

## Understanding of Universe, Time, Odds and Environment

Edwin Zong

Oasis Medical Group, Bakersfield, CA 93305, USA

[R4gomed@yahoo.com](mailto:R4gomed@yahoo.com)

**Abstract:** The origin of universe, the big bang, modern observations of paradox phenomenon in Phantom Physics and surprisingly accelerated peripheral galaxies<sup>①</sup> have been the center of confusion in contemporary scientific world. In this paper, a possible cause is discussed base on classic physics. Since the energy in the universe is constant, when the background temperature drops, the heat energy transforms into a different form of energy -- that is momentum. In space, the galaxies are the most significant masses that gather in random movements when their speed drops (due to aging)<sup>②</sup> and they cannot offset inter-mass attractions or gravities; on a macro level, the mega aggregation of galaxies/matters provide them ever-increasing heavier mass by collecting more aged galaxies/mass/comic ray<sup>③</sup> along the way. On the other hand, lost matter in the background means lost energy, which means a drop in universe background temperature. Gigantic numbers of regional galaxies/masses will eventually join together and reach a critical mass level or a critical energy level that can be labeled as a blast point, which will trigger a gigantic explosion, similar to our nuclear reaction. The gigantic blast is also known as a big bang that simply bombs everything within to its most primitive state. The blast spits out those most primitive particles, which one day will again form atoms, then molecules -- first inorganic, then organic<sup>④</sup>. The universe is nothing but an unending cycle of merging and collapsing first-forming a pre-blast mass/energy that triggers a gigantic explosion when the mass/energy reaches a critical blast point. The blast then spits out primitive particles that once again form molecules and then form galaxies/planets. The mother blast also fuels the mass with initial momentum/kinetic energy. When the kinetic/momentum energy declines to certain levels, those galaxies cannot resist the attractions of gravity. They once again merge and collapse, then trigger another explosion; then a new collection of galaxies will be formed, then they age, then merge, collapse and blast again. The big bang/particle explosion is triggered by a certain level (quantifiable) of mass/energy. It cannot be an infinite level of mass/energy. It is another logical call. To express this in a more organized way, I will have to coin a new term for each part of the universal system – Zolaxy, which is created by a single mother blast. The Zolaxy is a family of galaxies created by a single big blast. In other words, the galaxies of any Zolaxy should have the same birth origin/mother bang. In the micro world of sub atom level (Phantom Physics), any unrelated particles/energies existing in experiment environment will greatly alter the experiment results. Since a theoretical space of temperature 0k has never been accomplished in any man-made labs, I am afraid to say that none of those experiments is valid in Phantom Physics. In other words, there is no evidence support quantum mechanics or quantum laws.

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### 1. Introduction

Few will argue today that our universe space is infinite in size, and it does have a background temperature, which means energy, according to Einstein's equation where  $E$  is energy,  $m$  is mass, and  $c$  is the speed of light in a vacuum (true void of any known or unknown particles/energy). When  $E=0$ ,  $M=0$ . Energy doesn't exist without matter. Based on observation, the universe is cooling but the peripheral galaxies are speeding up.<sup>⑤</sup> where are those kinetic energy from? It has puzzled many scientists. Some scientists may have doubts about big bang because of this paradox observation. During the life cycle of universe, was it just a single big bang that created this current universe some 13 billion years ago? The

equally confusion question may also exist- is the big bang triggered by a certain level of mass/energy reached within or it requires infinite amount of mass/energy? Based on study of sub-atom particles, some extreme physicists now promote a concept of quantum mechanics; they believe "it is possible that something can come out of nothing". This concept has dramatically deviated from classic physics. Are they correct about the nature? Or they are just romantic physics fantasists? The primary objective of this study is to explain some of paradox universe phenomenon in the discipline of classic physics and philosophy.

