OBSERVATIONS OF PWNE WITH THE FERMI GAMMA-RAY SPACE TELESCOPE

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I certify that I have read this dissertation and that, in my opinion, it is fully adequate in scope and quality as a dissertation for the degree of Doctor of Philosophy.

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Approved for the University Committee on Graduate Studies

Abstract

Two things fill the mind with ever-increasing wonder and awe, the more often and the more intensely the mind of thought is drawn to them: the starry heavens above me and the moral law within me." – Immanuel Kant

The launch of the *Fermi* Gamma-ray space telescope in 2008 offered an unprecedented view into the γ-ray sky.

All the things we can learn with the LAT

Development of a new analysis method for studying spatially-extended PWNe using `pointlike`.

A monte-carlo validation of the analysis method.

Search for new spatially-extended sources with the LAT.

Observations of PWNe in the off-peak region of LAT detected pulsars.

Search for PWNe counterparts to TeV sources.

Using the population of PWNe to understand the radiation mechanism of PWNe.

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2FGL: Nolan et al. (2012)

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Crab

Vela X

MSH 15-52

HESS J1857

2FGL J1857 + 026

1. http://arxiv.org/pdf/1206.3324v1.pdf

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