packed creatures. The real question is where they get such striking energy/gravitation power from? According to conservation of energy, energy cannot be created or destroyed. Their gravitation energy must come from their kinetic energy they once owned.

Who owns highest kinetic energy in the universe? The liberated particles own highest kinetic energy directly from a big bang! Now we can put final piece of puzzle in its place. Without seeing its happening, the author can assure you two things. 1. The dark matter/black hole is compacted (non-liberated or orbit-binding) gamma ray/particles nucleosynthesis! 2. The dark matter/black hole/non-liberated Gamma Ray are those original Gamma Ray/Particles directly come from big bang! The compacted or non-liberated gamma ray particles exist in dark matter of black hole is understandable, because tremendous numbers of  $\gamma$ -ray/particles are gathering in various dense areas (space is not vacuumed during pre or post big bang. The free standing  $\gamma$ -ray will be coupled or orbited among each other where they

gather. The mass of orbit-binding gamma ray acquired tremendous positional power from such gathering. Those density induced  $\gamma$ -ray gathering/concentration triggers massive gamma ray/particles nucleosynthesis! Which is termed as dark matters/black hole. The free standing or non-orbiting  $\gamma$ -ray will continue to fly in a straight line (almost pure kinetic energy with little positional energy) until it meets its mate or potential coupling partner. As a matter of fact, the free standing loner  $\gamma$ -ray still exists in a tremendous amount in today's space- it is called cosmic ray!

Furthermore, our current cosmos Gamma ray (not all of them) is indeed from a big bang! It is partially supported by fact that the energies of gamma rays from astronomical sources range to over 10 TeV. That energy is far too large to result from radioactive decay. (6) some cosmos gamma ray are from pulsar and black hole though. However, gamma-ray pulsars and rare occurrence of gamma ray burst from black hole are very rare events in the universe. It is evidenced by recent observation: there have been only about one hundred gamma-ray pulsars identified out of about 1800 known pulsars (7)(8). Base on observation, the sources of most GRBs are billions of light years away from Earth, implying that the explosions are both extremely energetic (a typical burst releases as much energy in a few seconds as the Sun will in its entire 10-billion-year lifetime) and extremely rare (a few per galaxy per million years).(9) Given the facts that the universe space is infinite big and it is full of diffuse gamma radiation, it can be reasoned that the pulsars and black holes are not sufficient source for such extensive universe background gamma radiation. Secondly, the radioactive decay is not a right candidate power house for cosmos  $\gamma$ -ray background either. The only option left here is a big bang. The big bang provides most of those cosmos  $\gamma$ -ray today. The remaining cosmos  $\gamma$ -ray is provided by big bang indirectly. The issue remaining here is that some of those cosmos  $\gamma$ -ray might not come from the big bang which created our galaxy, some of those cosmos  $\gamma$ -ray may come from foreign big bangs if it can stay single/free long enough and it can escape being captured by cosmos mass/energy along its way. The minute part of cosmos  $\gamma$ -ray may even come from alien artificial intelligence.

The author here can assure you black matter/black hole are made from gamma ray nucleosynthesis that are originated directly from big bang. The gigantic gravitation power which black hole possesses today directly comes from a big bang! There will be no other appropriate candidate source powerful enough to fuel black hole such energy at that astonishing level. It is evidenced by galaxy's black hole. In the universe space, there is no single isolated structure that is bigger than a galaxy. All galaxies are hold together by its black hole. All galaxies descend from a big bang directly, so does its black hole. As a matter of fact, all galaxies are made from gamma ray of some kind as well.

Secondly, gamma ray nucleosynthesis existing in black matter/black hole remain domicile which presents little kinetic power, however, the continue feeding of new celestial mass may trigger some of its gamma ray particles to be

liberated from their orbiting position and fly out with tremendous kinetic power, which is evidenced by gamma ray burst from a black hole. It is supported by NASA SWIFT project's findings of gamma ray burst (GRB) that is directly related to a black hole.

