

OBSERVATIONS OF PWNE WITH THE FERMI GAMMA-RAY  
SPACE TELESCOPE

A DISSERTATION  
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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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(Roger Romani)

Approved for the University Committee on Graduate Studies

# preface

*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*

# Acknowledgement

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## Introduction

For now, just a small amount of text and one citation: Nolan et al. (2012)

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### 1.1.1 The *Fermi* Gamma-ray Space Telescope

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## 1.2 Galactic Gamma-ray Astrophysics

### 1.2.1 Pulsars

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## 1.3 Radiation Processes

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## Chapter 2

# Maximum-likelihood analysis of LAT data

### 2.1 The LAT Science Tools

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### 2.3 Extended Source Analysis in pointlike

## Chapter 3

# Search for Spatially-extended Sources

## Chapter 4

# Search for PWNe associated with Gamma-loud Pulsars

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## Chapter 6

# Search for PWNe associated with High Edot Pulsars



## Chapter 7

# Population Study of LAT-detected PWNe

# Bibliography

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