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Galactic Dark Matter substructure searches with the Cherenkov Telescope Array (CTA)

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In the current understanding of structure formation in the Universe, the Milky Way is embedded in a clumpy halo of dark matter (DM). Regions of higher DM density are expected to present an enhanced rate of annihilation into gamma-rays with respect to the smooth halo regions. These point-like gamma-ray fluxes can possibly be detected by gamma-ray observatories on Earth, like the forthcoming Cherenkov Telescope Array (CTA). In this talk, I will present the expected gamma-ray fluxes from DM annihilation in Galactic subhalos together with a rigorous assessment of modeling and statistical uncertainties. I will then discuss the sensitivity of the CTA instrument to detect the brightest Galactic DM density clump in the projected extragalactic sky survey. I will also show how a CTA extragalactic survey dataset can be used to search for DM substructures as anisotropies in the angular power spectrum of the data.

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