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Discovery! How we did it and what we know so far

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One of the great intellectual achievements of human kind is the standard model of particle physics. This theory describes how fundamental particles like electrons and quarks interact and gives us the building blocks for understanding the universe we see around us today. A key part of this theory is the Higgs field, which permeates space and time. Finding the Higgs boson - the experimental manifestation of this field - and measuring its properties has become one of the most fundamental scientific endeavors in history. After decades of searching, it was announced by CERN on July 4, 2012 that the large international collaborations ATLAS and CMS have discovered a new particle in their search for the Higgs boson using the Large Hadron Collider.