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Search for the Standard Model Higgs boson to WW with a hadronic tau channel

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<p>In the large mass region, the dominant decay mode of the Higgs boson is to two W bosons, where the Higgs can be produced via either gluon fusion or vector boson fusion. Of the possible W decay modes, the current analyses focus on the W(->l nu)W(->l nu) decay channels where the lepton is either an electron or muon. At a center of mass energy of 7 TeV, the results from the ATLAS detector are combined for each of the three modes ee, e mu, or mu mu, in order to maximise the signal sensitivity. We investigate the possible sensitivity gained in including a single hadronic tau channel (W->tau nu->(tau$_h$ $adnu)nu)inthisanalysis, anddiscussthemethodincomparisontothestandardH- > WW- > lnulnusearch.Ourworkcurrentlyfocusesonthehadronictauidentificationandunderstandingthejet- > taufakerate.$

Level (Hons, MSc,
   PhD, other)?

PhD

Consider for a student
   award (Yes / No)?

No

Would you like to
 submit a short paper
 for the Conference
 Proceedings (Yes / No)?

Yes

Primary author: Mrs LEE, Claire (University of Johannesburg)

Co-authors: Dr ASSAMAGAN, Ketevi (Brookhaven National Laboratory); Dr AUROUSSEAU, Mathieu (University of Johannesburg); Prof. CONNELL, Simon (University of Johannesburg)

Presenter: Prof. CONNELL, Simon (University of Johannesburg)

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