

Dark matter anisotropic distribution functions and impact on WIMP direct detection

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The dark matter direct detection technique has recently played a major role in the dark matter quest. Different experiments have currently reached the sensitivity to probe in depth the dark matter properties, assuming that the dark matter component of the Universe is made of Weakly Interacting Massive Particles (WIMPs). The interpretation of a direct detection signal in terms of WIMP properties depends on a number of assumptions regarding the distribution function of the local population of Milky Way dark matter particles, which is usually assumed to be an isotropic Maxwell-Boltzmann distribution.

In this talk I will discuss how an anisotropic dark matter distribution function, derived from a self-consistent Galactic model, impacts the expected direct detection event rates and exclusion limits in the plane dark matter mass versus spin-independent scattering cross section. Particular emphasis will be placed on the resulting interpretation of the latest experimental results.

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