Alternative Theory of Star formation

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Abstract:

With technology growing everyday, more observations and discoveries are being done about the star formation and galaxy evolution. At the same rate, contradictions are equally growing in the other side. Questions that arrive out of modern observation still remains unsolved and the fundamental problems of star formation still remains a mystery. For instance, young star formation near SMBH (Supermassive Black Holes), where it was thought star formation is never possible, existence of massive galaxies soon after Big Bang, problems in low and high mass star formation and as such. This paper proposes an alternative theory of Star formation which tries to answer some fundamental questions and explains modern observations.

Keywords

Big Bang – Supermassive Black holes – Star Formation – Expanding Galaxy – Flat rotational curve

1. Introduction

This paper proposes an alternative theory of star formations as follows. The cosmic egg that underwent Big Bang was extremely dense but it wasn't extremely small. Since everything in the known Universe came out of the Big Bang, there is no way to measure the size of the Cosmic-Egg. The explosion of the Cosmic-Egg which we refer as Big Bang not only created particles, but also uneven massive pieces. Radioactive decay initiated nuclear fission on the surface of these massive broken pieces which eventually became the early stars of the Universe. Supermassive black holes at the center of the galaxies are direct broken pieces of the cosmic egg. Collision of these Supermassive Black holes, massive stars and Supernovae created further big and small stars. All stars are powered by nuclear fission and their dense core is the fuel for this fission process.

2. The Spinning Cosmic-Egg

The expanding Universe proves that the Big Bang emerged from a single point in space (Cosmic Egg). But the notion that Big Bang emerged from an extremely smaller size originated because we had no idea where to stop our maths when we are working backwards. Hence we eventually ended up in extremely small size of the Cosmic-egg. When we observe an air bubble released under deep water, it appears small and gets bigger when approaching the surface, due to change in pressure. Since the bubble size is growing, we can not say that the bubble is going to grow infinitively bigger, or in the past, its initial size was much smaller than the size of an atom. The same principle applies to the expanding Universe too. Based on the expanding universe, the idea that the whole universe emerged from an extremely dense body of matter is acceptable whereas defining it’s size as extremely small is too sceptical.

The equatorial bulge in the picture of the infant universe from WMAP (Wilkinson Microwave Anisotropy Probe) probably indicates that the Cosmic egg was spinning at very high velocity before the Big Bang [1] Without the spin, it is very hard to explain the baby universe shape. The extremely dense Cosmic egg possibly requires significant size to achieve high spin velocity which creates the equatorial bulge.

3. Age of the Universe and Distant Galaxies

According to the Big Bang theory, Big Bang occurred approximately 13.798 ± 0.037 billion years ago, which is thus considered as the age of the universe. The most distant stars that we observed are approximately 13 billion light years away.[23] Another study suggests that first observable star is most likely to have formed 30 million years after the Big Bang, much earlier than previously expected.[4]

The recent discovery of a distant galaxy "HFLS3" is estimated to be formed 880 million years after the Big Bang. Considering it's young age, it was already close to the mass of our Milky Way with Star formation being 2000 times faster than our Milky Way.[5] According to the current theories of galaxy evolution, galaxies as big as HFLS3 should not be present so soon after the Big Bang.

These distant galaxies' age has been estimated by studying the time taken by the light from the galaxies to reach Earth, which only proves their existence before that time. Thus the estimated age can only be considered as a minimum possible value. Considering the mass of distant galaxies indicates that they must have been formed soon after the Big Bang. These early massive galaxies and the Quasars powered by the Supermassive black holes are possible evidence that Big Bang not only created particles but also some massive pieces.

4. Expanding Spiral galaxies and star formation near SMBH

The following possibilities can explain the wing shape appearance in a spiral galaxy.

4.1 The stars in the spiral wings are formed elsewhere, but they were captured by the Supermassive black hole's gravity and move towards the center of the galaxy. When moving inward, captured by gravity, the velocity of the stars must reduce, whereas flat rotational curve contradicts with this possibility.

Though we have witnessed stars falling into the SMBH, we have also witnessed young massive stars formation near SMBH where extreme tidal force would stretch molecular clouds and makes no room for new star formation.[6] [7]

4.2 The stars in the spiral wings are formed in the middle of the galaxy and moves away from the center. Flat rotational curve perhaps indicates galaxy expansion.[8] In that case, we must find massive young stars formation near the SMBH, which has been already witnessed.

Though 4.1 and 4.2 contradicts each other, the spin direction of the supermassive black hole at the center and the orbiting stars spin direction stands out to be an important evidence to prove where the star begun it's journey.

If the spin of SMBH and stars in the spiral arm are in opposite direction, then we can say that the stars were captured by the black holes' gravity and the spiral wing is moving towards the center of SMBH. In case the spin of SMBH and stars in the spiral arm are in same direction, then we can say that the galaxy is expanding. If galaxies proved to be expanding, then these expanding galaxies is the clear proof that the stars must have begun their journey at the center of the galaxy where supermassive black hole resides.

5. Radioactive decay

The Earth's internal core temperature is same as Sun's surface temperature, the heat comes from a combination of residual heat from planetary accretion (about 20%) and heat produced through radioactive decay (80%).[9] Jupiter and Saturn receive less heat from the Sun compared with Earth but their temperature also increases when descending towards it's core. Saturn radiates twice as much heat into space as it receives from the sun. This shows that planets do lose their mass by releasing heat into space, but it is less significant. Considering the high temperature produced by radioactive decay in planets' core, we can say that the core appears to be a little star.

