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Search for long-lived, weakly-interacting particles that decay to displaced hadronic jets in proton-proton collisions at $\sqrt{s} = 8$ TeV with the ATLAS detector

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Many new physics models predict the existence of neutral, weakly interacting, long-lived particles that could decay within the detector volume, producing a distinctive experimental signature. Results are presented for a search for these particles, using techniques for reconstructing displaced decays to hadronic jets in the inner tracking detector and muon spectrometer. The search is performed using proton-proton collision data at $\sqrt{s} = 8$ TeV collected by the ATLAS detector in 2012, corresponding to a total integrated luminosity of 20.3 fb^{-1} . Signal events are required to have at least two reconstructed decay vertices. Results are interpreted in terms of stealth supersymmetry (SUSY) models, and Hidden Valley scenarios with a scalar boson or Z' boson mediator.

Oral or Poster Presentation

Oral

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