

Cosmic Ray Signatures from Decaying Gravitino Dark Matter.

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If R-Parity is broken, a Gravitino LSP can still act as Dark Matter due to the Planck scale suppression of the decay width. Within this framework, we study cosmic ray signatures of models with trilinear R-Parity Violating couplings. The signals are compared with cosmic ray measurements from PAMELA and Fermi/LAT. It is shown that leptonic operators (LLE) can successfully reproduce the electron/positron anomalies seen by PAMELA and Fermi. Moreover, the absence of any deviation from expected background in the PAMELA anti-proton data is shown to produce significant constraints on LQD and UDD couplings. Finally, we discuss the importance of upcoming photon data on resolving the source of these anomalies.

Primary authors: Dr RAKLEV, Are (University of Cambridge); Prof. LOLA, Magda (University of Patras); Mr BOMARK, Nils-Erik (University of Bergen); Prof. OSLAND, Per (University of Bergen)

Presenter: Mr BOMARK, Nils-Erik (University of Bergen)

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