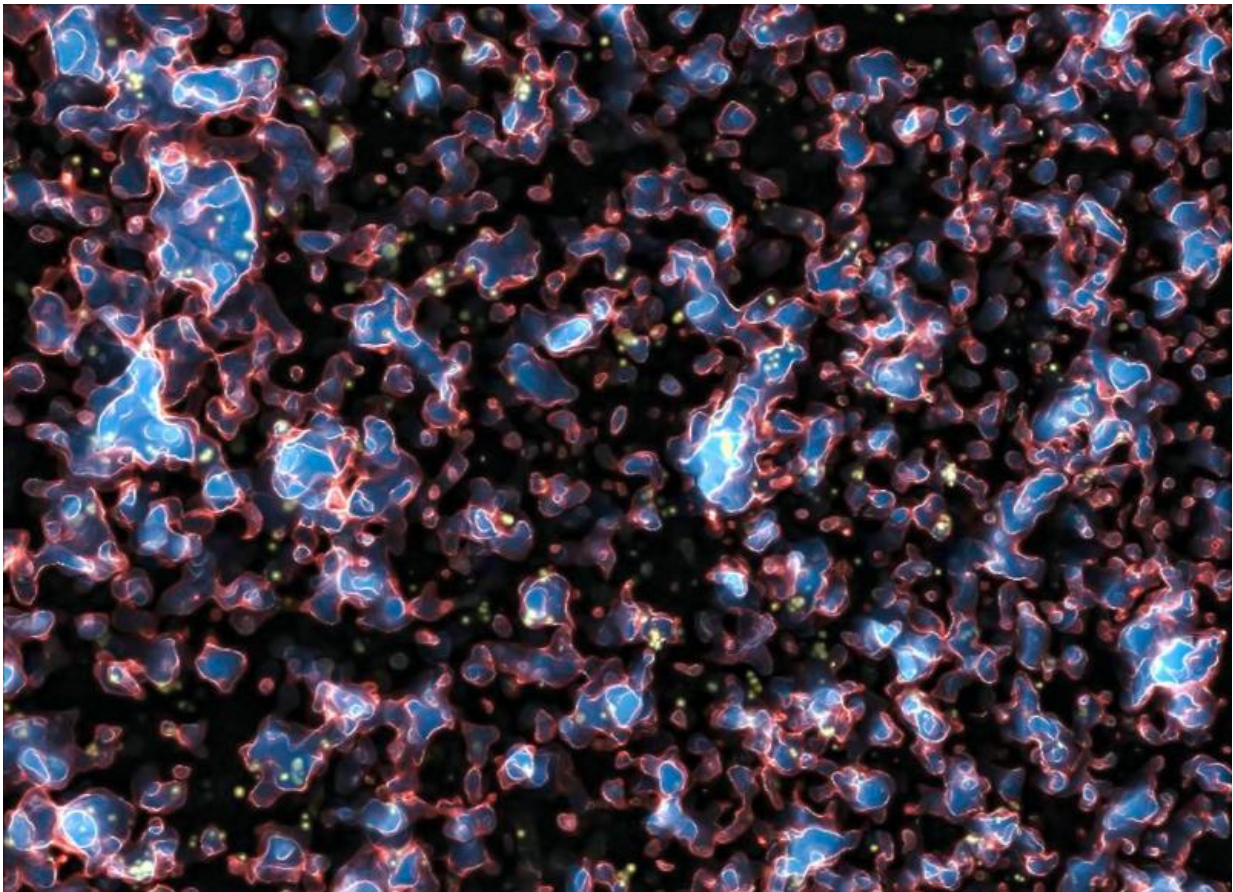


Cosmologist thinks a strange signal may be evidence of a parallel universe

November 17 2015, by Vanessa Janek



A simulation of the early universe. Credit: M. Alvarez, R. Kaehler, and T. Abel

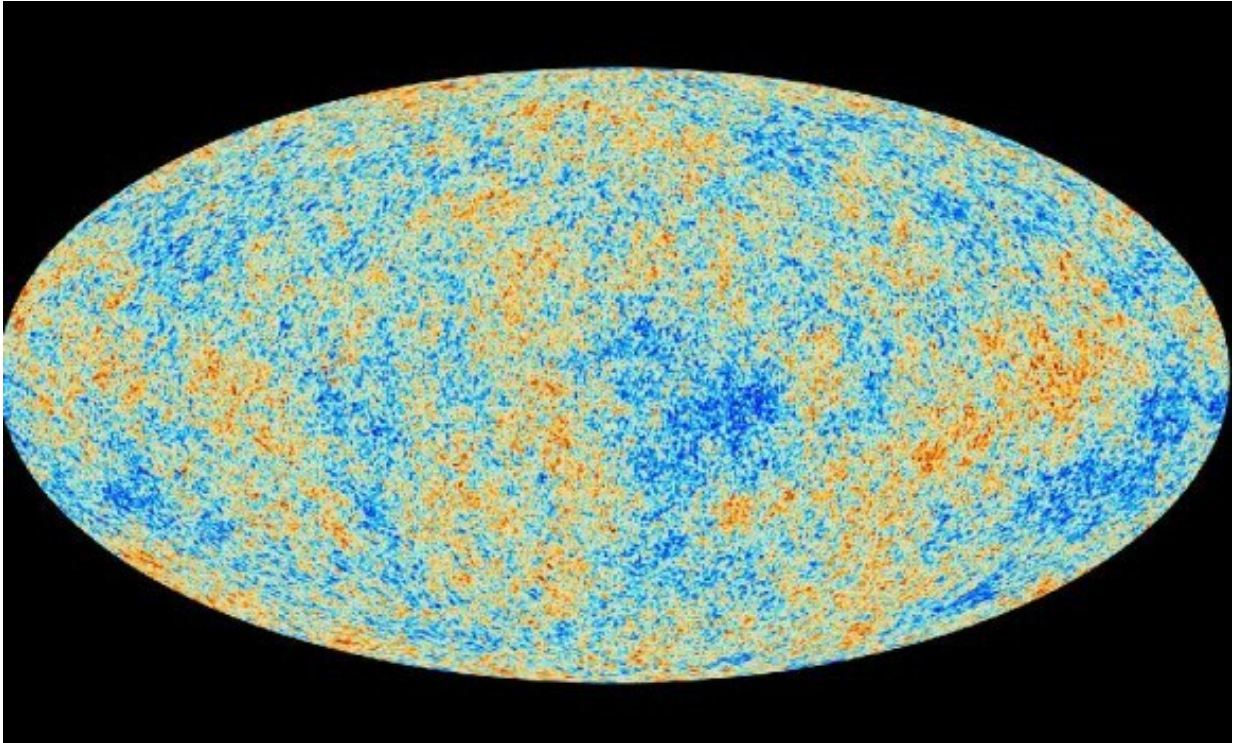
In the beginning, there was chaos.

Hot, dense, and packed with [energetic particles](#), the early [universe](#) was a turbulent, bustling place. It wasn't until about 300,000 years after the Big Bang that the nascent cosmic soup had cooled enough for atoms to form and light to travel freely. This landmark event, known as recombination, gave rise to the famous cosmic microwave background (CMB), a signature glow that pervades the entire sky.

Now, a new analysis of this glow suggests the presence of a pronounced bruise in the background—evidence that, sometime around recombination, a parallel universe may have bumped into our own.

Although they are often the stuff of science fiction, parallel universes play a large part in our understanding of the cosmos. According to the theory of eternal inflation, bubble universes apart from our own are theorized to be constantly forming, driven by the energy inherent to space itself.

Like [soap bubbles](#), bubble universes that grow too close to one another can and do stick together, if only for a moment. Such temporary mergers could make it possible for one universe to deposit some of its material into the other, leaving a kind of fingerprint at the point of collision.



The cosmic microwave background (CMB), a pervasive glow made of light from the Universe's infancy, as seen by the Planck satellite in 2013. Tiny deviations in average temperature are represented by color. Credit: ESA and the Planck Collaboration

