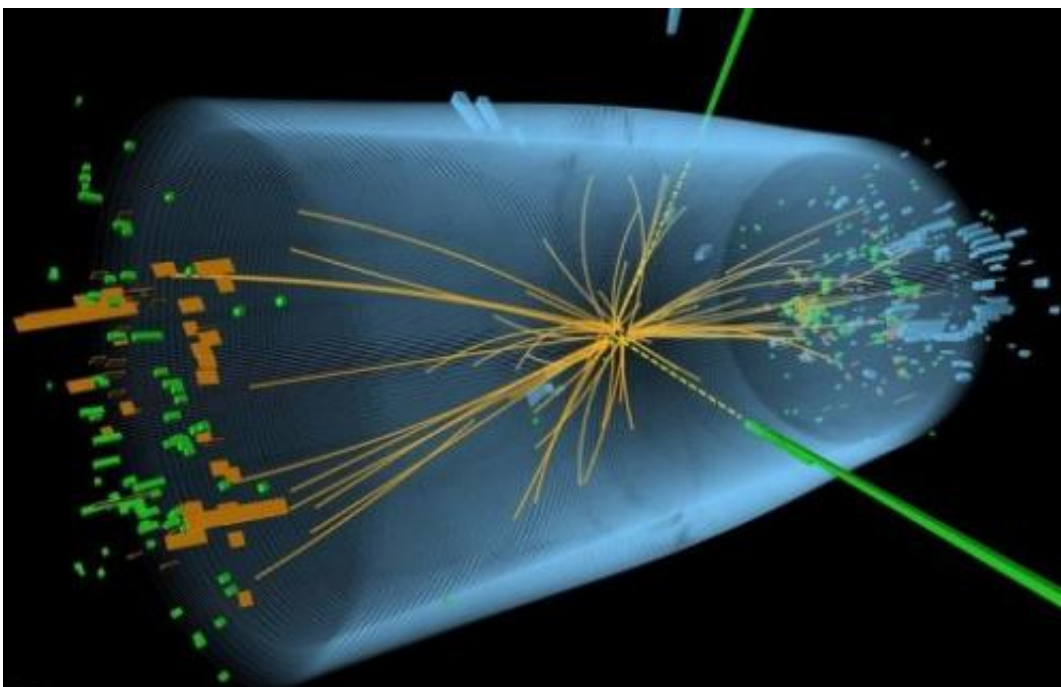


# Higgs boson: Landmark announcement clears key hurdle

September 10 2012

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A handout graphic from CERN shows a representation of traces of a proton-proton collision measured in the Compact Muon Solenoid (CMS) experiment in the search for the Higgs boson. The announcement two months ago that physicists have discovered a particle consistent with the famous Higgs boson cleared a formal hurdle with publication in a peer-reviewed journal.

The announcement two months ago that physicists have discovered a particle consistent with the famous Higgs boson cleared a formal hurdle on Monday with publication in a peer-reviewed journal.

Two laboratories working at the European Organisation for Nuclear Research (CERN) had jointly announced on July 4 they had detected a new [fundamental particle](#) in experiments at the [Large Hadron Collider](#) near Geneva.

The discovery has been hailed as one of the biggest scientific achievements ever.

The teams, from labs called Atlas and the [Compact Muon Solenoid](#) (CMS), on Monday each published their findings in the European journal *Physics Letters B*.

They are available at [www.sciencedirect.com/science/.../ii/S037026931200857X](http://www.sciencedirect.com/science/.../ii/S037026931200857X) and [www.sciencedirect.com/science/.../ii/S0370269312008581](http://www.sciencedirect.com/science/.../ii/S0370269312008581) .

Although CERN's announcement was never doubted, it still had to be vetted by peers and then published in an established journal to meet benchmarks of accuracy and openness.

Further work is being carried out to confirm whether the new particle is the famous [Higgs](#), whose existence was theorised back in 1964 to explain why [elementary particles](#) obtain mass.

Without the Higgs, atoms could not form, which means the physical Universe would not exist, say scientists.

"The discovery reported in these papers is a momentous step forward in fundamental knowledge," said Atlas spokeswoman Fabiola Gianotti.

"It is the culmination of more than 20 years of effort of the worldwide high-energy physics community to build and operate instruments of unprecedented technology, complexity and performance."

More than 5,000 researchers worldwide took part in the long quest, and both papers are dedicated to the memory of colleagues who had died.

Physics Letters B was where British physicist Peter Higgs first published a letter, "Broken symmetries, [massless particles](#) and gauge fields," that sparked the hunt for the boson.

His name is attached to the particle, but two other groups of theoreticians can also claim to have made major contributions.

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