Abstract Submitted
for the APR16 Meeting of
The American Physical Society

Search for new phenomena using dimuon final states with ATLAS at LHC YANLIN LIU, Univ of Michigan - Ann Arbor, ATLAS COLLABORATION — We present the searches for both resonant and non-resonant new phenomena in dimuon final states with the ATLAS experiment. The results shown in this talk will include data corresponding to an integrated luminosity of 3.2 fb^{-1} at 13 TeV. No new physics signature has been observed in data. The upper mass limits on the new gauge boson Z for dimuon channel are set at 95% conference level at 2.98 TeV for the Sequential Standard Model, and at 2.71 TeV and 2.42 TeV for the E_6 model for Z_χ and Z_ψ, respectively. In addition, limits are set on the llqq contact interaction scale Λ between 14.5 TeV and 20.2 TeV.

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Date submitted: 12 Jan 2016 Electronic form version 1.4