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## A robust determination of satellite dwarf galaxy J-Factors from DESI observations

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### ABSTRACT

Dwarf satellite galaxies orbiting the Milky Way are thought to have significantly larger amounts of mass than the ones derived from their observed light. This 'dark matter' (DM) is not only in these objects but it is present at all scales, accounting for more than 80% of the total mass in the Universe. In the case of dwarf satellite galaxies, current DM density profile models usually exhibit large uncertainties due to the limited availability and precision of kinematics data used to constrain them. This, in turn, implies large uncertainties in the prediction of potential DM-induced signals expected at Earth, according to the most accepted particle physics scenarios.

The main goal of this work is to calculate accurate DM density profiles for dwarf galaxies using the CLUMPY open-source package, which uses both MCMC and the standard Jeans equations to derive underlying DM distributions. In addition to previous data sets, we will use stellar spectroscopic data from DESI, an ongoing optical survey that is obtaining spectroscopic data with unprecedented precision. By improving our knowledge of the actual DM distribution in these objects, it will be also possible to obtain a more precise determination of their DM-induced gamma-ray fluxes. The latter will have important implications in the derivation of robust limits to the DM particle properties.

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