



Constraints on dark matter models from a Fermi LAT search for high-energy cosmic-ray electrons from the Sun

The [Fermi LAT Collaboration](#)

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During its first year of data taking, the Large Area Telescope (LAT) onboard the Fermi Gamma-Ray Space Telescope has collected a large sample of high-energy cosmic-ray electrons and positrons (CREs). We present the results of a directional analysis of the CRE events, in which we searched for a flux excess correlated with the direction of the Sun. Two different and complementary analysis approaches were implemented, and neither yielded evidence of a significant CRE flux excess from the Sun. We derive upper limits on the CRE flux from the Sun's direction, and use these bounds to constrain two classes of dark matter models which predict a solar CRE flux: (1) models in which dark matter annihilates to CREs via a light intermediate state, and (2) inelastic dark matter models in which dark matter annihilates to CREs.

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