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A Monte Carlo study of the irreducible background in the EGRET instrument

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Abstract content

The diffuse extragalactic gamma-ray background (EGRB) has been derived by various groups from observations by the EGRET instrument on CGRO. The derived EGRB consists of gamma-rays that may come from true astrophysical components, such as from unresolved extragalactic point sources (blazars, normal galaxies, etc.) and truly diffuse signals from the Galaxy and inverse Compton scattering on the solar radiation field, and an irreducible instrumental background due to gamma rays produced by cosmic-ray interactions in the EGRET instrument and CGRO spacecraft. Using a detailed Monte Carlo model of the EGRET instrument and CGRO, we have investigated the magnitude of the irreducible instrumental background and have developed an extension to the effective area determination. We present the results of our study and its effect on current estimates of the EGRB.

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 517-520

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