

Electron and positron fluxes: the role of anisotropies from known astrophysical sources

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High energy cosmic ray electrons and positrons probe the local properties of our Galaxy. In fact, regardless of the production mechanism, electromagnetic energy losses limit the typical propagation scale of GeV-TeV electrons and positrons to a few kpc.

In the diffusion model, the presence of nearby and dominant sources may produce an observable dipole anisotropy in the cosmic ray fluxes. This observable is crucial to discern the physical origin of the observed electron and positron fluxes.

I will present a detailed study on the role of anisotropies from nearby sources in the interpretation of present cosmic ray electron and positrons fluxes. Predictions for the dipole anisotropy from known astrophysical sources as supernova remnants and pulsars of the Green and ATNF catalogs will be shown. In particular, I will discuss anisotropies for single sources as well as for a distribution of catalog sources.

The results [1] will be compared with current anisotropy upper limits from the Fermi-LAT, AMS-02 and PAMELA experiments.

[1]S.Manconi, M.Di Mauro, F.Donato, in preparation.

Summary

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