### 2. Integration of theoretical physics, math and philosophy

The universe is infinite by definition, not by scientific observation. We invent the word “universe” with a definition that covers all space and matter. If something else exists outside of the universe, whether it is space or matter, then we need to reject the definition of universe and coin a new word which will include outside space/matter. “The universe is finite” cannot be accepted, because it violates logic. It is a logical consensus that we accept this definition of “universe,” which covers everything, both known and unknown. The universe space is infinite in size, and it does have a background temperature, which means energy, according to Einstein’s equation where  $E$  is energy,  $m$  is mass, and  $c$  is the speed of light in a vacuum. When  $E=0$ ,  $M=0$ ! Energy doesn’t exist without matter. Therefore, the matter in universe is infinite as well. Otherwise, you cannot explain how limited matter could fill an unlimited space and give a background temperature of 2.7 K. It is simple logic in mathematic. Look at Einstein’s equation again.  $E=MC^2$ . If temperature exists in every part of the universe, then energy is infinite by definition as well, simply because the space of the universe is infinite by definition. Limited energy/matter cannot disperse in an infinite space. The matter in the universe therefore is defined as infinite by logical reasoning as well. Those matters cannot be increased or decreased, which gives the fact that universal matter is constant, and universal energy is constant correspondingly. Science can never measure infinity because of its inherent deficiency: It is the fact that the physical size of any manmade object/instrument cannot reach infinite. That’s where logic/human philosophy is called in to help science. The primitive matter/particles - e.g. cosmic strings, or any particles - existing in the background of the universe are not what we have in our periodic table of elements, which ranges from the lightest element, hydrogen, to super heavy ones, e.g. plutonium. Elements in our periodic table can be changed by adding or removing protons (a process also known as fusion or fission, in nuclear weapons terminology) from the nucleus, along with some electrons.

### 2.1 Sub-atom Particles

At sub-atom level, the primitive matter/particles are building blocks for nucleus in atoms; after a big bang, some of those sub-nucleus particles remain unengaged in the process of nucleus formation, they remain free and they can be called cosmic strings/ray or wave. Atoms from our periodic table are the building blocks for our molecules, and later on, some of those molecules may be integrated into nonorganic chemical compounds, as well as into their sophisticated sisters, organic compounds. Organic compounds breed organic lives. Those living materials can be resolved back to their organic building blocks

through a process of fermentation. Those sophisticated sister compounds can be further broken down to inorganic materials or molecules. Those basic molecules can be even further broken down to their most primitive particles. For Example, leave a steak in the center of active nuclear reactor; you will know what that steak will become. However, we do not have the technology to restore those particles back to a steak. Thus, those primitive sub nuclear particles are certainly created by big bang/mega nuclear or sub nuclear alike explosions. It is a round trip. The big bang explosion is most likely not equal to the nuclear explosions known to humans today. It is more likely a gigantic explosion/big bang of measurable amount of primitive particles that reach critical level first, a direct result of mass merging e.g. gathering of enormous numbers of dying galaxies. At micro level, the influence of environment is much greater on behaviors of sub-atom particles vs. large mass. The absolute void space must be 0k on the scale of absolute temperature. Without such strict environment, none of study results on particles is valid. The irrational conclusions from those invalid studies (e.g. quantum law/mechanics) are nothing but human fantasy. The black hole/black matter is a collection of primitive particles, which is resulted from merging/collapsing/condensing of colossal masses. The black hole doesn’t take too much space, because the space and distance existing in nucleus is dramatically eliminated. Black matter is just primitive particles, acting nothing like more advanced-structures e.g. atoms or molecules. However, the black matters or any particles still follow the law of Einstein Equation. In reality, the stealth fighter jet may have a way to avoid detection from radar, but it cannot hide itself from an energy detector since it is mass/energy. Similarly, black hole may have a way to avoid detection from regular telescope, but it cannot hide itself from an energy detector either. The separation of energy from mass or vice versa will violate the Einstein Equation, and it is human fantasy.

