

Evidence for a discrete-source origin for low-energy continuum Galactic gamma rays

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We describe recent studies of the diffuse Galactic γ -ray continuum emission using cosmic-ray propagation models. We show that it is difficult to reproduce both γ -ray continuum and synchrotron emission from the same population of cosmic-ray electrons unless there is a very sharp upturn in the electron spectrum below 100 MeV. This indicates that the dominant contributor below 10 MeV is not in fact diffuse emission, but arises from a population of point-sources. Possible candidates will be discussed.

The diffuse emission models are also used to address the problem of the origin of the >1 GeV excess observed by EGRET, and the halo contribution to high-latitude γ rays.