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On the Spectral Shape of Gamma-ray Pulsars Above the Break Energy

Tuesday, 4 August 2015 16:00 (1 hour)

It is well known that, for bright gamma-ray pulsars with high statistics above a few GeV, the phase averaged spectral energy distribution (SED) is harder than a simple exponential cutoff above the break. We perform phase-resolved spectral analyses of bright gamma-ray pulsars and demonstrate that, even over narrow phase ranges, the SEDs of gamma-ray pulsars above the break energy are harder than a simple exponential cutoff. We argue within a radiation-reaction limited curvature framework that this is indicative of non-stationary emission or emission from multiple zones. Further, we address a common problem faced when fitting hard spectral tails with a power-law times a sub-exponential function. Namely, that the sub-exponent parameter does not describe any parameters of physical models of pulsar emission. We introduce a simple analytical fit function to solve this problem.

Collaboration

– not specified –

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Primary authors: Dr MCCANN, Andrew (University of Chicago); Mr BOCHENEK, Christopher (University of Chicago)

Presenter: Mr BOCHENEK, Christopher (University of Chicago)

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