

Physics Nobel for 'God particle' experts

Peter Higgs And Francois Englert Who Predicted The Existence Of Higgs Boson Honoured

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Stockholm: British scientist Peter Higgs, who proposed the existence of the Higgs boson or 'God Particle', has won the 2013 Nobel Prize for Physics along with Belgian physicist Francois Englert.

Englert (80) had come up with his theories about how particles acquire mass with his now deceased colleague, Robert Brout, in 1964, weeks before Higgs spoke of the Higgs Particle.

The Royal Swedish Academy of Sciences (RSAS) jury said they got the prize "for the theoretical discovery of a mechanism that contributes to our understanding of the origin of mass of subatomic particles, and which recently was confirmed through the discovery of the predicted fundamental particle."

The announcement was highly anticipated as the discovery of a so called Higgs Particle at Scientists at the European Organization for Nuclear Research (Cern) laboratory outside Geneva in 2012 had confirmed the ideas of Englert and Higgs. RSAS permanent secretary Staffan Normark said the prize was being given for something very small, but which makes all the difference. The two scientists never met till July 4, 2012 when Cern confirmed their discovery. "When I meet him, I will congratulate him for this brilliant and important work," Englert told TOI.

Normark said they unsuccessfully tried to reach elusive and shy Higgs (84) several times. "We have not been able to reach Higgs. Of all the numbers we tried, he didn't answer any. However, we are informing him he has won the Nobel," he said.

Later, Higgs issued a statement saying he was overwhelmed. "I hope this recognition of fundamental science will help raise awareness of the value of blue-sky research."

Indian scientist Tejinder Virdee, who worked at Cern, said it was wonderful the contribution of the two has been recognized. He said their theoretical work launched a momentous scientific endeavor. "The 2012 discovery of a Higgs Boson at the Large Hadron Collider (LHC) has been a major breakthrough for science and opens an exciting era for particle physics."

The RSAS said the awarded theory is a central part of the Standard Model of particle physics that describes how the world is constructed.

According to the model, everything, from flowers and people to stars and planets, consists of just a few building blocks: matter particles. These particles are governed by forces mediated by force particles that make sure everything works as it should.


The entire model also rests on the existence of the Higgs Particle. This particle originates from an invisible field that fills up all space. Even when the universe seems empty this field is there. Without it, we would not exist, because it is from contact with the field that particles acquire mass.

The theory proposed by Englert and Higgs describes this entire process. Cern's particle collider, LHC, is probably

the largest and the most complex machine ever constructed by humans.

Two research groups of some 3,000 scientists each, ATLAS and CMS, managed to extract the Higgs particle from billions of particle collisions in the LHC.

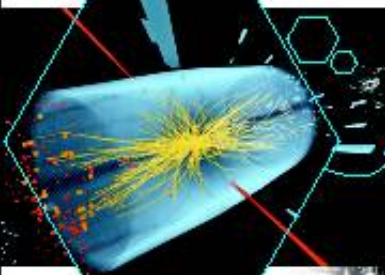
Peter Higgs (R) of Britain & Francois Englert of Belgium won Nobel prize in physics for proposing a mechanism to explain why the most basic building blocks of the Universe have mass



THE PIONEERS

The name comes from Higgs, who first published the idea of a field of mass-conferring particles in 1964; but vital work was also done by Robert Brout (who died in 2011) and Francois Englert, who is this year's joint Nobel winner

THE BIG FIND




The mechanism predicts a **sub-atomic particle**, the Higgs boson, without which the Universe would have no substance and life would not exist


NAME GAME

The Higgs boson is also known as the "**God particle**"; like the deity it is said to be extremely powerful, exist everywhere but impossible to pin down

It was **theorized 48 years ago** to explain why some particles have mass and others, like photons, have none. Its existence was finally confirmed by the **Large Hadron Collider at Cern in Switzerland in 2012**



The origin of the name comes from a book by Leon Lederman, whose draft title was "**The Goddamn Particle**" to describe the frustrations of trying to nail the particle. It was later changed to "The God Particle"

 Finding the Higgs boson vindicates the so-called **Standard Model of physics**, developed in the early 1970s. It is the most accepted theory of how the known Universe works