Ranga-Ram Chary, a cosmologist at the California Institute of Technology, believes that the CMB is the perfect place to look for such a fingerprint.

After careful analysis of the spectrum of the CMB, Chary found a signal that was about 4500x brighter than it should have been, based on the number of protons and electrons scientists believe existed in the very [early universe](#). Indeed, this particular signal—an emission line that arose from the formation of atoms during the era of recombination—is more consistent with a universe whose ratio of matter particles to photons is

about 65x greater than our own.

There is a 30% chance that this mysterious signal is just noise, and not really a signal at all; however, it is also possible that it is real, and exists because a parallel universe dumped some of its matter particles into our own universe.

After all, if additional protons and electrons had been added to our universe during recombination, more atoms would have formed. More photons would have been emitted during their formation. And the signature line that arose from all of these emissions would be greatly enhanced.

Chary himself is wisely skeptical.

"Unusual claims like evidence for alternate universes require a very high burden of proof," he writes.

Indeed, the signature that Chary has isolated may instead be a consequence of incoming light from distant galaxies, or even from clouds of dust surrounding our own galaxy.

SO is this just another case of BICEP2? Only time and further analysis will tell.

More information: Spectral Variations of the Sky: Constraints on Alternate Universes. arxiv.org/abs/1510.00126

Source: [Universe Today](#)

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