



Contribution ID : 600

Type : Oral

The extended inverse-Compton gamma-ray emission from the Sun seen by EGRET

Wednesday, 4 July 2007 08:42 (0:12)

Abstract content

We study the Sun as an extended source of gamma-ray emission, produced by inverse-Compton scattering of cosmic-ray electrons with the solar radiation. This emission contributes to the diffuse gamma-ray background even at large angular distances from the Sun. While this emission is expected to be readily detectable by the upcoming gamma-ray satellite GLAST, the situation for available EGRET data is more challenging. Analyzing the EGRET database, we find clear evidence for the emission from the Sun and its vicinity, compatible with our predictions. The model for solar gamma-ray production has been implemented taking into account the solar modulation of cosmic-ray electrons, and observations of this process are promising to study the solar modulation of electrons as a function of distance from the Sun.

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. 1 (SH), pages 11-14

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Session Classification : SH 1.2, SH 1.3

Track Classification : SH.1.2