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A Big Wave after the Big Bang?

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Mathematicians Blake Temple from UC Davis and Joel Smoller from the University of Michigan have published a new theory to explain why the universe appears to be expanding at an accelerating pace, without invoking "dark energy."

About a decade ago, astronomers realized that the universe is not only expanding — the expansion appears to be speeding up. To explain this, they came up with the concept of dark energy: a force that pushes the galaxies apart. No one knows what dark energy actually is; one idea is that is a sort of energy that bubbles out of the fabric of space as it expands. Physicists' calculations, though, show that it should make up about 70 percent of the universe. (Roughly another 30 percent is made of dark matter, which is nearly as mysterious: matter and energy that we can feel and touch make up a trivial portion of the universe).

Temple and Smoller though, have a different explanation for why the galaxies are further apart than they ought to be. A "big wave," started after the Big Bang at the beginning of the universe, is spreading out through space, pushing the galaxies apart.







"We're saying that maybe the resulting expanding wave is actually causing the anomalous acceleration," Temple told Space.com.

Several other cosmologists quoted by Space.com were sceptical, noting that the new theory needs to explain all the aspects of the known universe, and make predictions that can be checked by astronomers and physicists.

The paper is published in the Aug. 17 issue of the *Proceedings of the National Academy of Sciences.*

For an overview of physics, cosmology and dark energy, [read this.](#)

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