

Explanation of the Existence of Supergiant Voids in the CBM of the Universe

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Abstract

A new model of our universe can explain the conundrum of supergiant voids in the CMB.

Current cosmology, i.e., Big Bang theory, has no clear explanation for the existence of supergiant voids in the universe. The supergiant voids in the Cosmic Microwave Background (CMB) picture pose a serious problem to the BB theory.

The existence of CMB was suggested in the late 1940s and then in 1965 was accidentally detected by Penzias and Wilson. They shared the 1978 Nobel Prize for this discovery. At first, the CMB looked isotropic. Therefore, the discovery has been considered to be landmark evidence for the BB theory. It matched perfectly the BB main assumption that the matter in the universe, at a large scale, is distributed isotropically and homogeneously. However, precise measurements of the CMB done later, at micro-Kelvin scales, show temperature variations, in the form of cold spots (colder than ~ 70 micro Kelvin than the average CMB temperature). These observations were found by NASA's WMAP in 2004 and later confirmed by the ESA Planck satellite. In the void, only a few galaxies are observed contrary to other regions of the universe. The ratio is ~ 60 galaxies in the void Vs. 10,000 galaxies in other regions of the universe. The meaning is that the BB theory pillar is shaky. See

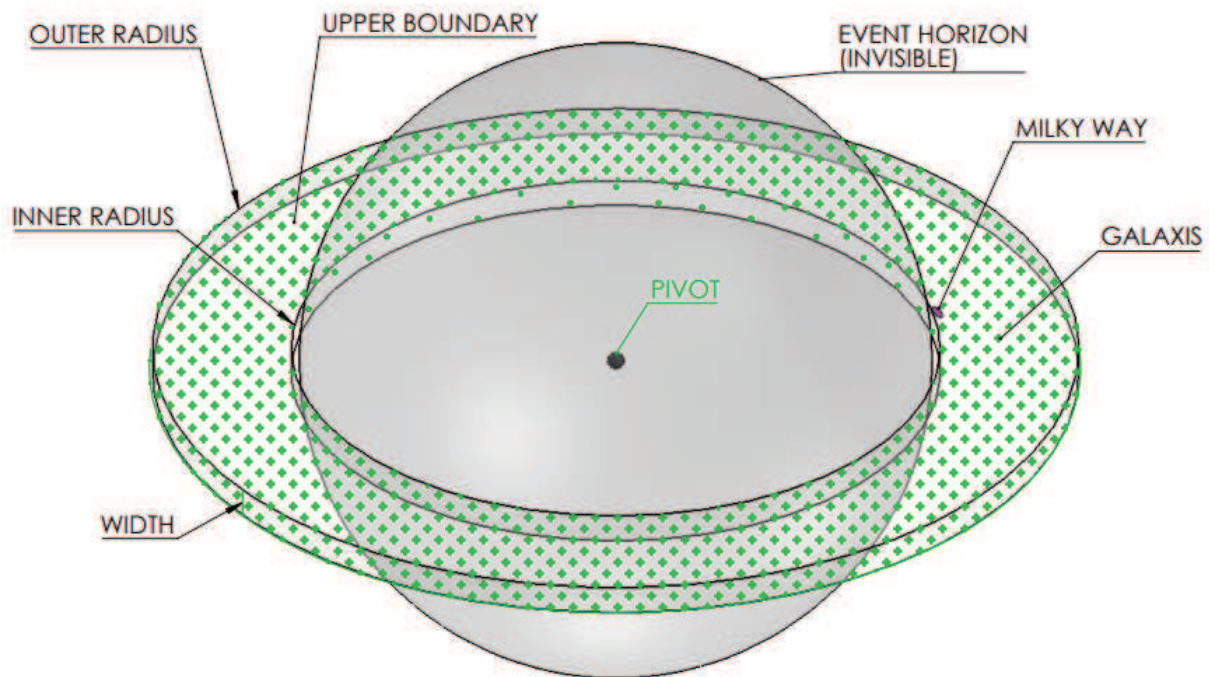
<https://www.youtube.com/watch?v=KaQ5HDQDkvo>

In addition to this supergiant void problem, there is the current observation regarding another pillar of BB – the Hubble's constant. Observations show that Hubble's constant is not a constant. Its value is dependent on the method it is measured. There is no other physical fundamental constant that has two values, depending on the method it is measured. The conclusion is the BB theory is most probably wrong.

The question now: is it possible to replace the BB with another model of the universe? Of course, any suggested model must explain the observation that CMB is valid in the major part of the universe, yet there are supergiant voids in parts of it.

I hypothesize that our universe, contrary to the BB theory, is not isotropic. I agree with the BB theory, that there was a big bang or a cataclysmic explosion that happened 13.7 billion years ago, with one main difference. The matter did not fly radially in all directions and since then continues to expand radially as claimed by the BB, but rather flew off tangentially, and finally arranged in one plane as a thin disk shape.

The universe, I designate, the Pivot universe has the shape shown in the figure:



I claim that our universe is an isolated island in infinite space. It is composed of two parts. The first part is a central neutron star I designate the Pivot. The Pivot from the general relativity point of view is a black hole, thus it has an event horizon. The event horizon is not a physical entity and is not visible, but any matter that is located at a smaller radius than the event horizon will be swallowed by the black hole. Also, nothing inside the event horizon can be seen by an observer located outside the event horizon. The second part is the visible universe that orbits the Pivot. The visible universe has an axis of rotation and this claim contradicts the BB theory. The visible universe is arranged in the shape of a thin disk. The disk has an inner and outer radius and a width. The inner radius of the disk must be greater than the event horizon. The disk presented in the figure is not physical but is rather describing the boundaries in space that our visible universe can exist. Galaxies are scattered isotropically in the disk. An observer, of a galaxy that is located inside the disk, will see galaxies in whatever direction he looks and he might conclude that the universe is isotropic. But, an observer of a galaxy that is located close to the disk boundaries will always see voids of space.

For reasons I will not elaborate here, the Milky Way orbit is close to the event horizon of the Pivot. So, when the universe is viewed by a Milky Way observer there is the direction pointing towards the Pivot. What he observes is the Pivot's event horizon or in other words a supergiant void. The reader that is interested in more details can find them in [The Structure of the Pivot Universe](#)