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Search for new resonances in high-mass diphoton final states using proton-proton collision data collected with the ATLAS detector

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Since the discovery of the 125 GeV Higgs boson at the LHC, studies of the Higgs sector have become an important topic of the ATLAS physics program. There are many potential extensions of the Standard Model (SM) that predict new high-mass states decaying into two photons. Among which, two types of signal models are considered: a spin-0 resonance which was predicted in theories with an extended Higgs sector such as the two-Higgs doublet models (2HDM), and a spin-2 graviton excitation of a Randall-Sundrum model with one warped extra dimension. The diphoton final state played an important role when the H(125) Higgs boson was discovered, and is chosen for this search as it provides a clean experimental signature with excellent invariant mass resolution and moderate backgrounds. This poster presents the search for new resonances decaying into two photons, using pp collisions collected with the ATLAS detector at LHC at a centre-of-mass energy of 13 TeV. Pairs of isolated photon candidates with high invariant masses are selected. The results of this search will be discussed in this poster.

I read the instructions

Secondary track (number)

Primary author: WANG, Yufeng

Presenter: WANG, Yufeng

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