Journal of Astrophysics & Aerospace Technology

Yang, J Astrophys Aerospace Technol 2016, 4:1
DOI: 10.4172/2329-6542.1000129

Research Article Open Access

Criticism to Universal Big Bang

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Received: Dec 15, 2015; **Accepted:** Feb 15, 2016; **Published:** Feb 20, 2016

Abstract

This paper defends Dialectical materialism's world outlook, and in detail criticizes idealism's finite space-time to use modern scientific theory and observed facts from different ways and points of view, and reveals the absurdity and radical mistakes of universal big bang, the expansion and contraction of universe are proved to circulate repeatedly, the singular point of big bang didn't exist, more reasonably explain cosmic microwave background radiation, and in the same time recommend a new steady state model of universal evolution, which corresponds with infinite space-time, give out the mechanism of formation and evolution of galaxies and celestial bodies based on the continuous generation of matter, and prove galaxies and celestial are growing up with the expansion of universe, and besides, the earth dynamics is taken in the framework of cosmology, earthquake proves the performance of the earth growing up, rather than so-called plate collision.

Keywords: Big bang theory of universe; Microwave background radiation; Formation of earth

The Singularity of Big Bang Theory

Big bang theory is to say that universe began from the status both its density and temperature are infinite, namely so-called singular status. Only to pay a bit of analysis or investigation the absurdity can be seen. In fact, if the density somewhere is infinite, however diluted it is forever infinite because of $\infty - A \equiv \infty$, as a result there is no way to form today's universe; and in alike reason if the temperature somewhere is infinite, however cooled it is forever infinite, cannot form today's universe too. Singular points turn up often because the defined domain of mathematics formula extends improperly and is not inward property of nature at all, for example, Coulomb law, when the distance between two charges becomes zero the interaction force is infinite, but this only means Coulomb law cannot exist any longer and never mean the repelling or attracting force is infinite indeed. Physical theory that recognize the singularity for objective actuality is nowhere but big bang cosmology, and never admitted in any other physical branches, from this situation we can see big bang theory is not an ordinary one.

Big Bang Theory cannot Explain Galaxy Formation

First, the formation of atom cannot explained by big bang theory. Following big bang theory all matter or energy in universe was produced at the moment of big bang, after this neither produced nor extinguished, and with the expansion of universe, matter spread out and temperature descend, element, atom and molecule began to form in order, the galaxies seen today are the associated matter that came through a series of adiabatic compression under self-gravitational action from the status of high uniformity and high thermal equilibrium after big bang, that is to say, though space have been expanding all the time, the matter to constitute galaxies was again compressed after spreading out, thus its temperature certainly rose again. According to the calculation of big bang theory, one year later from big bang the temperature of matter in universe was 100 electron volt, however the corresponding density [1] was 10^{-7} kg/m^3, which is lower far than the density of common celestial bodies today, this require the temperature of today's matter in universe is more than 100 electron volt, under so high temperature atom even common element can't form, the mechanism of so-called temperature to lower and atom to form cannot exist actually.

Secondly, the picture of galaxy formation and evolution given by big bang goes against the second law of thermal dynamics. In the light of big bang theory, from the high disorderly status a variety of particles gradually coalesced and began to have common speed and finally formed different celestial bodies and galaxies, obviously this was an evolving course from highly disorderly thermal movement to highly orderly mechanical movement, the speed of galaxy or celestial body is just the common speed of the particles that constituted them, and thus such evolving course was a course whose entropy decreased, and certainly forbidden by thermal dynamic second law and in nature it could not happen really.

Three, the prediction about the ratio of hydrogen and helium in nature of big bang cannot exist, when nucleus began to form, protons, neutrons, electrons and so on frequently reacted, in the status of thermal equilibrium neutron number and proton number met Boltzmann's law, according to the temperature then their ratio is calculated as 7:1, based on this the ratio between hydrogen and helium was predicted and coincide with current observations. However problem is that in the same way to use Boltzmann's law and under the same condition the density of electrons is calculated bigger much than that of protons, this result obviously differs observations that matter in universe is neutral, that is to say, the ratio between electron number and proton number is almost equal 1:1, in the other hand physical laws must not be used in selectivity, this indicates that so-called reacting course among protons, neutrons and electrons in early universe didn't exist at all. The prediction came to being to cater merely observations.