### **2.1. Dark Matter and Big Bang**

The dark Matter is Matter that possesses little kinetic energy/power, so that it is hard to be detected by conventional detectors, e.g. telescope. The dark energy is positional energy, not kinetic energy. The kinetic energy is readily detected by our conventional detectors. However, there is a consensus that our universe dark matter makes up about 27% and 68% of the Universe is dark energy. What 68% tells us? It tells us that more than half of energy is still in Gamma Ray. 27% mass is in Gamma Ray nucleosynthesis of some kind! The dark energy is carried by Dark matters. The dark is no mystery. The author here will crack the nut for you. 68% of the universe energy is dark energy; it is so significant sources of energy that cannot be supplied by any other sources but a big bang itself! The greatest kinetic energy deprived from a big blast turned into positional energy shortly after explosion. The author's point is supported by Big Bang nucleosynthesis- The first nuclei were formed about three minutes after the Big Bang! Nucleosynthesis is the process that creates new atomic nuclei from pre-existing nucleons, primarily protons and neutrons. The newly formed new atomic nuclei are perfect example of pure kinetic energy captured into positional energy/orbiting energy! The Big Bang Nucleosynthesis not only provides food for baby galaxies' visible matters but also breeds dark matters that hold galaxies visible matter together!

The positional energy possessed by dark matters apparently is necessary for galaxies to form and stay together; otherwise, all matters/energy will scatter all over places without having a chance to grow into anything significant in its size. Therefore, the "visible matters" which have chances to form must "follow" dark matters formation which occurs first, not vice versa. The author's view is supported by the dark ages of the universe — an era of darkness that existed before the first stars and galaxies ever appear. Many consider this dark age of the universe is mystery, the author think it is the most rational process in nature's evolution development.

The dark Matter forms first immediately after a big bang. The greatest kinetic energy starts to turn into positional energy during this period of time/ nucleosynthesis. Once positional energy establishes, matters starts to gather and circulate around dark matter. The dark matter merges as well, the greater dark matter, the greater mass can be collected around the dark matter. This is the model of baby galaxy's birth process.

As the author described earlier, the big bang does not occur in a vacuum space. The existing cosmos mass/cosmos ray will interact with a big bang's ray/Gamma ray, the interaction facilitate "post bang" kinetic energy transform into positional energy. The "so called" dark matter possesses so little kinetic energy for us to detect, the dark matter must

be something unusual to our earthlings. Most materials which we are grown up with are matters that possess both kinetic energy and positional energy, though pure kinetic energy is very common to us, e.g. solar lights. The pure positional energy, on the other hand, is not common on earth. However, it is not mystery and it is not dangerous if it is on a small scale. The author applaud European Particle accelerator, and assure the rest of us that black hole created in a human lab will not swallow earth! It is the game of quantity, a drop of water is not going to drown a giant elephant! The black hole is nothing but a compacted Gamma Ray nucleosynthesis. The author will address it over and over in this paper, because Gamma Ray Particles are the only suitable candidate for possessing greatest power in a very small package. As human, we are well aware of high power Gamma Ray during Gamma Ray Burst, however, the author can reasonable assure you if we pair liberated Gamma Ray/Particle together, its mighty kinetic energy will transform into mighty positional energy( $\gamma$  ray nucleosynthesis), a perfect candidate for dark matter/black hole.

The universe energy is constant and it exists in two forms. Since we human have tools readily detect kinetic energy in distance, we know gamma ray is the matter possessing the most powerful kinetic energy in a very small package. We also know that a great bang is the most powerful explosion in universe. So gamma ray matches big blast! Now, since the positional energy is not readily to be detected. However, we know that the energy is constant. The greatest positional energy must come from the greatest kinetic energy! What will be the matter possessing most positional energy? The only rationale answer for this is Gamma Ray nucleosynthesis!

According to our recent cosmos findings, we know that there are black hole and dark matters which hold our visible mass together. The black hole/dark matters are regions/masses which possess most powerful positional energy in the universe. The author here safely say that black hole/dark matter is made from "non-liberated" gamma ray nucleosynthesis for most part. Since gamma ray particles are so small, it is very understandable that black hole doesn't take much space! The author's description is supported by recent discovery of Milky Way Black hole whose radius is no more than 6.25 light-hours! 6.25 light hours are plenty room for its dark matter holding something together that is sized 100,000–120,000 light-years in diameter which contains 100–400 billion stars, aka milky way, a home for human sapiens.

