Contribution ID: **119** Type: **oral**

Imprints of the Galactic magnetic field on gamma-ray data

Thursday, 28 July 2022 15:00 (15 minutes)

Standard models of the large-scale interstellar emission officially adopted so far for studies of the Fermi-LAT data are very uncertain and show some discrepancies with respect to the data especially in the inner Galaxy where the degeneracy with the various components is large, underlining the necessity of more realistic models.
We focus here on the large-scale Inverse Compton component of the interstellar emission, which is produced by cosmic-ray electrons and positrons on the CMB and interstellar photons. We have updated the inverse-Compton models accounting for latest precise cosmic-ray measurements, with AMS02 and Voyager, and for a more realistic magnetic field model consistent with synchrotron emission, which is observed in radio and microwaves, produced by the same electrons and positrons. We show the effects of such improvements in the spectral and spatial distribution of the inverse-Compton models.
We found that the updated 3D magnetic field model, which we constrain by synchrotron observations, produces a more peaked inverse-Compton emission in the inner Galaxy with respect to the standard models used to analyze Fermi LAT data so far. Predictions for future missions at MeV, such as GECCO, AMEGO, and ASTROGAM are also shown.

Primary author: ORLANDO, Elena

Presenter: ORLANDO, Elena

Session Classification: Parallel 2

Track Classification: GA