

Search for the electroweak production of charginos and sleptons decaying into final states with two electrons or muons in proton-proton collisions at $s = 13$ TeV with the ATLAS detector

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The Standard Model (SM) of particle physics is currently the best theory for describing elementary particles and their interactions, but there are several problems and open questions related to it. For instance it does not incorporate gravity, and it does not explain dark matter, hence there is a need for new fundamental theories of nature beyond the current theory. A theory that addresses some of the problems with the SM is Supersymmetry, as a symmetry between fermions and bosons, which predicts a superpartner for each SM particle.

Here we present a search for the electroweak production of charginos and sleptons decaying into final states with two electrons or muons. The results are based on the full data set of proton-proton collisions recorded by the ATLAS detector during Run II of the Large Hadron Collider at $s=13$ TeV. Three R-parity-conserving scenarios where the lightest neutralino is the lightest supersymmetric particle are considered: the production of chargino pairs with decays via either W bosons or sleptons, and the direct production of slepton pairs.

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