### **2.2. Gamma Ray and Big Bang**

It is the big bang that kicks off Gamma Ray first. The diffuse cosmic back ground Gamma Ray is not originated during the period of Big Bang's nucleosynthesis (also known as primordial nucleosynthesis). The nucleosynthesis does happen, the process requires kinetic energy to be transformed into positional energy after particles start to mingle and gather around the dense regions. The mingle means when particles start to pair/orbit from each other that result in the orbiting power/energy. According to conservation of energy,

the new orbiting power must come from somewhere other than from nothing. The only source is its kinetic energy. The evolution of a big bang simply means that some of its greatest kinetic energy starts to be captured into its form of orbiting energy/gravity power during its cooling off stage, when galaxies start to be created. The destiny of big bang is another big bang. The gravity power will eventually collect enough mass and creates another new pre-big bang black hole. The pre-big bang black hole is so enormous that it will dwarf our Milky Way's black hole as a drop of water vs. ocean. The enormous orbiting power that a black hole/dark matter possesses will eventually be released and transformed into kinetic energy, which presents itself in a spectacular gamma bomb show/big bang explosion, which will dwarf gamma ray burst (GRB) as a 3 watts light bulb vs. the center of sun.

We can reasonably believe that the pre-Big Bang Mass must contain mostly positional energy rather than kinetic energy, because soon it will kick off as an explosion. Accordingly, the explosion must be in a form of mostly kinetic energy, rather than in a form of positional energy. Before and during explosion, there is no logical reason to think that the universe space of any moment must be complete vacant. Here are the reasons. 1. The collection/preparation stage of pre-Big Bang Mass only requires a quantifiable amount of mass/energy to trigger a big blast. There is no reason and need to stripe the space to a total void. (2) 2. The big bang is not the only event happening in the universe at any moment. There is mass that is constant exchanging from region to region regardless of status of a particular region. There are numerous big bangs. The various regions of universe are at different stage of mass/energy evolution process. Therefore, it further reduces possibilities of striping a space to a complete void even for a region that is ripened for a big blast.

My description of universe big blast is indirectly supported by general belief that primordial stage of clustering and merging exists. If the space were total void, the blast will send homogeneous Gamma Ray/Particles in a perfect sphere shape; there would be no area of density difference which is the key inducer for clustering and merging. The author reasons that non-void space which provides the density difference. Those density differences continue to exist before and during a big blast. Those density differences are necessity to induce clustering and merging which lead to dark matters, black holes and galaxies. Furthermore, those density differences spread out in space follow the mathematic rule of random. If the space were total void, it would have gradual changing appearance of cosmic ray spread in a sphere shape. Without those random existing of cosmos mass before and during big blast, we would not be here, neither is our Milky Way.

### 2.3. Gamma Ray and US

Gamma Ray is a good stuff. Gamma rays, electromagnetic radiation of an extremely high frequency / high energy photons, are produced by a number of astronomical processes

in which very high-energy electrons are produced, that in turn cause secondary gamma rays via bremsstrahlung, inverse Compton scattering and synchrotron radiation. Gamma rays typically have frequencies above 10 exahertz (or  $>10^{19}$  Hz), and therefore have energies above 100 keV and wavelengths less than 10 picometers, which is less than the diameter of an atom. They can also be produced by the decay of atomic nuclei known as gamma decay. Gamma Ray also can be produced in our nuclear reaction etc.

There are 4 stages of utilizing energy in our human history. The First Stage is horse power stage. The humans mostly use animal power to supplement man's power. The second stage is Molecular Power stage. The humans mostly utilize fire power by burning fuels. The third stage is Nuclear Power stage. The humans mostly harvest energy from sub-atom nucleus. The fourth stage will be sub-nucleus Particle Power stage. The author applaud European Organization for Nuclear Research (CERN)'s effort to crackdown the sub-nucleus particles. The Large Hadron Collider (LHC), the world's largest and most powerful particle collider is the first step for humans entering the Era of Particle Power. The danger comes when particle power fall into a wrong hand. To protect our way of living and beloved human civilization, the international task to prevent particle power proliferation soon must be in its place!

Comparing to pure kinetic energy, the pure positional energy is always hard to be detected in cosmos. The kinetic energy comes to us, while positional energy sits there. When this happens, the cosmos Gamma Ray serves perfect tool for us to notice the existence of positional energy/gravitation. The author's point is supported by phenomenon as gravitation lens. Furthermore, we shall be able to quantify the positional energy/gravitation by measuring gravitation lens effects carefully. The calculation will provide us not only the gravitation power but also the actual mass that invisible object possesses.