Four, the theory of big bang has not solved the origination problem of universe, because it has not told where the singular point of big bang came, however the singular point was just the earliest universe. As for

electrons, protons and neutrons how they became beings, big bang theory only says ambiguously these particles began to occur before long after big bang, but concrete and clear details of how they form have never been given. And if say these particle and their antiparticle generated in pairs after big bang and obviously they could also annihilated in pairs, so big bang theory could not explain why the real world so lack antiparticles today.

Cosmic Microwave Background Radiation isn't the Product of Big Bang

The characteristic of cosmic microwave background radiation is black body spectrum, and big bang theory could not explain how the radiant source possesses the black body spectrum. Even if big bang theory thinks the early universe was highly uniform and highly thermal equilibrium the black body spectrum doesn't mean to be proved inevitablebecause thermal equilibrium only is the necessary but not sufficient condition that matter has black body spectrum, such as the sun is under thermal equilibrium but its light has not the characteristic of black body spectrum.

Big bang theory thinks the background photons were scattered out of the matter around so-called final scattering surface (it is a spherical surface and we are thought to be at the spherical center)[1], this means the information carried by background photons only reflect the distribution situation and existence status of the matter around the spherical surface and the density undulation of background photons of different frequency should be the same or accordant at different direction, however observations show that lower frequency of the photons is, less the undulation is, namely frequency of background protons is higher and its density changes with direction more sharply. This fact indicates that the background photons measured by us today are not from the same spherical surface and so the mechanism of microwave background radiation, given by big bang, could not hold.

In fact, the background radiation measured today is merely the comprehensive effect of these light given out by the extremely distant galaxies whose distances are different and could not be told apart. The extreme galaxies constitute infinite deep and very thin gas and equivalent to a empty cavity that any photons could not come out of, and so the light from them have black body spectrum. Lower frequency of photon is, higher the re-shift is, farther the distance of radiating source is, the situation is just the embodiment of that universe was more uniform when time was earlier. The temperature of background photons measured today is 3K, which is the result that photons have traveled through long distance and their frequency has re-shift, means never the temperature of universe is 3 K today, and the temperature of universe is sure to be higher far than 3K. The temperature of universe is refers to the average of its all matter's that and photons only are a small part of universal matter. The temperature of universe is a observable quantity like its density. For example, the temperature of the sun's surface is measured for 6000 K, its center's that is certainly more than 6000 K, and the earth's center is hotter far than the surface, the even temperature of the earth might reach several thousand degrees, as well the even temperature of whole solar system is probably over 6000 K to be estimated. It is obviously a mistake regardless of the facts faced to think universal temperature for 3 K.

Big bang theory explains microwave background radiation for the product of big bang, and never talks about where the photons that were given by extremely distant galaxies have been, and said irresponsibly microwave background radiation let us hear the sound of big bang, and in reality following the theory, the moment big bang happened was earlier at least 100 thousand years [1]than the time when background photons began to become free namely began to leave the final scattering surface, still could be regarded to be the sound of big bang ? Some cosmologists often say more and more observations to conform to the prediction of big bang, and actually to pay a bit of investigation you will find observations to have really nothing to do with the so-called big bang.

The Horizon Difficulty Means Big Bang Theory Radical Mistake

Microwave background radiation indicates the distribution of early material in universe is highly uniform, the uniform range is over the horizon given by the big bang theory, in other words matter distribution was highly uniform in a large scope that light had not enough time to cross over, such uniformity cannot be explained by big bang theory, this is just alleged horizon difficulty. To go on with own theory some people to insist on big bang put forward the inflation mechanism [2,3], that is to say, there was a course of expansion sharply accelerated in quite early universe, which made a small even range magnify quickly in order to relieve the evident conflict between big bang results and the high uniformity in the observed range. As the inflation course could not make matter flow from high density region to the low density region, instead it made both even range and non-uniform range magnify in the same time and same proportion, so inflation have not solved the uniformity problem of whole universe, however which background radiation hints. Although inflation has wiped away the observed contradiction for the time being, whether it itself is reasonable or nor remains a more sharp difficulty because there is no reasonable inflation mechanism. Alleged vacuum phase change has difficulty that can not to be overcome. Now that vacuum energy density is thought uniform and unchanged with time, must admit vacuum has no interaction with common matter, thus it is not possible for vacuum phase to change with matter's temperature to lower And again, why vacuum arise phase change under a special temperature but not other temperature else, for example today why vacuum does not arise phase change, and why the time of the phase change lasted just in accordance with our requirement, and so on some basic problems have not had reasonable answer. In a word, the horizon difficulty is the certain result that time has beginning and could not be removed really in the framework of big bang theory. The inflation seems more like artificial work.

