

Vulcano Workshop 2022 - Frontier Objects in Astrophysics and Particle Physics



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Measuring the Dark Matter Content of Dwarf Spheroidal Galaxies

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Dark matter (DM), a large (~85%) non-baryonic and non-relativistic component of the matter density of the Universe, likely consists of one or several so-far undetected particles hypothesized in theories beyond the Standard Model (SM). One of the most promising approaches to shed light on the nature of DM particles is to search for signatures of their annihilation or decay into SM particles from regions of the sky believed to be highly DM dominated, such as the Galactic Center, the clusters of galaxies and the dwarf spheroidal galaxies (dSphs) around the Milky Way. In this context, dSphs are among the most promising observational targets due to their relative proximity and lack of astrophysical background sources. In this contribution, I will present new determinations of the DM amount (i.e. the astrophysical factors for DM annihilation and decay) in dSph halos obtained through the MCMC Jeans analysis of their brightness and kinematic data through the CLUMPY software. I will also discuss the systematic uncertainties affecting the calculation of such quantities.

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