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Indirect Detection of Secluded Supersymmetric Dark Matter

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Weak-scale secluded sector dark matter can reproduce the observed dark matter relic density via thermal freeze-out within that sector. If supersymmetric, three portals to the visible sector —a gauge portal, a Higgs portal, and a gaugino portal —are present. We present the gamma ray spectra relevant for indirect detection in these set-ups. Since R-parity is no longer necessary to ensure dark matter stability, we investigate the impact of R-parity violation on the annihilation spectra. We present limits from the Fermi Large Area Telescope (LAT) analysis of dwarf galaxies and projections for the Cherenkov Telescope Array (CTA) probe of the galactic center.

Summary

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