### 2.2 Basic energy form in universe

In universe, there are two basic forms of energy- Kinetic and Potential (any existing energy falls into one of these two). The kinetic energy (e.g. Momentum) prevents stars and planets merge into each other. On the other hand, the potential energy (e.g. gravitational potential) attracts all planets, stars and matters of any form to merge. When planets, stars, galaxies are at their young/mature age, they have enough kinetic energy retrieved from a mother bang keep them away from each other. When time passes on, their kinetic energy decline in space due to traveling a long distance after bang, more and more aging stars/planets/galaxies will not be able to resist gravitation. They start to merge. The more merge they

have, the greater the mass become. Those mega merged mass will crash matters within, feed black matters. Sooner or later, the inactive black hole/or matters will become active black holes due to ever increasing mass/energy within. The process of mega merge will become more and more dramatic or violent when it approaches to another big bang.

### 2.3 Universe and its cycle

Based on observation, the universe is cooling. The peripheral galaxies are speeding up. Since the energy in the universe is constant, when the background temperature drops, the heat energy transforms into a different form of energy -- that is momentum. The increase of momentum manifests as acceleration of peripheral galaxies. As a matter of fact, both heat and momentum belong to kinetic energy. The next question is: Why will the temperature drop? Based on the characteristics of all matter/materials, they tend to gather together in random movements-micro gravitation (a form of potential energy). In space, the galaxies are the most significant masses that gather in random movements when their speed drops. Their kinetic energy cannot offset inter-mass attractions or gravities. On a micro level, along with the vast distance, the traveling galaxies will also pick up particles/cosmic strings/ray based on the same physics. The mega aggregation of galaxies/matter provides them ever-increasing heavier mass. More mass means more energy, in which some energy manifests in increasing momentum. Some of that energy will be used to condense the matter within-transforming to potential energy, which creates a heavier black hole. A heavier black hole simply means more energy or mass within. The heavier black hole (higher level of potential energy) will turn an inactive black hole to an active black hole (highest level of potential energy). The active black holes will absorb more mass. In the meantime, there are less matter/particles left in the background of the universe after galaxies passing by, which not surprisingly we will see a drop in temperature (losing matter means losing energy). Again, it is based on Einstein's equation -- the matter is energy. Energy, mass, and speed represent three fundamental characteristics of the matter/objects. They are not three separate things. If there is no energy, there will be no speed, and no mass. Similarly, if there is no mass, then no speed and no energy will exist. And if there is no speed, there will be no mass and no energy. Therefore, an absolute temperature of 0K for any space means no movements, but it also tells us that no mass/energy exists in such space-a total void vacuum. Again, lost matter in the background means lost energy, which means a drop in temperature. Also based on the same characteristics of matter/materials conducted in random movements, gigantic numbers of regional

galaxies/mass will eventually join together and reach a critical mass level or a critical energy level that can be labeled as a blast point, which means it will trigger a gigantic explosion, similar to our nuclear reaction. The gigantic blast is also known as a big bang that simply bombs everything within to its most primitive state. The blast spits out those most primitive particles, which one day will again form atoms, then molecules -- first inorganic, then organic. The organics will eventually become "alive" when they evolve to have boundaries and are capable of reproducing. As a matter of fact, the living organism will bring orders in random world. For example, the tree turns dirt into a highly organized material form -- e.g. tree trunk, barks and leaves. Not surprisingly, organism appreciates everything that is in order. The top organisms/humans appreciate beauty by our nature design as well. What is beauty? The beauty means organized/balanced objects. The higher level of civilization means superior in organizing. A chaotic nation or its army is a weak nation/army. In a competitive world, the more organized civilization will defeat or restore orders in less civilized or chaotic nations/regions. This is designed by nature. It is not a moral call. As we witness in our human history, many civilization have been wiped out by advanced ones. In the universe, some particles may escape the fate of being dragged into molecular structures. Those particles disperse; thus, provide the background temperature in the universe. Some people call them cosmic strings/rays. They are the free-standing loners in the universe. What is gravity? The characteristics of matter tend to gather together in random movements, also known as gravitation (a form of potential energy). When matter/particles reach certain quantities in mass, that mass will become very noticeable (increasing potential energy). The only reason that masses such as planets/moons do not merge is because they revolve with a certain level of speed (kinetic energy) that temporarily offsets the gravity (gravitation potential) - the delicate balance between momentum/kinetic energy and gravitation/potential energy; but eventually they will merge, due to decline of the kinetic energy, which means evolving speed drops as time elapses. Gigantic merged mass will collapse within and crash matters to its primitive state-sub atom particles. The universe is nothing but an unending cycle of merging and collapsing first, which triggers a gigantic explosion eventually when the mass/energy reaches a critical blast point. The blast then spits out primitive particles that once again form molecules first, and then form galaxies/planets. The mother blast also fuels the mass with initial momentum/kinetic energy. When the kinetic/momentum energy declines to certain levels, those galaxies cannot resist the attractions of gravity.

