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New particle may unlock new discoveries, says Vatican astronomer

by Carol Glatz by Catholic News Service



Jesuit Br. Guy Consolmagno (CNS photo/Paul Haring)

VATICAN CITY -- The discovery of a new subatomic particle -- the so-called Higgs boson -- may help scientists discover how the hidden structure of all matter in the universe works, a Vatican astronomer said.

"It indicates that reality is deeper and more rich and strange than our everyday life," U.S. Jesuit Br. Guy Consolmagno told Catholic News Service.

When people go about their everyday business working or relaxing, they don't think about the tiniest building blocks of physical matter, but "without these underlying little things, we wouldn't be here," he said.

Physicists working with the Large Hadron Collider at CERN, the European Organization for Nuclear Research laboratory in Geneva, announced Wednesday that they were 99.999 percent certain they found evidence of a new particle that might be key to the structure of the universe and to understanding nature.

British physicist Peter Higgs first hypothesized the existence of the particle in the 1960s as the final missing element in a framework called the Standard Model, which explains how subatomic particles and forces interact.

Over the decades, with the help of increasingly powerful and sophisticated high-energy particle accelerators, scientists have been searching for what atoms are made up of, what the smaller components of atoms are made up of, what the nature of those smaller components is, and so on, Consolmagno said.

But it wasn't clear why some materials, such as protons and electrons, have mass and therefore are attracted to each other by gravity, while other materials, such as photons, have no mass, he said.

"Higgs, 50 years ago, worked out a model called the Standard Model, that would provide reasons for attraction and why there is mass," the Jesuit said.

Higgs predicted that if a particle that produced the effect of mass existed, it should be "visible" after two atoms were smashed together at high enough speeds.

Experiments at CERN have revealed that "there is something that looks something like the Higgs boson," Consolmagno said. The new data "will be used to test the Standard Model and how sub-atomic particles work," he said.

The Higgs boson had been nicknamed "the God particle" as "a joke" in an attempt to depict the particle as "almost like a gift from God to help explain how reality works in the subatomic world," he said. Because the particle is believed to be what gives mass to matter, it was assigned the godlike status of being able to create something out of nothing.

But such "God of the gaps" conjectures are not only bad reasons to believe in God, they are also bad science, Consolmagno said.

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"You'll look foolish in, say, 2050, when they discover the real reason" for a phenomenon that was explained away earlier by the hand of God, he said.

However, another kind of faith and hope do exist in the scientific community, he said.

"No one would have built this enormous experiment," tapping the time and talents of thousands of scientists around the world, "without faith they would find something," he said.

"My belief in God gives me the courage to look at the physical universe and to expect to find order and beauty," he said. "It's my faith that inspires me to do science."

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