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Gamma Rays from the Galactic Centre

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Abstract content

Recent results from the HESS gamma-ray telescope have shown the presence of both a diffuse, extended flux of gamma rays above ~ 0.4 TeV and discrete sources in and near the Galactic Centre. Here, we put forward a possible explanation in terms of the diffusion of cosmic-ray protons from a succession of supernova remnants (SNR) in the SgrA* region of the Galaxy plus a probable contribution from SNR in the rest of the Galactic Centre Region, to be called Galactic Centre Ridge (GCR). Protons are favoured over electrons because the mG magnetic fields in the Region will attenuate energetic electrons severely. Prominent features are the need for 'anomalous diffusion' of the protons in the whole region and the adoption of low efficiency for SNR acceleration in the high density regions. The latter is related by us to the well-known low 'cosmic-ray gradient' in the Galaxy. A corroborating feature is the close correlation of inferred cosmic-ray intensity with the smoothed intensity of 5 GHz radio radiation. We attribute this to the presence of the SNR in the GCR.

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 531-534

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