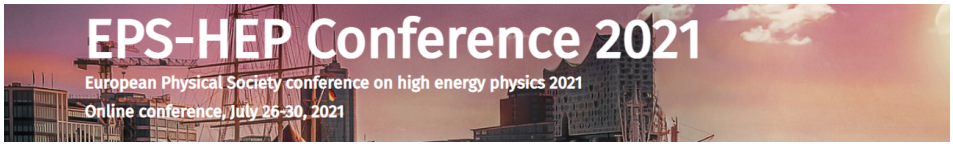

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Search for higgsinos with R-parity violating decays in a final state with one lepton and many jets in sqrt(s) = 13 TeV pp collisions with the ATLAS detector

Natural supersymmetry (SUSY) suggests light higgsinos possibly within the discovery reach of Run-2 of the LHC. This poster presents the lat- est result of a search for R-parity violating (RPV) SUSY in final states with one lepton and high jet and b-jet multiplicities. In a target model supersymmetric higgsinos are produced in pairs and decay via an RPV coupling to three quarks. The ttbaŕ process is the main background source and estimated using a data-driven model that predicts higher jet and b-jet multiplicities used in the search.

Machine learning techniques are introduced to reach sensitivity to elec- troweakino production, extending the data-driven background estimation to the shape of the machine learning discriminant. This search represents the first LHC result to obtain sensitivity to electroweak production of SUSY particles promptly decaying to quarks, as predicted in baryon-number-violating RPV models.

Collaboration / Activity

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