



Contribution ID: 218

Type: **not specified**

Search for a high mass diphoton resonance using the ATLAS detector

Wednesday 13 July 2016 10:40 (20 minutes)

A search for resonances decaying to two photons was conducted with the ATLAS Experiment at the LHC. The analysis used proton-proton collision data with a center-of-mass energy of $\sqrt{s}=13$ TeV and an integrated luminosity of 3.2/fb. Searches were performed for spin-0 particles at masses greater than 200 GeV and spin-2 particles at masses greater than 500 GeV. Limits on the production cross-section times branching ratio to two photons for both resonance types were computed. The largest local deviations from the background-only hypothesis are observed at a diphoton invariant mass of 750 GeV and correspond to 3.9 and 3.8 standard deviations for the spin-0 and spin-2 hypotheses, respectively. The global significances of the excesses of events are both 2.1 standard deviations.

Summary

A search for resonances decaying to two photons was conducted with the ATLAS Experiment at the LHC. The analysis used proton-proton collision data with a center-of-mass energy of $\sqrt{s}=13$ TeV and an integrated luminosity of 3.2/fb. Searches were performed for spin-0 particles at masses greater than 200 GeV and spin-2 particles at masses greater than 500 GeV. Limits on the production cross-section times branching ratio to two photons for both resonance types were computed. The largest local deviations from the background-only hypothesis are observed at a diphoton invariant mass of 750 GeV and correspond to 3.9 and 3.8 standard deviations for the spin-0 and spin-2 hypotheses, respectively. The global significances of the excesses of events are both 2.1 standard deviations.

Author: Mr HARD, Andrew (University of Wisconsin)

Presenter: Mr HARD, Andrew (University of Wisconsin)

Session Classification: Parallel II

Track Classification: Physics at Colliders