The earthlings are only one step from Gamma Ray communication. The Gamma Ray is much more powerful source that we can use to communicate cross vast cosmos distance. Humans are restricted by our physical forms which stop us from traveling in space. However, the electronic form of human in Gamma Ray will easily overcome the barriers that physical form of human face today.

Gamma Ray weapon will be the ultimate weapon dwarfing our current nuclear weapon systems as a catfish vs. Tyrannosaurus rex. Imagine that the GPS locate a target; Gamma Ray will evaporate it like mini big bang that hit a home run! The characteristic of gamma ray weapon is to leave no messy blood with a potential of recycling enemy's physical body and their weaponry. The nuclear weapon is more readily a source for  $\gamma$  ray nucleosynthesis. The era of  $\gamma$  particle warfare will become energy recycle enterprise. Not only the superior civilization send out cyber generals and solders (electronic form of human fighters) but also evaporate enemy and their arsenals into dark matter, take them home and sell them to a local utility company. The recycle of enemy energy is not a new concept. The very first

war of human civilization involved capturing enemy soldiers and sold them to slave market to recycle their man power. In the era of particle power, enemy's sub-atom particle energy will be captured and recycled. The fight will eventually become bloodless and painless.

If there is any intelligent life exists outside earth, the Gamma Ray in space will be the main target to study. Gamma Ray is the most powerful energy carrier which is capable to travel the vastest distance. When the cosmos Gamma Rays reach us, some of them may carry information, or some Gamma Rays are alien life in their electronic form. Our human race is only one step below the ultimate level of terminal end of artificial intelligence. If there is superior alien life that exists somewhere in the universe, the only hope that they have to travel among galaxies or escape a big bang is to store their information in the gamma ray. The gamma ray is the most powerful ray available in the universe. Comparing to other types of ray, the Gamma ray might last longer and reach further. However, the artificial Gamma Ray with information may never escape a big bang. It is, though, worth our effort to collect cosmos Gamma Ray and look for clues that may mean something other than existing as a form of pure energy unit.

In a speed of light, all mass will break down into particles. The dream of human carrier reaching speed of light is just fantasy (2). The human becomes unique and distinguish because of his/her personal memory and emotion that is associated with such memory. Those distinguished memories are nothing but an electronic form that is developed in our brain cells at first place. Once we are able to upload and pack such electronic memory/emotion into a light form, we will be able to travel in a speed of light. The only intelligent alien life that is superior to our human are the ones who master the Gamma Ray. The alien gamma rays wander in space, with hope to reach the receptors. They would not be able to complete their travel unless they find particular receiving receptors which allow them to down load. The colonization of cosmos will start in a form of Gamma Ray first, not a "May Flower" wooden boat. This sounds like a fiction, but it is science at its ultimate level.

Other than for the potential of information storage, The Gamma Ray engine will be an ultimate power horse for inter stars/inter galaxies travel due to  $\gamma$  ray/fuels that are readily available in space.

The Gamma Ray will be an excellent detector for invisible mass. It is high energy, which travels fast and far, it will detect any positional energy nearby on its route due to the gravity lensing effects, or the bend of light. The Gamma Ray radar detector will be the ultimate detector available in the universe. There will be no stealth plane, or dark matters that can escape from its detection.

#### 2.4. What We are Made From

It has been said that we are made from star dust. This is not a quite correct answer. It is the inorganic matters that are made from star dust.

In about three minutes, The Big Bang nucleosynthesis

produced most of the helium, lithium, and deuterium in the Universe, and perhaps some of the beryllium and boron.(10)(11)(12)

The heavier elements are produced in stars through the process of nuclear fusion (13)see stellar nucleosynthesis for details. Isotopes such as lithium-6, as well as some beryllium and boron are produced in space through cosmic ray spallation.(14) This occurs when a high-energy proton strikes an atomic nucleus, causing large numbers of nucleons to be ejected. Elements heavier than iron are produced in supernovae through the r-process and in AGB stars through the s-process, both of which involve the capture of neutrons by atomic nuclei.(15) Elements such as lead formed largely through the radioactive decay of heavier elements.(16) Those elements exemplify what is called atom evolution.

