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# Dark Matter implications of the Fermi-LAT measurement of anisotropies in the diffuse gamma-ray background

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For the first time, the Fermi-LAT measured the angular power spectrum (APS) of anisotropies in the diffuse gamma-ray background. The data is found to be broadly compatible with a model with contributions from the point sources in the 1-year catalog, the Galactic diffuse background, and the extragalactic isotropic emission; however deviations are present at both large and small angular scales.
In this study we complement the model with a contribution from Dark Matter (DM) whose distribution is modeled exploiting the results of the most recent N-body simulations, considering both the contribution of extragalactic halos and subhalos (from Millenium-II) and of Galactic substructures (from Aquarius). With the use of the Fermi Science Tools, these simulations serve as templates to produce mock gamma-ray count maps for DM gamma-ray emission, both in the case of an annihilating and a decaying DM candidate. The APS will then be computed and compared with the Fermi-LAT results to derive constraints on the DM particle physics properties. The possible systematic due to an imperfect model of the Galactic foreground will also be studied and take into account properly.

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