Big Bang is Not the Conclusion of General Relativity

Cosmic big bang roots the observed fact of universal expansion and the postulate of matter conservation, think all galaxies will draw close with time going backwards, at last compressed adiabatically into a singular point of infinite temperature and density (notice that when materials compressed its temperature rises is a basic assumption of big bang theory, and removing the assumption, the infinite temperature will lose its basis to exist), think our universe began just from such singularity. This obviously is not the conclusion of general relativity. General relativity only gives a quantitative description to the course of cosmic expansion, and at the moment of big bang it was just invalid. This concept temperature occupies extreme important position in big bang cosmology; however general relativity does not treat the problem about temperature. A fundamental idea of general relativity is that matter and space-time cannot separate from each other, and space-

time is the room matter exists and matter decides the structure of space-time, breaking away from matter talk about space-time or breaking away from space-time talk about matter has both no meaning. However big bang theory only acknowledge the continuous expansion of space-time but not admit the successive generation of matter, this essentially is just to separate matter from space-time, so the idea big bang insists is still Newton's absolute space-time instead of relativistic space-time. Nevertheless while big bang theory treat universal expansion to use general relativity a apparent mistake was made----- think subjectively universal pressure zero today. In fact, since the pressure inside celestial bodies are not naught and the average of inside pressure and outside pressure (zero) is sure not to be zero. To search for theoretical basis for big bang, some people who insist big bang say big bang is a conclusion of general relativity, this is unequivocally misleading.

The infinity of space-time is also the prerequisite cosmological principle exists. The principle is to say that university is isotropic and has no center. In general relativity the principle is described by Robertson---Walker metric. To apply general relativity, on the one hand big bang accepts cosmological principle, and on the other hand admits finite universe, so we see that big bang theory is what a logical confusion. The space-time given by big bang is substantially finite because it recognizes time has beginning.

Not only has the finite of space-time been smashed by observations again and again, but it is also in contradiction with Marxism's infinite space-time outlook. Admitting universal finite will certainly lead to the earth center outlook, and provides access for idealism to intrude into natural science and obstruct people to grasp matter world, unavoidably influence people's life in different respects, so we could never let it freely develop and must give necessary criticism to big bang theory.

What the Course Permitted by Thermodynamic Laws of Galaxy Formation is

The main principles and conceptions of thermodynamics could completely be treated through macroscopic ways, it is unnecessary to relate to microcosmic structure and details of matter. This is why thermodynamic laws have powerful strength and universality. It is not an exception for galaxies to form and evolve, and definitely administrated by thermodynamic laws. The course of galaxy formation, given by big bang, violates thermodynamic laws and such course is sure to forbidden by natural world and could not happen really, that is to say, today's galaxies are not from former the material of high uniformity and thermal equilibrium to gather gradually under their own gravitational action, and then how did galaxies form actually? Only a way is left that galaxies have been growing gradually all the time from small to large, new matter has been generating inside galaxies or celestial bodies. It is easy to prove the course's entropy to be equal.

In fact, take a galaxy for a thermodynamic system, and since galaxies evolve slowly the course is approximately static and thus reversible, according to thermodynamic laws we have,

$$TdS=dE+PdV$$

T is the system's temperature, S entropy, $E=Mc^2$ is internal energy,P is internal pressure, V is the galaxy's volume. Because galaxies are in thermal equilibrium and no energy exchange between them, we have $TdS=dQ=0$, which means the course's entropy is equal all the time. Thus as long as the pressure takes negative value it could be made sure that while the volume of the galaxy enlarges its mass increases too and the course is equal entropy. In reference [4,5] the pressure inside a galaxy or celestial body was already proved to take negative. Notice that the new mechanism of galaxy formation completely could be used to describe a celestial body's formation.

