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Search for new phenomena in the diphoton final state using 37 fb-1 of data collected at sqrt(s) = 13 TeV in 2015 and 2016 with the ATLAS detector

New high-mass scalar states decaying into two photons are predicted in many extensions of the Standard Model. The diphoton final state provides a clean experimental signature with excellent invariant mass resolution and moderate backgrounds.

A search for such states with masses above 200 GeV is presented here, using 37 fb-1 of data collected by the ATLAS experiment in 2015 and 2016 at sqrt(s)=13 TeV. This search follows the report by the ATLAS and CMS collaborations of an excess with respect to the Standard Model continuum background in the diphoton invariant mass spectrum near the mass value of 750 GeV in 3.2–3.3 fb−1 of s = 13 TeV proton–proton (pp) collision data recorded in 2015.

Experimental Collaboration

ATLAS

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