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[YSF] Search for low-mass resonances decaying into two jets and produced in association with a photon with ATLAS

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Many models predict new particles with sizeable couplings to quarks and gluons. A search is performed for localised excesses in dijet mass distributions of low-dijet-mass events produced in association with a high transverse energy photon. The search uses up to 79.8 fb-1 of LHC proton–proton collisions collected by the ATLAS experiment at a centre-of-mass energy of 13 TeV during 2015–2017. Two variants are presented: one which makes no jet flavour requirements and one which requires both jets to be tagged as b-jets. The observed mass distributions are consistent with multi-jet processes in the Standard Model. The data are used to set upper limits on the production cross-section for a benchmark Z'model and, separately, on generic Gaussian-shape contributions to the mass distributions, extending the current ATLAS constraints on dijet resonances to the mass range between 225 and 1100 GeV.

Primary author: ATLAS COLLABORATION

Presenter: ZHANG, Gang (Tsinghua University (CN))

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