Though thermal dynamic laws affirm that galaxies form from small to large, what are the growing speed and the relation with universal expansion? And systematically solving these questions is following recommended new steady-state model of universal evolution.

A New Model of Galaxy Formation Based on the Negative Pressure Solution of Gravitational Field Equation

Usually people think general relativity field equation only has positive pressure solution, and actually it has still negative pressure solution, and such negative pressure solution has always been overlooked, however in terms of equation theory, casually overlooking any solution may lead to serious mistake. Before, it was because of not overlooking the negative energy solution of quantum mechanics that Dirac, P. A. M. predicted the existence of antiparticle and made physics big development. Physical meaning of negative pressure may more plentiful, and simply saying, in contrast with positive pressure which means the material of system to take a tendency of diffusion, negative pressure indicates the material of system to take a tendency of getting together. As a fact of natural world the material inside celestial bodies doesn't disperse and so internal pressure of celestial bodies takes negative deservedly.

Since the pressure inside a celestial body take negative, so the statistic average of internal and exterior pressure takes negative, that is to say, universal pressure must take negative instead of zero considered usually.

People often think negative has no physical meaning and so is pushed out of physics, this is certainly a big mistake, as negative numbers were not admitted in history and hindered maths to develop for thousands of years, not accepting negative pressure is sure to prevent physics for development, everywhere natural symmetry is.

Applying the negative pressure solution of general relativity field equation to expanding space-time, a lot of basic difficulties in cosmology immediately disappear. Dark matter and energy, which are the ether of modern version, immediately are replaced by the negative pressure, and the most important is the distribution of negative pressure can be decided by the way of solving gravitational field equation. Admitting the negative pressure, space-time is obviously infinite, and whether it is infinite or not no longer relies on alleged critical density, universal expansion and contraction prove in circle, not only is the space between galaxies increasing but galaxies or celestial bodies theirselves are also enlarging at the same ratio, matter has been generating continuously inside celestial bodies or galaxies, however galaxies or celestial bodies keep their density invariant and so universal density invariant too. Today's uniformity of universe in a large scope is just the magnification of the early uniformity in a small scope. The course of galaxy formation is slow, ceaseless forever, coincident from antiquity to today and the past of galaxies can be known through the laws that are valid today, and today is the key that

knows the ancient. About the operation details on maths please refer to [4,5].

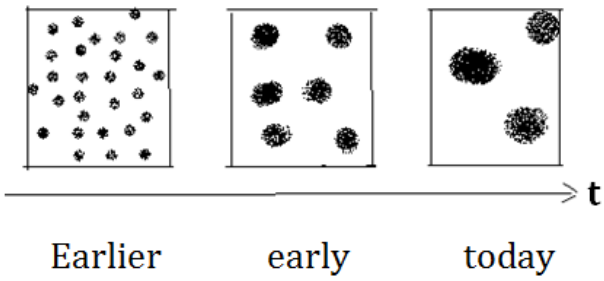

Figure 1: Sketch of size and distribution of galaxies in different time.

Randomly select three planes of different time in space, and take three equal squares on the three planes respectively, the black spots represent the galaxies cut by the planes, and Figure 1 is the diagrammatic sketch, shows that galaxies grow up while space enlarges and earlier time is, smaller and denser galaxies are, and more uniform matter distribution in universe is. Notice that here the earlier stage means the time around the beginning of recent a circulation of expansion and contraction, and the beginning of expansion is just the end of the contraction above. For universe to finish a course of expansion and contraction calls a circulation and in the beginning of expansion or the end of contract any galaxy's mass is zero. And today universe is in the stage of expanding, so far the expansion has already been lasting for [2] 1.37×10^{10} a which is equal to the age of big bang.

Understanding the earth is the beginning of understanding cosmology, and if a kind of cosmic models are not able to or avoid to explain the phenomena to happen on the earth or cannot be verified by the facts to happen on the earth, the models must be thrown away, because the earth is one of common celestial bodies and isn't isolated to exist, the development of the earth is sure to reflect the evolution of universe [2]. So the development of geophysics cannot separate from the research of cosmology, and their relation is about common and special. If a model must have the help of the laws that are no longer valid today to explain the past of universe, the model must also be thrown away because it cannot be proved false or true forever. And now the new model bases on the negative pressure solution of field equation can better explain the formation and evolution of the earth, and give scientific and uniform explanations to occurrences nearby or distant.

