

Abstract Submitted  
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**Search for high-mass di-tau resonances in pp collisions at  $\sqrt{s} = 7$  TeV** INDARA SUAREZ, Graduate Student, CMS COLLABORATION — Many well motivated scenarios of physics beyond the Standard Model, such as Grand Unified Theories, models with extra spatial dimensions, and Super symmetry (SUSY) suggest the presence of heavy neutral resonances. While these new particles may have different nature and production mechanism, e.g. heavy SUSY Higgs,  $Z'$ -boson or Kaluza-Klein excitations, they all share a similar experimental signature which should be observable at the LHC using dilepton final states. We present a direct search for heavy particles decaying into two taus using data from pp collisions recorded by the CMS experiment at the LHC, at center-of-mass energy of 7 TeV, and corresponding to an integrated luminosity of  $4.6 \text{ fb}^{-1}$ . The cross section limit was measured using four channels,  $Z' \rightarrow \tau\tau \rightarrow e\tau_h, \mu\tau_h, e\mu, \text{ and } \tau_h\tau_h$ , where no significant excess was observed. Using the Sequential Standard Model  $Z'$ -boson as a benchmark, we set a 95% confidence-level upper limit on the mass of 1TeV.

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