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Search for dark matter annihilation in dwarf galaxies using Fermi gamma-ray data with simulation-based J-factors

Weakly interacting massive particles (WIMPs) produced through thermal freeze-out are a highly motivated dark matter (DM) candidate. Since WIMP DM acquired its relic abundance through self-annihilations, such particles must continue to annihilate to Standard Model final states and would produce observable signatures in astrophysical gamma-ray searches. In this work, we perform a search for WIMP annihilation in Milky Way dwarf galaxies with gamma-ray data from the Fermi Large Area Telescope. In particular, we improve upon previous searches by inferring astrophysical J-factors for dwarf galaxies using the SatGen semi-analytic satellite galaxy generator.

Title

Abstract

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