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Simulation of cosmic ray propagation in the Galactic center ridge in accordance with observed VHE γ-ray emissions.

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Abstract content

Diffuse VHE γ radiation from the Galactic center ridge observed by the H.E.S.S. telescope has been convincingly linked with the propagation of recently accelerated cosmic rays that interact with molecular hydrogen clouds during their diffusion. Through a series of time-dependent simulations of that diffusion for different propagation parameters we have obtained the most probable values of the diffusion coefficient for the galactic center region. Assuming that the diffusion coefficient is of the form $\varkappa(E) = \varkappa 0(E/E0)\hat{}\delta$, then for different optimal combinations of $\varkappa 0$ and δ its value is obtained for cosmic rays originating from a central point (possibly Sgr A East) 10 kyr ago.

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. 2 (OG part 1), pages 211-214

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