

Abstract Submitted
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Search for a Higgs boson in the decay channel $H \rightarrow ZZ^{(*)} \rightarrow 4l$ ¹

MATTHEW SNOWBALL, University of Florida-Gainesville, CMS COLLABORATION — The Higgs boson is the most anticipated theoretical particle in the last half century. The start of the Large Hadron Collider at CERN in Geneva, Switzerland ushered in a new age for particle colliders and accelerated the search for the elusive Higgs boson beyond the sensitivities of LEP and Tevatron. With an enormous amount of data being recorded faster than ever before, the experiments at the LHC have the ability to find or exclude the Higgs boson anywhere in the mass search range of 100 to 600 GeV. One of the most sensitive decay channels of the Higgs is the $H \rightarrow ZZ \rightarrow 4\ell$, or “golden channel” as it is known. With its low Standard Model background and very clean four lepton final state, the golden channel is one of the best ways to find or exclude Higgs at the LHC. In this presentation, I will present the results of the search for the Higgs boson at the CMS detector in the $H \rightarrow ZZ \rightarrow 4\ell$ decay channel using the 2010+2011 dataset corresponding to approximately $5fb^{-1}$. I will discuss the general search strategy, results, and excluded mass range, as well as the prospects for the search in 2012.

¹CMS collaboration

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