



“Discovering the Higgs boson”

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*March 3, 4:30-5:30 p.m.
Town Hall, Leadership Studies building*

The discovery of the Higgs boson, announced on July 4, 2012, by the ATLAS and CMS experiments operating at the CERN Large Hadron Collider (LHC), culminated a search that spanned almost 50 years since its original prediction by several theorists, two of whom, Higgs and Brout, were awarded with the Nobel Prize in Physics in 2013. This discovery revolutionized our understanding of the universe’s fundamental particles, both validating and uncovering the limitations of the standard model of fundamental particles and their interactions.

This lecture provides an overview of history of the quest to understand mass, describes some of the most sophisticated instruments ever built by humanity that allowed such an accomplishment, and explains how Higgs boson affected the structure and evolution of the universe, and our day-to-day life.

The diagram shown above is an example of simulated data modeled for the CMS detector on the Large Hadron Collider (LHC) at CERN. Here a Higgs boson is produced that decays into two jets of hadrons and two electrons. The lines represent the possible paths of particles produced by the proton-proton collision in the detector while the energy these particles deposit is shown in blue.