## NeMO-C 2024: Neutrinos y Materia Oscura en Colombia



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## Fuzzy dark matter modeling of the dynamical behavior of nearby isolated dwarf galaxies.

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We investigate a model based on fuzzy dark matter (FDM) formalism to describe rotation curves of nearby isolated dwarf galaxies. Our study evaluates the consistency of the FDM behavior with high resolution rotation curves from the LITTLE THINGS 3D catalog, which contains dark matter dominated galaxies. We find that the phenomenological model incorporating a central soliton structure, as predicted by FDM, accurately represents the dynamics of the dwarf galaxies and their density profiles. Nevertheless, the halo mass function prediction of FDM is not compatible with the determination of the number of observable haloes in the distances of the nearby group of irregular dwarf galaxies. This discrepancy presents a catch-22 paradox for the minimal FDM model, particularly within the axion mass range that permits the formation of soliton cores.

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