



Contribution ID : 945

Type : Oral

Constraints on the lepton content of PWN from the local CR positron spectrum

Wednesday, 4 July 2007 12:17 (0:12)

Abstract content

Geminga is a nearby pulsar with an age of 3.42×10^5 yr and a spin down power of 3.2×10^{34} erg/s at present. The wind of this pulsar most probably had powered a PWN that broke up about less than 1×10^5 yr after the birth of the pulsar. Assuming that leptonic particles accelerated by the pulsar were confined in the PWN and got released into the interstellar medium on breakup of the PWN, we calculate the contribution of these particles to the locally observed cosmic ray electron and positron spectra. Our calculations show that within the framework of our model, the local CR positron spectrum imposes constraints on pulsar parameters for Geminga, e.g. the pulsar period at birth, and also the local interstellar diffusion coefficient for CR leptons.

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'Olive, 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 141-144

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Session Classification : OG 1.2

Track Classification : OG.1.2