The Organic Matters branch off from inorganic matters. The process requires light energy. The light energy could come from solar or earth itself. The most popular photosynthesis requires green chlorophyll pigments. In plants, these proteins are held inside organelles called chloroplasts, which are most abundant in leaf cells, while in bacteria they are embedded in the plasma membrane. The first photosynthetic organisms probably evolved early in the evolutionary history of life and most likely used reducing agents such as hydrogen or hydrogen sulfide as sources of electrons, rather than water.(17) Cyanobacteria appeared later, and the excess oxygen they produced contributed to the oxygen catastrophe,(18) which rendered the evolution of complex life possible.

The Organic Matters are mass possessing both kinetic energy and positional energy. To become alive and grow, the living beings require additional matter that possesses almost pure form of kinetic energy -light energy. However, the light energy is no alien to us. Neither is dark matter! Dark matter is just opposite from light energy, which possess positional energy mostly with very minimum kinetic energy. It is evidenced by universe background temperature. If there is temperature, there is kinetic energy.

Light has mass; it is evidenced by gaining slightly weight after photosynthesis. The current model of photosynthesis is perfect example that nature set up for us. When we enter the era of  $\gamma$  particle power, we will be able to utilize  $\gamma$  ray for photosynthesis.

#### 2.5. Time and Space

Time is just a record of history that describes an evolution in process or movement in matter; if you were to stop time, you would see a snapshot or momentary freeze picture of matter physics -- a halted progress in matter/energy. The speed of matter/mass or their evolution can never stop; therefore, time will never stop. There is no disappearance of matter/mass/energy; there is only transformation of the engaging or dissembling with external or internal mass/energy. (2) The Universe Mass and Energy are in an endless cycles, accordingly, time has no beginning and no ending.

Space is just a void where matters float. The Space is not a mass. The space and time can never be bent.

## 2.6. Mathematic Odds and Déjà Vu

Since the universe matters are all made of same particles, whether they are gods particles or ghost particles, there is no mystery or magic force in our universe. It is all about odds in the universe where math comes to play. From the most primitive particles to the most sophisticated chemical structures, matter will never vanish. It just exists in different forms by pure odds.<sup>(2)</sup>

Given the infinite size of the universe, the probabilities are most likely infinite as well: "anything is possible." Therefore, at any moment, if you take a snapshot, you can always find materials/particles of same physical character at different places in other parts of universe simultaneously, which gives people a sensation of déjà vu. Similarly, when you look into a large crowd, I am sure some déjà vu is going to play right in front of your eyes -- two faces will appear to be identical.<sup>(2)</sup> Two Identical person does not mean they are same person. Similarly, if you look deep in the universe, you might find another "you", the childhood memory, however, could be different.

## 2.7. Unify All Science Branches and Philosophy

The study of universe will eventually lead to great reunion of all science branches and philosophy as organic intelligence heads to its terminal stage.

## 3. Results Analysis

The universe is a complete and enclosed system, because there is nothing existing outside universe which may interferes universe matters/energy. The conservation of mass and energy perfectly apply universe as a unit. We can safely say that universe energy and mass are constant.

$$E_{\text{bigbang}} = E_k + E_p$$

The  $E_k$  is the sum of kinetic energy presents in the current universe.  $E_p$  is the sum of positional energy presents in the current universe.

The big bang is a greatest event happened in the universe; it is an almost pure kinetic energy show. Soon after a big blast, some of its kinetic energy starts to transfer itself to the positional energy ( $\gamma$  ray nucleosynthesis). Some  $\gamma$  ray nucleosynthesis trapped at subatomic stage and evolves into dark matter (significant positional energy, little kinetic energy). Some  $\gamma$  ray nucleosynthesis goes on to form galaxies and us. Some  $\gamma$  ray remains free standing status and becomes cosmos background ray.

The cosmos background ray may have diversified sources, due to supernova. It may also have organic intelligent originating, though the artificial gamma ray would be very little to none at its scale vs. a great bang or a supernova.

## 4. Discussion

In this theoretical study, the author paved a road to disclose our universe mysteries by mapping its energy

evolution. Under dictations of the law of classic physics, the author reasons what dark matter/black hole is made of-  $\gamma$  ray nucleosynthesis. Furthermore, the author describes the mode of mass evolution in our universe by analyzing its energy composition. In consideration of infinite size of the universe, the author postulates numerous big bangs exist in our universe with endless mass/energy cycles. <sup>(2)</sup>

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