

'God particle' out of hiding places: CERN chief

August 25 2011



The director general of the European Organisation for Nuclear Research (CERN), Rolf-Dieter Heuer, addresses a news conference at the Tata Institute of Fundamental Research (TIFR) in Mumbai on August 25. Heuer said the elusive Higgs Boson, known as the "God particle", was -- if it exists -- running out of places to hide.

The elusive Higgs Boson, known as the "God particle", is -- if it exists -- running out of places to hide, the head of the mammoth experiment

designed to find it said on Thursday.

"The window for the famous Higgs Boson... is getting smaller and smaller," Professor Rolf Heuer, director-general of the European Organisation for [Nuclear Research \(CERN\)](#), told a news conference in Mumbai, where the agency presented its latest data in the quest.

The Higgs Boson is a theoretical sub-atomic particle that is believed to confer mass. It is named after a British scientist who suggested its existence in the 1960s.

It has been dubbed the "[God particle](#)" because it is thought to be everywhere, but it has also proved agonisingly hard to find.

Scientists at CERN are trying to determine its existence in the world's largest particle collider, located in a tunnel deep below the Franco-Swiss border, and believe they can come up with an answer by the end of 2012.

Heuer said the Large Hadron Collider (LHC) was working well but finding evidence of the enigmatic particle was difficult because they were looking at the lowest levels of mass, the last place where it may -- or may not -- lurk.

He likened the search to trying to find a snowy field during a blizzard, while Pier Oddone, director of the US Department of Energy's [Fermilab](#), said it was like looking for stars in daylight.

"It's the hardest region because of the background... It's more difficult to see what's going on," Oddone said.

On Monday, CERN research director Sergio Bertolucci said experiments had excluded with 95 percent certainty the existence of the Higgs boson at higher levels of mass.

The 27-kilometre (16.9-mile) [Large Hadron Collider](#) is designed to accelerate [protons](#) to nearly the [speed of light](#) and then smash them together where detectors in house-sized laboratories record the seething, sub-atomic debris.

The collisions briefly create temperatures 100,000 times hotter than the Sun, fleetingly replicating conditions split-seconds after the "Big Bang" that created the known universe 13.7 billion years ago.

The Higgs Boson is the missing cornerstone of the well-tested Standard Model of particle physics, a theory which explains how known sub-atomic particles in the universe interact.

Professor Rohini Godbole, particle theorist at the Centre for High Energy Physics at the Indian Institute of Science in Bangalore, said the Standard Model had been put together like a house of cards over the last 70 years.

"We're trying to put together the last two cards," she added. "If the [Higgs Boson](#) is found, the two cards meet. If it's not... the house of cards is going to fall down."

Godbole said she was confident of a discovery.

"All that so far has been tested, whatever we have been predicting, has been found to be true," she said.

(c) 2011 AFP

Citation: 'God particle' out of hiding places: CERN chief (2011, August 25) retrieved 26 April 2024 from <https://phys.org/news/2011-08-god-particle-cern-chief.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private

study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.