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Astrophysics with the 3-DTI Gamma-Ray Telescope

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Abstract content

Despite notable progress in gamma-ray astronomy, understanding the astrophysical sources of medium energy (MeV-range) gamma-rays still remains somewhat of a mystery. Medium-energy gamma-ray observations require diverse measurement techniques since the objects that produce these gamma-rays are both extended and point-like, transient and steady, and include both continuum and line emissions. The challenge is to develop a future gamma-ray instrument to survey the Galaxy with greatly improved sensitivity by increasing the overall aperture and effectively addressing background rejection. Clearly, this survey would be enhanced by observations at other wavelengths such as those from SWIFT and GLAST, and INTEGRAL. The ability to constrain the incident gamma-ray direction with highly precise imaging techniques and thus obtain dramatic improvements in sensitivity opens up the field of gamma-ray observations to many exciting new potential discoveries. We discuss the design of a Compton telescope with electron tracking and highlight some of the interesting MeV gamma-ray astrophysics questions that can be addressed by such a telescope.

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. 3 (OG part 2), pages 1389-1392

Primary author(s) : Dr. HUNTER, Stanley (NASA/GSFC)

Co-author(s) : Dr. BARBIER, L. M. (NASA/GSFC); Dr. BLOSER, P. F. (University of New Hampshire); Dr. FLOYD, S. R. (NASA/GSFC); Dr. KRIZMANIC, J. F. (NASA/GSFC); Dr. LINK, J. T. (NASA/GSFC); Dr. MCCONNELL, M. L. (University of New Hampshire); Dr. DE NOLFO, G. A. (NASA/GSFC); Dr. RYAN, J. M. (University of New Hampshire); Dr. SON, S. (NASA/GSFC)

Presenter(s) : Dr. HUNTER, Stanley (NASA/GSFC)

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