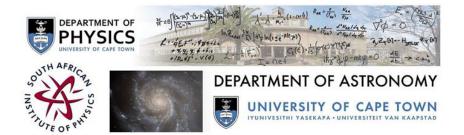
SAIP2016



Contribution ID: 331 Type: Oral Presentation

Constraints on new hypothetical particles in the Higgs sector using LHC Run 1 and 2 data

Thursday, 7 July 2016 11:30 (20 minutes)

Abstract content
 (Max 300 words)
 dry-Formatting &
 &classed chars

With Run 2 of the LHC currently underway at a record-breaking energy of 13 TeV centre of mass energy, new physics searches have come to the fore. In particular, the ATLAS and CMS collaborations are beginning to focus more on extending the Higgs sector of the Standard Model. Previous work has shown that Run 1 data from both ATLAS and CMS hint at the existence of a new heavy scalar with a mass around 270 GeV. This work will extend this idea by introducing a full Two-Higgs Doublet Model and outlining the potential Run 2 searches which could constrain the parameters of such a model, should it exist in nature. This will be presented in the context of searches for Higgs production in association with missing energy, leptons and large jet multiplicities. Some preliminary studies related to the rates and kinematic distributions of processes of interest are presented and their implications are discussed.

Apply to be br> considered for a student br> award (Yes / No)?

Yes

Level for award

- (Hons, MSc,

- PhD, N/A)?

MSc

Main supervisor (name and email)

-br>and his / her institution

Bruce Mellado, Bruce. Mellado
@wits.ac.za $\,$

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

Yes

Please indicate whether

-br>this abstract may be

-published online

-(Yes / No)

Yes

Primary author: Mr VON BUDDENBROCK, Stefan (University of the Witwatersrand)

Co-authors: Prof. CORNELL, Alan (NITheP); Prof. MELLADO, Bruce (University of Wisconsin - Madison); KAR, Deepak (University of Witwatersrand); Dr KUMAR, Mukesh (University of the Witwatersrand); Mr REED, Robert (University of Witwatersrand); Dr RUAN, XIFENG (WITS)

Presenter: Mr VON BUDDENBROCK, Stefan (University of the Witwatersrand)

Session Classification: Nuclear, Particle and Radiation Physics (1)

Track Classification: Track B - Nuclear, Particle and Radiation Physics