OBSERVATIONS OF PWNE WITH THE FERMI GAMMA-RAY SPACE TELESCOPE

A DISSERTATION
SUBMITTED TO THE DEPARTMENT OF PHYSICS
AND THE COMMITTEE ON GRADUATE STUDIES
OF STANFORD UNIVERSITY
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY

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January 2013

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

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.

Acknowledgement

First, I would like to acknowlege those mentors who inspired me to get a PhD. Mark Dodge, my high school physics teacher.

Ron Turner, my internship adviser at Analytic Services (ANSER) during the GWU Science and Engineering Apprentice Program (SEAP)

Anthony Tyson at UC Davis for my SULI Internship

Apurva Mehta and Sam Webb sam Web at SLAC SULI Internship.

During my PhD I was helped by an almost overwhelminlgy large number of people in the LAT collaboration.

People at Stanford/SLAC: Stefan Funk, Elliott Bloom, Markus Ackermann, Tobias Jogler, Junichiro Katsuta, Yasunobu Uchiyama

Pointlike collaborators: Matthew Kerr, Toby Burnett, Eric Wallace, Marshall Roth

Pulsar Collaborators: David Smith, Matthew Kerr, Peter den Hartog, Tyrel Johnson, Damien Parent, Ozlem Celik

Careful review of text: Jean Ballet, Johann Cohen-Tanugi

I would like to thank the PWN Thank the people in Bordeaux: Marianne Lemoine-Goumard, Romain Rousseau, and Marie-Hélène Grondin

Fermi SLAC Grad Students: Keith Bechtol, Alex Drlica-Wagner, Alice Allafort, Herman Lee Yvonne Edmonds, Bijan Berenji, Ping Wang, Warit Mitthumsiri

Additional Astro Stanford Graduate Students: Helen Craig, Michael Shaw, Adam Van Etten, Kyle Watters

Additonal Graduate Students at Stanford: Dan Riley, Joel Frederico, Ahmed Ismail, Joshua Cogan, Kunal Sahasrabuddhe,

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Bibliography

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