

## ***The long journey to the Higgs boson and beyond at CERN's Large Hadron Collider (LHC)***

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### **Abstract**

Since 2010 the experiments at the Large Hadron Collider (LHC) investigate particle physics at the highest collision energies ever achieved in a laboratory. Following initial new results for Standard Model physics came in summer 2012 the spectacular discovery by the ATLAS and CMS experiments observing a new, heavy particle which is the long-awaited Higgs boson, fundamental to the understanding of Nature in its smallest components. Ten years on, much has been learned about the boson, which could be also a key to new physics beyond the Standard Model.

Building up the experimental programme with this unique high-energy collider, and developing the very sophisticated detectors built and operated by world-wide collaborations, including ATLAS teams from South Africa, meant an incredible scientific, technological and human adventure spanning more than three decades. The talk will focus in part on the history of the overall project leading to the Higgs boson discovery.