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Search for supersymmetry in events with four or more charged leptons in 139 fb-1 sqrt(s) = 13 TeV pp collisions with the ATLAS detector

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A search for supersymmetry in events with four or more charged leptons (electrons, muons and taus) is presented. The analysis uses a data sample corresponding to 139 fb-1 of pp collisions delivered by the Large Hadron Collider at sqrt(s) = 13 TeV and recorded by the ATLAS detector. Four-lepton signal regions with up to two hadronically decaying taus are designed to target several supersymmetric models, while a general five-lepton signal region targets any new physics phenomena leading to a five charged lepton final state. Data yields are consistent with expectations and results are used to set upper limits on contributions from processes beyond the Standard Model. Exclusion limits are set at the 95% confidence level in simplified models of General Gauge Mediated supersymmetry, where higgsino masses are excluded up to 550 GeV. In R-parity-violating simplified models with decays of the lightest supersymmetric particle to charged leptons, lower limits of 1.65 TeV, 1.23 TeV, and 2.58 TeV are placed on wino, slepton and gluino masses, respectively.

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