In history, the most outstanding light point of Hoyle's stead-state model of universe was to accept the idea of matter continuous generation. However the generation is not based on field equation with negative solution or say it is not a mathematical conclusion but factitious introduction, and thus is isolated logically. F. Hoyle assumed matter generated in space everywhere, new matter formed new galaxies, galaxy number density didn't change with universal expansion. However observations show that early density of galaxy number is denser far than today, and thus F. Hoyle model was denied. But the new model based on the negative pressure solution of field equation is accordance with observations. New matter generates inside celestial bodies, galaxies become bigger and bigger, and new galaxy doesn't occur, galaxy number density lowers with universal expansion though galaxies grow constantly.

Observed Evidences of Matter Continuous Generation, the Earth Formation

Take the sun for example. Having been burning for several billions of years observations show that its luminance doesn't have the indication of decrease up to now, and volume doesn't reduce too. The ratio of its elements don't change compared with primary that, and if its matter has not been replenished the burning can never last to today and the ratio of its elements cannot retain steady long time. Another example, if the earth cannot get continuous and enough energy supplement from vacuum the earth heat cannot keep on because all reactions interior had already ended long time ago. And again, deuterium and lithium are easy to destroy, however they exist everywhere in universe, and their ratio is quite high in nature, such fact clearly means that the observed deuterium and lithium must be generated recently and they are not the product of big bang at all.

The earth is growing up gradually [6]. Continents seem like a series of patches to float in seas, and it is worthy of attention that these patches can gather into a globe almost to have no gap, these amazing facts cannot be explained by so-called plate theory and only can be understood by the ceaseless expansion of the earth continents are enlarging and similarly seas are enlarging too at the same proportion, and continents look floating far away from one another. In every part of the earth new matter is generating simultaneously. Study found that a lot of huge animal existed tens of million years ago, not only was dinosaur huge but dragonfly also was bigger than today's hawk. Which hints that gravity acceleration in the past is smaller than today's that and the earth's volume and mass grows up in the same time. It is well known that the characteristic of earthquake is the break of crust, and this is just the performance that the earth is growing up and new matter is generating within the earth, that is to say, earthquake is not so-called plate impact, the impact is only a imagination. As a whole the earth has evolved for several billion years, its every parts should keep relative rest, such impacts, one after one and looking stronger and stronger, could not arise at all.

The moon grows up also. There are innumerable big or small annular mountains on the moon, there are also innumerable big or small annular holes, a remarkable fact is that the annular mountains look like the annular holes magnified, such fact only can be explained by the expansion of the moon, the annular mountains are just to expand for annular holes.

Another example is about the mountains on the earth. There is a basic tendency that hills are going up and seas are becoming deeper and deeper, namely the dispersion between high and low is increasing. These facts only can be explained by the expansion of the earth. The synchronous expansion its every part expansion, other any theory all are not qualified. And again, according to the new steady theory of universal evolution, the moon is going far away from the earth too; the leaving margin is theoretically calculated for 3.8 cm one year [3] which completely conforms with observations. And correspondingly the earth's radius will increase 0.5 cm one year and the earth goes far away from the sun for 11 m one year, which is also in accordance with observations and cannot be explained by other theory.

The Restriction to Universal Expansion Given by the Infinity of Space-Time

It is necessary requirement of the infinity of space-time that expansion and contraction of universe circulate repeatedly, and the

