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Realistic estimation for the detectability of Dark Matter sub-halos in the 3FGL and 2FHL Fermi-LAT catalogs

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The existence of Dark Matter (DM) is still one of the most challenging open problem in astrophysics. Indirect detection with gamma-rays is a promising way to try detecting this mysterious component of the Universe in the contest of a Weakly Interactive Massive Particle. N-body simulations predict that DM should produce sub-halos in our Galaxy. We use the most updated simulations that include baryonic feedback to give a realist prediction for the number of DM sub-halos detectable by Fermi-LAT catalog. We calculate the flux sensitivity for the detection of halos as a function of DM mass and Galactic latitude and we apply these results to the 3FGL and 2FHL Fermi-LAT catalogs.

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