

Contribution submission to the conference Göttingen 2012

SM Higgs Search in double hadronic tau final state with the ATLAS Experiment — •DANIELE ZANZI¹, JOHANNA BRONNER¹, JULIAN GLATZER², SANDRA KORTNER¹, ALESSANDRO MANFREDINI¹, RIKARD SANDSTRÖM¹, SEBASTIAN STERN¹, SOSHI TSUNO³, and STEFANIA XELLA⁴ — ¹MPI, München, Germany — ²Albert-Ludwigs-Universität, Freiburg, Germany — ³KEK, Japan — ⁴NBI, Copenhagen, Denmark

The discovery or the exclusion of the SM Higgs boson is the ultimate step to either confirm the prediction of the Standard Model of fundamental particles or to open the path towards new physics.

Thanks to outstanding performances, the experiments running at LHC, ATLAS and CMS, reached the sensitivity to exclude this particle in most of the allowed mass range just after two years of data taking. There is still a small window left around 115-130 GeV, where the Higgs boson is most likely to be and where searches are now focusing.

One of the most important final states where such a light Higgs boson can be discovered is a pair of tau leptons. In this talk the SM Higgs boson search in events with two taus both decaying hadronically is presented. This study is based on all data collected in 2011 by the ATLAS Experiment in proton-proton collision at the center-of-mass energy of 7 TeV.

Part: T
Type: Vortrag;Talk
Topic: 2.11 Higgs-Physik (Exp.)
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