30th International Cosmic Ray Conference

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Gamma-ray and neutrino diffuse emission of the Galaxy above the TeV

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Abstract content

In this contribution we will show our predictions for the intensity and the angular distribution of the gamma-ray and neutrino emissions above the TeV as should be originated from the hadronic scattering of cosmic rays (CR) with the interstellar medium (ISM).
We simulated the spatial distribution of primary nuclei by solving numerically the diffusion equation considering several models of the galactic magnetic field. We assumed that CR sources are supernova remnants (SNR) adopting a radial distribution of those objects as determined from observations of pulsars and progenitor stars. Concerning the ISM, we considered two different models for the 3D spatial distributions of molecular hydrogen.
Respect to previous results, we find the secondary gamma-ray and neutrino emissions to be more peaked along the galactic equator and in the galactic centre which improves significantly the perspectives of a positive detection.
We compare our predictions with the experimental limits/observations by MILAGRO and TIBET (for the gamma-rays) and by AMANDA-II (for the neutrinos) and discuss the detection perspectives for a km3 neutrino telescope to be built in the North hemisphere.

If this papers is presented for a collaboration, please specify the collaboration

Summary

Reference

Proceedings of the 30th International Cosmic Ray Conference; Rogelio Caballero, Juan Carlos D'Olivo, Gustavo Medina-Tanco, Lukas Nellen, Federico A. Sánchez, José F. Valdés-Galicia (eds.); Universidad Nacional Autónoma de México, Mexico City, Mexico, 2008; Vol. 3 (OG part 2), pages 1213-1216

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