Uranium is used as a fission fuel in nuclear power planet. If we keep a Sun size Uranium metal or any other unstable high radioactive heavy metal in space, naturally the radioactive decay will trigger the chain reaction and the end product would be a star powered by nuclear fission. Or imagine increasing the Earth's core to the size of our Sun. Again, the end product would be a star powered by nuclear fission. This could have exactly happened to the broken pieces of cosmic egg after the Big Bang. Heavy elements found in supernovae remnant and the high temperature produced by radioactive decay in earth's core indicates the possibility of stars being powered by nuclear fission.

6. Density, Heat and Molecular gas clouds

The density in space is extremely low. Thus water turns in to gas even in very low temperature due to low density. Human blood boiling effect crossing the Armstrong limit or Armstrong's line is well known phenomenon in space travel. In such case, hydrogen whose natural tendency is to repeal other hydrogen atom , will expand much faster than water. Matter

tend to expand when heated. In the same way, when the temperature starts increasing in the gas cloud, naturally it has to expand. It may be argued that this happens only when we consider it in human scale. But Astronomers witnessed huge outflow of gas in young star forming regions, as well.

If Big Bang created only particles, considering the high velocity of the particles moving in different directions, and low density in space, formation of gas clouds in this expanding Universe is a remote possibility. However the gas clouds we witness today are nebulas, which are remnants from the explosion of supernova. There is no solid proof that, left out particles from 13.5 billion years old big bang still creates gas clouds.

Nuclear fusion at the core of a star will create extremely high-temperature and high outward pressure. This will push the hydrogen outwards and makes no room for further fusion. Computer simulations of galaxy formations and star formations failed due to low mass and they can not explain this without dark matter, which accounts for more gravitational attraction. This proves that molecular clouds cannot collapse on their own weight to ignite the nuclear fusion since there is no enough gravity.

It's possible that the massive star that underwent supernova created stellar nursery with the cores of next generation stars. These cores are broken pieces of the massive stars' core. The young stars pushes the molecular gas cloud that surrounds it, and the low density in space accelerates this process. And as a result, we witness young generation stars in the stellar nursery.

7. Reverse Lookup

It is believed that planets, moons, asteroids and comets were made up of star dusts (remnant of supernovae). Looking at the evolution of these objects in reverse order i.e., from

smaller to bigger ones, Asteroids, Comets and meteoroid can not form just by colliding small gas clouds. These objects must have been created by some impact or collision on big bodies. Similarly, moons can neither form on their own by gravitational collapse nor joining too many asteroids, comets and meteoroid by gravity. It requires high energy to melt all of them into single body. Pressure and friction alone can not proved such high energy which proves that moons must have been formed by melted debris that are ejected by collision of some big bodies like planets. Unlike moon, asteroid and comets, planets have strong core which can produce strong gravity. Planets' core can produce much heat on it's own. The dense strong core required to form a planet proves that planets can not be formed by collapsing gas clouds, but rather requires some kind of collision or explosion of a massive body (supernovae). We have witnessed star formation in stellar nebulae, which shows that small stars are formed from the left overs of massive stars. Looking at the complete order, from a tiny meteoroid to a small star, the birth of all these objects strongly depends on something bigger than the object itself. Though planets and stars can grow capturing nearby objects by gravity, we could see a clear pattern emerges from the order of formation. According to this reverse lookup order

7.1 Massive stars must have born out of something more massive than the star itself, which are supermassive black holes.

7.2 Then, Supermassive black holes must have been born out of something extremely massive, which could be our Cosmic egg that underwent Big Bang.

It has been speculated that massive objects tend to spin at high velocity or most of the massive objects have high spin velocity. When we experiment by studying a spinning body that breaks into multiple pieces, we can see that the pieces' spin velocity will be significantly slow compared with the main body. Similarly, Compared with moons, planets and stars, massive

pulsars, quasars and SMBH have high spin velocity. Now, considering SMBH's high spin velocity and if they were the direct broken pieces of the Cosmic egg, then the Cosmic egg must have been spinning at a extremely high velocity. WMAP baby Universe picture supports the possibility of this high velocity spinning Cosmic egg. This order of formation from massive to smaller objects and the increasing spin velocity towards the massive objects alone may not be enough to prove the evolution of galaxies and star formation, but surprisingly a clear pattern emerges from it, which provides further clue and evidence.

8. Conclusion

WMAP picture of baby universe possibly emphasise that the cosmic egg which gave birth to all objects in space was spinning at the time of big bang.

SMBH are direct broken pieces of this cosmic egg. The existence of massive distant galaxies soon after the Big Bang supports this possibility.

Birth of young massive stars near SMBH that were observed lately stands out to be a crucial evidence for expanding galaxies and order of evolution from massive to smaller objects, whereas it becomes an enigma for current star formation theories.

Radioactive decay in Earth's core creates as much as sun's surface temperature. Similarly, heavier elements found in the remnants of supernovae supports the possibility of nuclear fission in stars.

As per this theory we propose a model where all big objects in the Universe will slowly become small and small by various processes like nuclear fission, radioactive decay. What we refer as a star is a process of massive dense object slowly dissolving into the low dense space through nuclear fission.

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