Thoughts On The Early Universe, Cosmic Inflation, and Dark Energy

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Abstract

This paper theorizes that the Big Bang was the result of a collision between two singularities and that dark energy is the result of gravitational forces of singularities outside of the visible universe.

Because of the conditions immediately following the Big Bang, it can be theorized that the Big Bang was caused by the collision of two supermassive singularities. Evidence for this collision event is found in cosmic inflation and how dark energy is accelerating the expansion of the universe.

Cosmic Inflation

In their paper “Maximum Gravitational Recoil,” Campanelli et al. describe the collision of two super massive black holes. When the two black holes collide, their spin causes one black hole to transfer its energy to the second while the first black hole is expelled with great force away from the second black hole.

In much the same way, a collision of singularities would cause the first singularity to be expelled with great force away from the second singularity. Because of the immense gravitational force of the expelled singularity, the energy released by the stationary singularity would expand exponentially until the expelled singularity was a far enough distance away that expansion of the stationary singularity was slowed under its own gravity.

The Big Bang and cosmic inflation are the result of a collision between two singularities. When one singularity was expelled away from the other singularity after the collision, the energy released by the "stationary" singularity was influenced so greatly by the gravitational force of the "ejected" singularity that it caused an exponential expansion until expansion was slowed under the gravitational force of the expanding "stationary" singularity.

Dark Energy

According to “The Expanding Universe” by Riess and Turner, the expansion of the universe was decelerating until five billion years ago when expansion began to accelerate. Completely under the force of its own gravity, the universe would have collapsed in on itself resulting in a Big Crunch. However, as a result of dark energy, the Big Crunch will not occur. Dark energy is the force that is causing the accelerated expansion of the universe.

Theorizing about a collision event that caused the Big Bang allows us to theorize that our universe is an expanding singularity amongst many singularities. The singularities outside our universe are so massive that their gravitational force on our universe is causing its expansion to accelerate. Dark energy is the gravitational forces of singularities outside our universe causing the expansion that

is currently observed. It is not so much that the expansion of the universe is accelerating as much as the universe is being pulled apart by the gravitational force of singularities outside our universe.

The universe ultimately did not collapse in on itself because the gravity from the surrounding environment of singularities is accelerating the expansion of the universe. After the initial collision event that caused the Big Bang and the era of cosmic inflation, the expansion of the universe was decelerating under its own gravitational forces. However, even though the expansion of the universe was decelerating, it was still expanding. When the gravitational forces caused by the environment of singularities and other massive objects outside our universe became greater than the gravitational force holding our universe together, the expansion of the universe began to accelerate. According to Riess and Turner there is evidence that this happened around five billion years ago.

Though a collision event only provides evidence for two singularities, dark energy is evidence that the collision event took place in an environment of singularities or other massive objects.

Conclusion

We are a lot smaller than we thought we were. If an environment of singularities resulted in a collision event that caused the Big Bang and cosmic inflation in the early universe and is causing the current accelerated expansion of our universe, we can infer that our universe is a small part of a much larger whole of whose physics we are just being able to comprehend. In this model, the ultimate fate of our universe is that it will be pulled apart and absorbed into surrounding singularities until another collision event releases enough energy to create another universe.

References

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2. A.G. Riess and M.S. Turner. (2004). The Expanding Universe: From Slowdown to Speed Up. [Online]. Scientific American. Available: http://www.scientificamerican.com/article/expanding-universe-slows-then-speeds/ [2015, Jan 27]