They once again merge and collapse, then trigger another explosion; then a new collection of galaxies will be formed, then they age, then collapse and merge again. It is hard to observe an exact chain reaction of events from point A to point B – for example, turning a big bag of dirt into a pink pig. However, I can assure you of how easy it is to bomb a pink pig back into a bag of dirt. If point A to point B is constructive, then the opposite direction is destructive. Every construction is destined to destruction. On the other hand, each destruction also breeds new construction. It is like the yin and yang of the universe. The micro level of yin and yang of this universe cycle is that the yin characteristics of gathering features of matter/particles in random movement (potential energy), and the yang character of explosion when energy/matter reaches its blast point (kinetic energy).

#### 2.4 Time, Death and Sleep

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 get just a snapshot or momentary picture of 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 disassembling with external or internal mass/energy. The so-called death in living organisms is really just a halt in the origin of the thinking process. The material will be recycled every bit in nature. The capital punishment is just stopping that particular thinking process; the material body cannot be erased. In terms of stopping the origin of the thinking process, sleep most closely resembles death. The difference is timing. Death means to stop the origin of thinking for good. Maybe one day, our technology will be advanced enough that when patients go to sleep, their damaged or malfunctioning body parts will be replaced by new functional parts or body; then the patient can be awakened with continuity of the original thinking process, even though, in a sense, the patient is already dead, because the original body has gone. The process will be similar to transferring a song from old disc to a new disc. The song is still same song, but carrier is totally different. Death, as we define it today, will have to be re-written.

#### 2.5 Mathematic Odds and Déjà vu

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. The so-called “odds” just describe the chance of matter entering into a particular state.  $E=MC^2$ . Energy, mass, and speed: these three characteristics describe all materials/matter/particles/cosmic strings or you name

it, regardless of its stage in matter evolution. Matter at different speeds not only means different levels of energy within, but also manifests different physical characters. The law applies one stage of matter may not apply the other stage. The never-ending of cycle of evolution in matter/particles happens throughout the universe. 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 state at different places in universe simultaneously, which often gives people a sensation of déjà vu. Similarly, when you look into a large crowd, I am sure some déjà vu is going to happen to your eyes -- two faces will appear to be identical. Some scientists may refer it as a parallel universe or alternative universe. But there is no such thing. There is no parallel universe – if there were, it would violate the definition of “Universe.” When you see two exactly identical coins, do you think that two coins are same one or parallel image? Another phenomenon occurs with the speed of light in vacuum. Some scientists feel that one light particle occurs in two different locations at the same time when they reach the speed of light. First of all, such observation is not valid, since no scientist is able to manipulate an environment to a true vacuum. However, I will not be surprise to know that at the speed of light, particles will demonstrate some unique physical character. Environment determines the physical state/character of particles/matter. However, the environment doesn’t make matter/mass increase or decrease if no other matter/particles/energy collides into it or loses energy/matter along the way. If the same particle exists in two locations at the same time, that would mean double mass/energy during the pure speed of light in a vacuum (void space from any matter/energy). It means energy/mass can be doubled in the speed of light. If it were true, the energy cannot be constant in our universe. Such a statement simply violates the law that mass/matter will not increase if no foreign mass/matter/energy engages, or mass/matter will decrease if no energy/mass/matter is lost in the process. If mass/energy can be increased or doubled out of nothing in certain environments, then our universe’s mass/energy will not be constant. When you see some matter/particles are at same stage of their respective evolution processes, but in different locations of the universe, you just need to remember that identical doesn’t necessarily mean they are the same. They may give us an impression of mirror image to each other, but again they are not the same. The light particle some scientist saw in “their vacuum” appears to exist in two different locations simultaneously; they are actually two different particles. In a “not so pure” vacuum, one particle may



