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Radiative Corrections to the Direct Detection of the Higgsino-like Neutralino Dark Matter: Spin-Independent Interactions

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The lightest Neutralino is a good Dark Matter (DM) candidate

in the R-parity conserving Minimal Supersymmetric Standard Model (MSSM). In this work, we consider light Higgsino-like Neutralino as the Lightest

Stable Particle (LSP), thanks to a relatively small μ parameter. We then estimate the prominent radiative corrections to the Neutralino-Neutralino-Higgs boson vertices.

We show that these corrections can significantly affect the

spin-independent direct detection cross-section for Higgsino-like Neutralino, even reaching close to 100% in certain regions of the parameter space. These corrections, therefore, play an essential role in deducing constraints on the mass of the Higgsino-like Neutralino Dark Matter and thus the μ parameter.

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Shiv Nadar Institution of Eminence, Greater Noida

Author: PASHA, Syed Adil (Shiv Nadar Institution of Eminence, Greater Noida)

Co-authors: CHATTERJEE, Arindam (Shiv Nadar Institution of Eminence); Dr DAS, Debottam (Institute of Physics); Mr BISAL, Subhadip (Institute of Physics, Bhubaneswar)

Presenter: PASHA, Syed Adil (Shiv Nadar Institution of Eminence, Greater Noida)

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