

## Planck Results Cast Doubts on BICEP2 Claim

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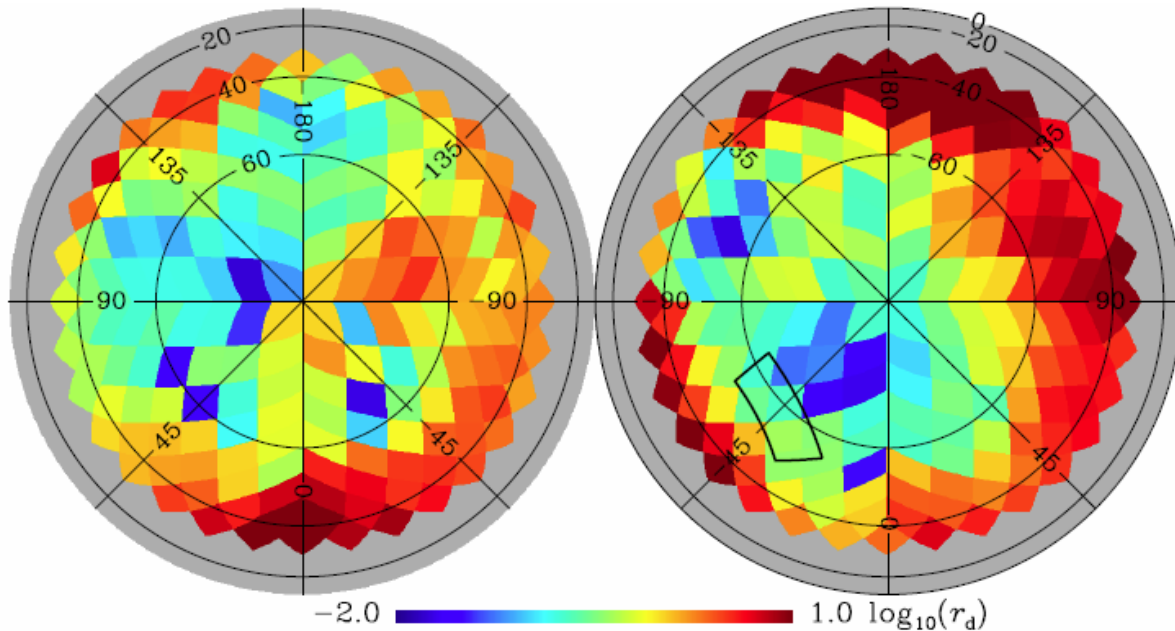
### ABSTRACT

In September 2104, the Planck intermediate results were released. According to physicists familiar with the situation, these results cast doubts on BICEP2 team's March 2014 claim of first direct evidence of cosmic inflation.

**Key Words:** Planck, BICEP2, dust, B-modes, cosmic inflation, Big Bang, gravitational waves.

Back in March 2014, BICEP2 collaboration announced that BICEP2 had detected B-modes from primordial gravitational waves [1]. This journal covered the BICEP2 claims [2, 3].

Now, the eagerly-awaited Planck intermediate results are just released [4]:



To quote *Nature* [5]: “Planck’s full-sky map grades regions of lower (blue) and higher (red) interstellar dust — and shows that the patch observed by the BICEP2 telescope (rectangle) was not among the least dusty. The left panel shows the northern Galactic hemisphere and the right panel shows the southern one.”

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According to physicist, Seshadri Nadathur [6]:

[I]t now does not look as if there is a realistic chance that what BICEP2 reported was anything more than a very precise measurement of dust.

Physicist, Sean Carroll, expresses similar view [7]:

BICEP2 did indeed observe the signal that they said they observed; but the smart money right now is betting that the signal didn't come from the early universe. There's still work to be done, and the universe has plenty of capacity for surprising us, but for the moment we can't claim to have gathered information from quite as early in the history of the universe as we had hoped.

However, some physicists still remain hopeful that BICEP2 claim will hold up. Further, many other physicists are undecided.

## References

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