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Gamma Ray Pulsar Candidates for GLAST

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Abstract content

The Gamma-ray Large Area Space Telescope (GLAST) will be launched less than a year from now, and its Large Area Telescope (LAT) is expected to discover scores to hundreds of gamma-ray pulsars. This poster discusses which of the over 1700 known pulsars, mostly visible only at radio frequencies, are likely to emit >100 MeV gamma-rays with intensities detectable by the LAT. The main figure of merit used to select gamma-ray pulsar candidates is $\sqrt{E\dot{E}}/d^2$, where $E\dot{E}$ is the energy loss due to rotational spindown, and d is the distance to the pulsar. The figure of merit incorporates spin-down flux at earth (proportional to $E\dot{E}/d^2$) times efficiency, assumed proportional to $1/\sqrt{E\dot{E}}$. A few individual objects are cited to illustrate the issues. Since large $E\dot{E}$ pulsars also tend to have large timing noise and occasional glitches, their ephemerides can become inaccurate in weeks to months. To detect and study the gamma-ray emission the photons must be accurately tagged with the pulse phase. With hours to days between gamma-ray photon arrival times from a pulsar and months to years of LAT exposure needed for good detections, GLAST will need timing measurements throughout the continuous gamma-ray observations. The poster will describe efforts to coordinate pulsar timing of the candidate gamma-ray pulsars.

If this papers is presented for a collaboration, please specify the collaboration

GLAST LAT 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 855-858

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