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Constraining Viewing Geometries of Pulsars With Single-Peaked Gamma-ray Profiles Using A Multiwavelength Approach

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Since the launch of the Large Area Telescope (LAT) on board the Fermi spacecraft in June 2008, the number of observed gamma-ray pulsars has increased dramatically. A large number of these are also observed at radio frequencies. Weltevrede et al. (2010) derived constraints on the viewing geometries of 6 gamma-ray pulsars exhibiting single-peaked gamma-ray profiles using high-quality radio polarization data. We obtain independent constraints on the viewing geometries by using a geometric emission code to model the Fermi-LAT and radio light curves. We find fits for the magnetic inclination and observer angles by searching the solution space by eye. Our results are generally consistent with those obtained by Weltevrede et al. (2010), although we do find differences in some cases. We will indicate how the gamma-ray and radio pulse shapes as well as their relative phase lags lead to constraints in the solution space. A more rigorous approach, the Monte Carlo Markov Chain technique, is able to statistically find best-fit light curves in addition to constraining several model parameters and estimating errors on these.

Level (Hons, MSc, PhD, other)?

MSc

Consider for a student award (Yes / No)?

Yes

**Would you like to
 submit a short paper
 for the Conference
 Proceedings (Yes / No)?**

Yes

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