

## Dark sources of cosmic ray spikes on Earth's doorstep

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Multiple space-borne cosmic ray detectors have detected line-like features in the electron and positron spectra. Most recently, the DAMPE collaboration reported the existence of such a feature at 1.4 TeV, sparking interest in a potential dark matter origin. Such quasi-monochromatic features, virtually free of any astrophysical background, could be explained by the annihilation of dark matter particles in a nearby dark matter clump. Here, we explore the consistency of producing such spectral features with dark matter annihilation from the standpoint of dark matter substructure statistics, constraints from anisotropy, and constraints from gamma-ray emission. We demonstrate that if indeed a high-energy, line-like feature in the electron-positron spectrum originates from dark matter annihilation in a nearby clump, a significant or even dominant fraction of the dark matter in the Solar System likely stems from the clump, with dramatic consequences for direct dark matter searches.

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