universe that only expands or contracts cannot exist in infinite space-time, because infinite space-time doesn't lack time to do anything and it has already passed infinite long time. In infinite space-time, the universe only to expand or contract had already expanded or contracted into the extreme long time ago and universe is not today's appearance. That is to say, if the result of expansion makes universe fall to pieces, then the result had arise already in infinite space-time, doesn't need to wait for today or the future. That expansion and contraction circulate requires the course of expansion to decelerate and the course of contraction to accelerate. Therefore the universe to accelerate expansion cannot exist in infinite space-time. Currently some people say expansion of universe is accelerating, obviously theoretical calculation is wrong. In order to make people believe universal expansion accelerating, some cosmologists say this is the result of observations. Obviously mislead people. In fact, only the distance and re-shift of galaxy can measure directly and the conclusion for universe to accelerate expansion is from the calculation of current cosmological theory, namely put these observed distances and re-shift data into cosmological equation and solved out the expansion factor's two rank differential of time, positive. Obviously if cosmological equations have defects the conclusions are sure to be wrong. Still, the acceleration of universal expansion cannot be measured directly currently, and the observed distance and re-shifts belong to the same time and cannot be used to decide the speed of the same galaxy in different time. The Nobel Physical Prize, 2011 was given to three physicists, the cause was written: "found universal expansion accelerating through observation to distant Ia supernovas". In fact, real value of their work lie in the data accumulation of distances and re-shift, but not they found accelerated universe, and if put the same data to the new model based on the negative pressure we still get the decelerated universe.

Generalized to Microcosmic Range the Law of Energy Conservation Strictly Exists no Longer

Any physical law only exist under certain conditions and range. Energy conservative law is not a exception too. The law of energy conservation was founded from summarizing macroscopic physical phenomena, it is no doubt for the law to fit to macroscopic physics, but generalized to microcosmic world or universe it is not sure to exist strictly. In microcosmic range, experiments show that particles are not fit to orbit description, instantaneous behavior of particles appears some uncertainty, thus probability or statistics description takes the place of orbit description, the physical content described by wave function is just the statistic behavior of particle, the equations satisfied with wave function including Schrodinger equation, Dirac equation and Klein-Gordon equation can be looked as field equations, wave function as field quantity is the function of space-time coordinates, not only does it describe single particle system but also describe many particles system, just as Maxwell equations describe photons system, no matter how many photons the equations are the same as plenty of photons single photon also meets Maxwell equations. To take wave function for field quantity is the basic idea of quantum field theory, quantum field theory makes many particle system and single particle system treated uniformly. So-called wave refers to statistic behavior of particle and its corpuscularity refers to instantaneous behavior, such, no contradiction between them.

Abandoning orbit description means Newton dynamic law are valid strictly no longer in microcosmic range, otherwise the orbit description must fit still to describe particles. And thus kinetic energy law (change of object's kinetic energy equals the work done by exterior) based on Newton's laws is no longer valid strictly for particle, and kinetic energy law is the basis of energy conserved law, so energy conserved law is no longer valid strictly for particles. In fact, time energy uncertain relation tells we that particle at the same quantum state may take different value, which is actually the performance of energy non-conservation. Following, prove Newton laws are the prerequisite and sufficient condition of kinetic energy law,

If Newton laws hold, we have

$$\mathbf{F}\cdot d\mathbf{r} = m\mathbf{a}\cdot d\mathbf{r} = m\frac{d\mathbf{v}}{dt}\cdot d\mathbf{r} = m\mathbf{v}\cdot d\mathbf{v} = d(\frac{1}{2}mv^2)$$

So sufficiency is proved. And again, because every step above is reversible and dr is arbitrary, so necessity is proved. Notice that Energy conserved law hold strictly no longer doesn't mean the state of energy conservation must not exist, such as energy eigenstate is valid.

Then why quantum mechanics has not been looked as the theory that treats the system whose energy is conserved no longer or say why energy conserved law is still regarded to be fit to microcosmic range, there are mostly two reason. First, the concept conservation is modified in quantum mechanics and think these quantities are still conserved, whose average value and probabilistic value remain unchanged, no longer emphasize the conservation at every moment.

Second, so far all reaction theory among particles only describe the statistic behavior for particles to react, in terms of statistic average energy keeps conserved though the course that energy may not be conserved may occur, such as tunnel effect in reactions.

As for momentum conservative law and angle momentum conservation, they also have similar situation, here no more discussion.

Finally, examine universal range, Hubble law tells us all galaxies are going far away from one another. Their speed is changing, this means their kinetic energy is changing too, however the received resultant force of any galaxy is zero since universe is isotropic, and so there exists not the question potential energy and kinetic energy converses, the increasing of the kinetic energy of galaxy means its energy is no longer conserved. In Reference [5] galaxy's mass prove to increase, this is another form energy doesn't conserved. In a word, it is absolute for energy not to conserve, and it is relative and conditioned and approximate small time for energy to conserve.

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