

# Rethinking the universe: Groundbreaking theory proposed in 1997 suggests a 'multiverse'

June 17 2013

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Some top scientists are beginning to worry that a radical idea proposed in 1997 by three University of Delaware physicists may be right.

If it is, then it could debunk some of the discoveries physicists were hoping to make at the Large Hadron Collider, the huge, multi-billion-dollar [particle accelerator](#) in Geneva, Switzerland, at which researchers recently discovered the famous "[Higgs boson](#)."

It would also suggest that we might be living in a "multiverse"—a universe that is much bigger than was once thought and in which the [laws of physics](#) take different forms in different places.

An article, [published](#) by Simons Science News, explains some of this.

Linking to [an influential paper by UD physics professors](#) Stephen M. Barr, David Seckel, then-graduate student Vivek Agrawal, and John F. Donoghue, a professor and colleague at the University of Massachusetts, Amherst, the article examines the "principle of naturalness," which for decades has been thought to govern the size of the numbers appearing in the laws of physics.

Generally, whenever some quantity was found to be much smaller than what physicists had thought to be its "natural" value, some new force, mechanism, or symmetry was discovered that explained the anomaly.

The UD professors' 1997 publication remains one of the major documents on the subject.

"It all has to do with one of the main theoretical puzzles in [fundamental physics](#)," explains Barr. "Why is the mass of the [Higgs particle](#) 17 orders of magnitude smaller than its 'natural' value?"

Two explanations have been proposed, and both of them predict new phenomena that should be seen by the [LHC](#). But so far, there is no hint of them.

"That is why our radical proposal nearly 15 years ago is attracting increasing attention," he adds.

Their idea is that the Higgs boson mass has to have an "unnaturally" small value for life to be possible. In other words, if it didn't, we wouldn't be here.

Barr explains that one way to account for this is to say that the Higgs boson mass varies place to place (which can happen in a [multiverse](#)) and only in those rare places where it has the right, unnaturally small value would life emerge and someone exist who could measure it.

Provided by University of Delaware

Citation: Rethinking the universe: Groundbreaking theory proposed in 1997 suggests a 'multiverse' (2013, June 17) retrieved 9 April 2024 from <https://phys.org/news/2013-06-rethinking-universe-groundbreaking-theory-multiverse.html>

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