# OBSERVATIONS OF PWNE WITH THE FERMI GAMMA-RAY SPACE TELESCOPE

A DISSERTATION
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DOCTOR OF PHILOSOPHY

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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 $\gamma$-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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- Something about how great galprop is.
- Something about

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- Citation is Nolan et al. (2012)
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- Forward reference Chapter 2, which does a more thorough analysis.

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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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# Bibliography

Nolan, P. L., Abdo, A. A., Ackermann, M., et al. 2012, ApJS, 199, 31