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Exploring the frontier of R-parity-violating supersymmetry with the ATLAS detector

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Supersymmetry models in which R-parity violation occurs predict a wide range of experimental signatures at the LHC, including many high-multiplicity final states without large missing transverse momentum. These models are motivated by the hierarchy problem and for some parameters naturally explain the lightness of the standard model neutrinos. Searches for RPV SUSY signatures require dedicated signal regions and innovative techniques to estimate the challenging backgrounds. This talk will highlight the latest results of searches conducted by the ATLAS experiment which target supersymmetric particles produced via both strong and electroweak processes in R-parity violating scenarios.

Primary author: FELIGIONI, Lorenzo (CPPM, Aix-Marseille Université, CNRS/IN2P3 (FR))

Presenter: FELIGIONI, Lorenzo (CPPM, Aix-Marseille Université, CNRS/IN2P3 (FR))

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