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Gamma-ray signatures of velocity-dependent dark matter annihilation

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If the dark matter annihilation cross-section is velocity-dependent, then gamma-ray signals from astrophysical targets depend non-trivially on the dark matter velocity distribution. Since different targets can have different characteristic velocity scales, analyses of ensembles of targets can potentially find evidence for particular scenarios of dark matter microphysics. We discuss recent work on the prospects for future observations of dwarf spheroidal galaxies and galactic subhalos to not only detect evidence of dark matter annihilation, but also to determine the velocity dependence.

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