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A measurement of the high-mass tautau production cross-section at sqrt(s) = 13 TeV with the ATLAS detector and constraints on new particles and couplings

The first measurement of the high-mass $\tau\tau$ production cross section is presented, performed by the ATLAS Collaboration with the dataset of 140 fb-1 of pp collisions at sqrt(s) = 13 TeV. This process is also exploited to constraint new physics models affecting the Standard Model flavour sector. A fit to the τ -lepton pair invariant mass distribution is performed as a function of b-jet multiplicity to constrain the non-resonant production of new particles described by an effective field theory or in models containing leptoquarks or heavy Z'bosons that couple preferentially to the third family of leptons. Constraints on leptoquark models improve on previous results and exclude scenarios proposed to interpret the flavour anomalies in B-hadron decays. Constraints on effective field theory operators include those affecting g-2 of the \boxtimes lepton.

Secondary track

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