Eminent astronomers offer alternative to the Big Bang

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EMINENT ASTRONOMERS OFFER ALTERNATIVE TO THE BIG BANG

In the beginning, the universe was created in a fiery explosion known as the Big Bang.

Or was it?

Not according to three eminent astronomers who argue that the so-called Big Bang never took place.

In the June 20 issue of Astrophysical Journal, Geoffrey Burbidge, of the University of California, San Diego, British astronomer Sir Fred Hoyle, and Jayant Narlikar of the Inter- University Centre for Astronomy and Astrophysics in India, argue that matter is continually being created at the center of galaxies.

"The Big Bang means everything was created at one instance in time and space," said Burbidge, a professor in the Department of Physics at UCSD. "We require creation to take place fairly regularly in a random way in the centers of galaxies."

The paper marks the first time the astronomers have published a theoretical explanation of their latest theory in a technical journal.

While many astronomers believe the universe was created about 15 billion years ago, Burbidge, Hoyle and Narlikar contend that the universe is infinitely old and, thus, had no beginning.

Instead they argue that creation takes place in "little Big Bangs" distributed over space and time.

As evidence that their theory is correct, the astronomers point to an outpouring of mass and energy observed from a wide range of extragalactic objects, from protogalaxies to quasi- stellar objects.

The new theory represents a serious modification to the "Steady State" theory presented by Hoyle, Hermann Bondi and Thomas Gold in the late 1940s, which held that the universe is infinite and its age is infinite.

The three astronomers proposed that matter is being created uniformly throughout the universe to compensate the rate at which matter is disappearing over what Burbidge refers to as the universe's "horizon."

"They said that as matter is moving away from us it gets to a stage -- which I call the horizon -- at which point the matter is moving at the speed of light, so you can no longer see it," he said.

The Steady State theory had fallen into disfavor by 1965, however, when researchers detected background radiation believed to be remnants of the Big Bang.

The Big Bang theory was given a further boost in 1992 when NASA's Cosmic Background Explorer (COBE) detected wispy ripples of matter believed to represent the clumping together of matter about 300,000 years after the Big Bang. These ripples are believed to have given rise to stars and galaxies.

But Burbidge contends that the Big Bang theory contains several flaws. For example, the theory does not explain how lumps that are believed to have spawned galaxies developed from what was once a uniformly smooth universe.

"In fact, what people have to do in this (Big Bang) theory is to put in the basic idea that you've got lumps in the beginning and let these lumps grow and turn into galaxies and condensed stars and make planets," he said.

Burbidge, a former director of the Kitt Peak National Observatory in Arizona, argues that the modified Steady State theory makes much more sense.

"Our hypothesis is much more natural," he said. "If you already have the galaxies, you spawn new galaxies from the old ones -- you have matter being ejected from the centers of galaxies, which is what your see, making new matter, making new galaxies, new stars and so on."

The Big Bang theory also has run into time-scale problems, requiring astrophysicists to alter the estimated rate of the expansion universe in order to avoid the quandary of having stars which are older than universe itself, Burbidge said.

In the paper to be published in the Astrophysical Journal, however, Burbidge, Hoyle and Narlikar argue that their modified Steady State theory explains all of the phenomena observed in cosmology.

They believe, for example, that the very light elements, such as helium, were formed following the creation of matter in the centers of galaxies.

Nevertheless, Burbidge said he believes the astronomers' upcoming paper will be attacked by supporters of the Big Bang.

"People in the West like 'the beginning' -- they like the Old Testament and I know some of the very best people in the field who have this hang-up with the Big Bang," he said.

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