

# Search for heavy resonances decaying into tau pair with CMS detector at the LHC

*Monday, 10 June 2013 15:00 (18 minutes)*

A search for heavy resonances decaying into  $\tau^+\tau^-$  is performed using  $4.94 \text{ fb}^{-1}$  of proton-proton collision data at 7 TeV recorded by the CMS detector during LHC Run2011. The estimation of major backgrounds is performed using data-driven methods wherever possible. A cut and count approach is followed to look for excess of observed events over the Standard Model background prediction. In the absence of any excess, an upper limit on the product of the resonance cross-section and branching fraction into  $\tau$ -lepton pair has been calculated as a function of the resonance mass. Using the Sequential Standard Model resonance  $Z'_{SSM}$  and the Superstring inspired E6 Model resonance  $Z'_\psi$  as benchmarks, resonances with Standard Model couplings with masses below 1.4 and 1.1 TeV, respectively, are excluded at 95% confidence level.

**Primary author:** Dr DHINGRA, Nitish (Panjab University, Chandigarh (India))

**Presenter:** Dr DHINGRA, Nitish (Panjab University, Chandigarh (India))

**Session Classification:** Session 2