Contribution ID: **32** Type: **Contributed**

Updated Interstellar Inverse Compton Models and Dependency from the Large-Scale Magnetic Field

Tuesday 13 April 2021 15:15 (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 (IC) component of the interstellar emission, which is produced by cosmic-ray (CR) electrons and positrons on the CMB and Galactic photons. We have updated the IC model accounting for latest precise CR measurements, with AMS02 and Voyager, and for a more realistic magnetic field model consistent with synchrotron emission, which is observed in radio, produced by the same electrons and positrons. We show the effects of such improvements in the spectral and spatial distribution of the IC model.
For example, we found that the updated magnetic field model, which we constrain by synchrotron observations, produces a more peaked IC 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 AMEGO and GECCO, are also shown.
This presentation is mainly based on our results from Orlando (2019) Physical Review D 99, 043007 and Orlando (2018) MNRAS 475, 2724.

Primary author: ORLANDO, Elena

Presenter: ORLANDO, Elena

Session Classification: Diffuse Gamma Rays & Cosmic Rays

Track Classification: Diffuse