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Search for new physics in multi-body invariant masses in dijet events with an isolated lepton using $\sqrt{s} = 13$ TeV proton–proton collision data collected by the ATLAS detector

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A search for resonances in events with at least one isolated charged lepton (e or μ) is performed using 139 fb^{-1} of $\sqrt{s} = 13$ TeV proton–proton collision data recorded by the ATLAS detector at the LHC. Deviations from Standard Model predictions are tested in three- and four-body invariant mass distributions constructed from jets and leptons. The study reports first model-independent limits on generic resonances characterized by cascade decays of particles leading to multiple jets and leptons in the final state. The limits are calculated using Gaussian shapes with different widths. The multibody invariant masses are then used to set upper limits at a 95% confidence level on a range of new physics scenarios implemented in Monte Carlo simulations.

In-person participation

Yes

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