very well attract another “foreign” particle pop up in its neighborhood due to its gravitation at micro level - a potential energy that a light particle possesses. In one word, there is no evidence that Einstein Equation is obsolete when it comes to particle world. Time should be simply explained as a history book, a record of chronicled events. Given the sheer number of possibilities in an infinite universe, many of the same events will occur in different parts of the universe. When you look into the universe, you might see the same events in a different part of location, which strikes you a strong sensation of déjà vu. Finally, time is not made of particles; it does not follow the laws of physics. The time machine is another human fantasy.

## **2.6 Physical Environment is the determination factor along with Odds**

Environment determines the physical state of matter/particles. Few will argue that the change of energy within will lead to change of physical characteristics of related matter/particles. How energy changes all depends on the environment where related matter/particles exist. The environment is an energy field with interplay of different matter/particles/mass. There is no place where is totally void of energy in any natural settings. It is very questionable that we humans can ever create a space that is total void of any energy (OK) - a space must also resist any particle penetration. It is a very bad news for particle physicists. The only solution may again require computer simulation. Our entire universe is filled up with energy; it is everywhere. The only way to change the physical state of matter/particles/mass is through manipulating its related environment. Reciprocally, we can observe any state of matter/particles/mass by mimicking a different type of environment, and then watching how matter/particles act in such an environment. The infinite size of universe is formidable for any living organism to physically explore, not to mention the difficulty for any living being to actually evolve intelligently enough to escape the big bang. Future explorations of the universe, I believe, will have to rely on computer simulations. While we create vast numbers of environmental possibilities, then we can see how matter/particles evolve or act in those environments. Hopefully, some of those cyber spaces can be true vacuum. The computer simulations may partially satisfy our ample appetite for knowing the unknown. In other words, computers will compensate for our inherited physical limitations.

## **3. Results Analysis**

### **3.1.1 Big bangs**

During the life cycle of universe, was it just a single big bang that created this current universe some 13 billion years ago? To say this is like saying the entire world's population descended from a single

mother. The world population is limited, but the universe is infinite. Let's see a nuclear reaction, the level of blast point is quantified (not infinite), that means there is quantified matter/energy involved, which doesn't need infinite energy or matter engaged to trigger a nuclear reaction. Similarly, the big bang/particle explosion is triggered by a certain level of mass/energy. It cannot be an infinite level of mass/energy. It is another logical call! If an infinite level of mass and energy are required to trigger a big bang, how can a big bang ever happen? We would be stuck in a process of reaching an infinite level of mass/energy forever. I can safely say that infinite means “forever” here. If this were true, there would be no such thing as a big bang. There would be no start of and no end to any cycle of energy/mass evolution, because no big bang would ever be triggered or happen. Other words, each bang may happen as long as a blast point is reached by collecting of measurable mass or galaxies/matter. Therefore, we can safely say that the universe is infinite, but the big bang is not. It involves a certain quantity (enough to trigger a big blast) of mass/energy. The limited quantity, though gigantic in our eye, certainly cannot represent the entire universe (remember, the universe is infinite!); therefore, the entire universe (infinite) cannot be created by a single bang (finite). It is another logical call! At any given time, I can, therefore, safely reason that different parts of the universe are evolving differently. Some parts of the universe may be newborn babies that just had big bangs; some parts of the universe are at a mature stage (e.g. ours); and some parts of the universe are old and dying, which will breed a new big bang. The new big bang may take up matter/particles or cosmic strings from other parts of the universe; therefore, the materials fed into a single big blast may not necessarily be from a single dying part of the universe. There are constant matter exchanges from different regions in the universe, because not all particles/matter will be trapped into molecular structures. Those free loners are the true free spirits in the universe; they may travel far away from their mother bang and enter territories of other mother bang's creation. The fate of those particles/matters is to remain free until they are attracted to nearby passing galaxies.

