

THE IMPRINT OF GOULD'S BELT ON THE LOCAL COSMIC RAY ELECTRON SPECTRUM

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In a recent paper Pohl & Esposito (1998) demonstrated that if the sources of cosmic rays are discrete, as are SNR, then the spectra of cosmic ray electrons would vary and the locally measured electron spectrum would not be representative for the electron spectra elsewhere in the Galaxy, which could be substantially harder than the local one. These authors have shown that the observed excess of gamma ray emission above 1 GeV can in fact be explained as a correspondingly hard inverse Compton component, provided the bulk of cosmic ray electrons is produced in SNR.

As part of a GLAST IDS program to model the galactic gamma ray foreground we have continued the earlier studies by investigating the impact of the star forming region Gould's Belt on the local electron spectrum. If the electron sources in Gould's Belt were continuous, the local electron spectrum would be slightly hardened. If the electron sources are discrete, which is the more probable case, the variation in the local electron spectrum found by Pohl & Esposito persists.