



Contribution ID: 303

Type: **Parallel Talk**

The very high energy gamma-ray (and neutrino) Galactic Center diffuse emission

Thursday 6 July 2017 14:48 (18 minutes)

We present a novel interpretation of the gamma-ray diffuse emission in the Galactic Center (GC) and the Central Molecular Zone (CMZ) regions.

This is based on a scenario assuming a harder scaling of the diffusion coefficient with rigidity in the inner Galaxy so to reproduce the radial dependence of the cosmic-ray (CR) spectral index recently inferred from Fermi-LAT.

We compare our model with H.E.S.S. and (for the first time in this context) with PASS8 Fermi-LAT data which allows to cover the entire energy range from few GeV up to ~ 50 TeV and to infer the primary CR radial distribution above 100 GeV.

We find that the bulk of the Galactic ridge emission can be naturally explained by the interaction of the diffuse, steady-state Galactic CR sea interacting with the gas present in the CMZ. As a consequence, the evidence of a GC Pevatron is significantly weakened.

We will also discuss the implications of our results for high energy neutrino astronomy.

Based on arXiv:1702.01124 (submitted to PRL) and 1504.00227 (published in ApJ L)

Experimental Collaboration

Primary authors: GRASSO, Dario (INFN); GAGGERO, Daniele; MARINELLI, Antonio (I.N.F.N Pisa); TAOSO, Marco; URBANO, Alfredo Leonardo (CERN)

Presenter: GRASSO, Dario (INFN)

Session Classification: Astroparticle physics

Track Classification: Astroparticle Physics