Those free particles will eventually participate in a big bang somewhere in the universe. That's also why some scientists feel like the matters engaged in this pre-blast bang of current “universe” can be traced to a measurable ball, and there are other “universes” existing parallel to our universe. Their feelings are correct, in a way. Because each big bang involves a limited amount of matter/particles/energy (a measurable degree of boiling point). The matters/particles have their free loners that travel

outside of their mother bang; those free loners have influence on other parts of the universe and provide universe background temperature. Understandably, any new big bang may include dying galaxies from different origins, because they are close enough to be caught in a new pre- big bang mass. To simplify the situation, we can generally state the universe is made of different parts; each part has its own mother bang, though they are interweaved, especially the free mass/matter travel through different regions constantly.

#### 4. Discussion

In this theoretical study, to put everything in a more organized way, I will have to coin a new term for each part of the universal system – Zolaxy, which is created by a single mother blast. The Zolaxy is a family of galaxies created by a single big blast. In other words, the galaxies within any Zolaxy should have the same birth origin/mother bang. There may be different sizes and different shapes of Zolaxies, just like galaxies. Zolaxies are enormous in their size, and too far for us to see from our Zolaxy. Galaxies are much smaller and much closer, so we are able to observe them. So far, we have observed spiral galaxies (our Milky Way galaxy is a spiral galaxy), elliptical galaxies, and irregular galaxies\*. If there are different types of galaxies, then most likely there are different types of Zolaxies. It all depends on the environment and energy/mass involved in that particular blast. Again, the Zolaxy can be categorized as a group of galaxies that have the same birth origin from a single mother bang. A Zolaxy is not the entire universe, just like the Milky Way is not an entire universe. As a matter of fact, our Zolaxy may represent a very tiny fraction of our infinite universe. The universe is infinite; the Zolaxy is limited in its size. The center of the Zolaxy is the origin site of the explosion; the newer galaxies are closer to the center of explosion. The aged galaxies are farther away from blast site. Understandably, travel cost energy; however, the aged galaxies are also picking up matter/particles/cosmic strings along the way as well. From a distance, the galaxies we observe are sped up, because the ones that cover vast distance are exposing, therefore picking up more matter/particles/mass in space. It will manifest as greater momentum. When we watch the distance at the periphery of the universe, the momentum is picking up overall because the universe's background temperature is dropping overall. It means an energy shift overall at the macro level. At the micro level, the longer distance Galaxies/Masses travel, the more matter /cosmic strings/energy are available to them. Their mass will grow bigger when they travel farther (greater mass does not necessarily mean greater size), harvest the matter/particles from the background.

Understandably, it will leave the background energy/matter scarce, though it will never vacuum clean the background space to its total void of energy/matters. Remember, there are always free particles/matters/mass (infinite numbers) floating everywhere in universe. The bigger mass means more energy or greater momentum. When multiple aging galaxies merge and collapsed, this will feed the black hole to its higher level of active physical status; then more free standing matter/particles/energies will be harvested along the way until the gigantic collections of mass occur. When the critical level of mass/energy is reached, then the final big blast is triggered: a mother bang. Unfortunately, no big bang will ever be witnessed, because it is either too far away in distance or too long ago in time, or both. Computer simulations will be the way we explore the furthestmost part of the universe in the future.

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#### Correspondence to:

Edwin Zong M.D./D.O.

Oasis Medical Group

212 good man street. Bakersfield, CA 93305, USA

Emails: [r4gomed@yahoo.com](mailto:r4gomed@yahoo.com)

Website: <http://www.r4b.us>

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