

Constraints on dark matter annihilation and decay in the Milky Way halo

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Indirect DM searches through gamma rays produced in DM annihilation/decay in the Milky Way halo are promising means to test the WIMP paradigm due to the high DM density in the inner Galaxy and proximity of the target. Propagation of Galactic cosmic rays also produces diffuse gamma rays which represent a major foreground for these searches. In this talk we report results of an analysis in which we test the Fermi-LAT diffuse data for a contribution from a DM annihilation/decay signal by marginalizing over several parameters that determine the contribution from cosmic-ray-induced diffuse gamma-ray emission. We present competitive constraints on the DM annihilation cross section and decay lifetime for several DM channels and discuss an improved treatment of the uncertainties due to the DM density profile.

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