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Study of Cosmic Ray Muon Lateral Distribution with Geant4 Simulation OLESYA SARAJLIC, XIAOCHUN HE, Georgia State Univ — Cosmic ray radiation has galactic origin and consists primarily of protons and a small percentage of heavier nuclei. The primary cosmic ray particles interact with the molecules in the atmosphere and produce showers of secondary particles at about 15 km altitude. In recent years, with the advancement in particle detection technology, there is a growing interest of exploring the applications of cosmic ray muons ranging from Homeland Security, correlation study with the atmospheric weather, etc. A Geant4-based cosmic ray shower simulation is developed to study secondary cosmic ray particle showers in the full range of the Earth's atmosphere. In this talk, the diurnal and latitudinal variations of muon lateral distributions will be presented.

Olesya Sarajlic
Georgia State Univ

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