

# Fermi LAT International Finance Committee Meeting

## LAT Collaboration status

Peter F. Michelson  
Stanford University

SLAC / Stanford University  
November 4-5, 2011

National Aeronautics and Space Administration



Fermi

Gamma-ray Space Telescope

[www.nasa.gov/fermi](http://www.nasa.gov/fermi)

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# A few highlights

- **2011 began with award of the Bruno Rossi Prize of the AAS to the Fermi LAT team**

FERMI TEAM WINS TOP HIGH-ENERGY PRIZE The 2011 Rossi Prize has been awarded to two scientists and the team of the Large Area Telescope on board the Fermi Gamma-Ray Space Telescope. The prize was given for new insights into neutron stars, supernova remnants, cosmic rays, binary systems, active galactic nuclei, and gamma-ray bursts that their work enabled...

January 20, 2011

- **American Physical Society recently announced that the 2012 W. K. H. Panofsky Prize in Elementary Particle Physics is awarded to William B. Atwood**

For his leading work on the design, construction, and use of the Large Area Telescope on the Fermi Gamma-Ray Satellite, enabling numerous new results in gamma-ray astrophysics and fundamental physics.”

# 2<sup>nd</sup> Fermi LAT Catalog

1,873 sources

# collaboration membership (Sept 2010)

Country	membership category		
	Full Member	Affiliated Scientist	Postdoc
<b>France</b>	<b>16</b>	<b>10</b>	<b>7</b>
CEA	4	3	1
CNRS/IN2P3	12	7	5
<b>Italy</b>	<b>23</b>	<b>25</b>	<b>22</b>
ASI	5	18	7
INFN	18	7	15
<b>Japan</b>	<b>10</b>	<b>8</b>	<b>5</b>
<b>Sweden</b>	<b>3</b>	<b>10</b>	<b>4</b>
<b>USA</b>	<b>64</b>	<b>40</b>	<b>42</b>
DOE	39	15	16
NASA	21	20	23
other	4	5	3
<b>Australia</b>		<b>1</b>	<b>1</b>
<b>Germany</b>	<b>1</b>	<b>6</b>	<b>4</b>
<b>Great Britain</b>		<b>4</b>	<b>1</b>
<b>Spain, Austria</b>	<b>1 + 2</b>		<b>3 + 1</b>
<b>Total</b>	<b>120</b>	<b>104</b>	<b>91</b>

# collaboration membership (Sept 2011)

Country	membership category		
	Full Member	Affiliated Scientist	Postdoc
<b>France</b>	<b>17</b>	<b>8</b>	<b>6</b>
CEA	4	2	2
CNRS/IN2P3	13	6	3
<b>Italy</b>	<b>24</b>	<b>25</b>	<b>24</b>
ASI	4	18	7
INFN	20	7	17
<b>Japan</b>	<b>11</b>	<b>10</b>	<b>1</b>
<b>Sweden</b>	<b>3</b>	<b>11</b>	<b>0</b>
<b>USA</b>	<b>68</b>	<b>42</b>	<b>49</b>
DOE	39	15	20
NASA	25	23	23
other	4	4	6
<b>Australia</b>		<b>1</b>	<b>2</b>
<b>Germany</b>	<b>3</b>	<b>8</b>	<b>4</b>
<b>Great Britain</b>		<b>4</b>	<b>3</b>
<b>Spain, Austria</b>	<b>1 + 2</b>	<b>1 + 1</b>	<b>2 + 2</b>
<b>Total</b>	<b>119</b>	<b>111</b>	<b>93</b>

# collaboration science group leads (March 2011)

LAT Science Group	Current Coordinators	New Coordinators
<b>Catalog</b>	Dave Thompson Isabelle Grenier mgr: J. Ballet	Dave Thompson Isabelle Grenier mgr: J. Ballet
<b>Diffuse</b>	Marcus Ackermann Jean-Marc Casandjian	<b>Gudlaugur Johannesson</b> Jean-Marc Casandjian
<b>Galactic</b>	Pablo Saz-Parkinson Eric Grove	Pablo Saz-Parkinson <b>Francesco Giordano</b>
<b>AGNS and Blazars</b>	Teddy Cheung Stephen Fegan	<b>Justin Finke</b> Stephen Fegan
<b>Gamma-ray Bursts</b>	Chip Meegan Jim Chiang	<b>Sheila McBreen, Veronique Pelassa</b> <b>Vlasios Vasileiou, Judith Racusin</b>
<b>Solar</b>	Francesco Longo Igor Moskalenko	Francesco Longo <b>Nicola Giglietto</b>
<b>Dark Matter &amp; New Physics</b>	Steve Ritz Luca Latronico	Steve Ritz Luca Latronico
<b>Calibration &amp; Analysis</b>	Eric Charles Riccardo Rando	<b>Luca Baldini</b> <b>Leon Rochester</b>

# collaboration science group leads (Nov 2011)

LAT Science Group	Current Coordinators	New Coordinators
<b>Catalog</b>	Dave Thompson Isabelle Grenier mgr: J. Ballet	Elisabeth Ferrara Isabelle Grenier mgr: Jean Ballet
<b>Diffuse</b>	Gudlaugur Johannesson Jean-Marc Casandjian	Gudlaugur Johannesson Luigi Tibaldo
<b>Galactic</b>	Pablo Saz-Parkinson Francesco Giordano	Paul Ray Francesco Giordano
<b>AGNS and Blazars</b>	Justin Finke Stephen Fegan	Justin Finke Marco Ajello (starting 11/2011)
<b>Gamma-ray Bursts</b>	Sheila McBreen, Veronique Pelassa Vlasios Vasileiou, Judith Racusin	Sheila McBreen, Veronique Pelassa Vlasios Vasileiou, Judith Racusin
<b>Solar</b>	Francesco Longo Nicola Giglietto	Nicola Omodei Nicola Giglietto
<b>Dark Matter &amp; New Physics</b>	Steve Ritz Luca Latronico	Jenifer Siegal-Gaskins Luca Latronico
<b>Calibration &amp; Analysis</b>	Luca Baldini Leon Rochester	Luca Baldini Leon Rochester

# Fermi LAT Collaboration publications

Published papers by year

	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011 (10 months)</b>
Cat 1	1	34	54	18
Cat II	2	5	9	36
<b>Total</b>	<b>3</b>	<b>39</b>	<b>63</b>	<b>54 = 159</b>

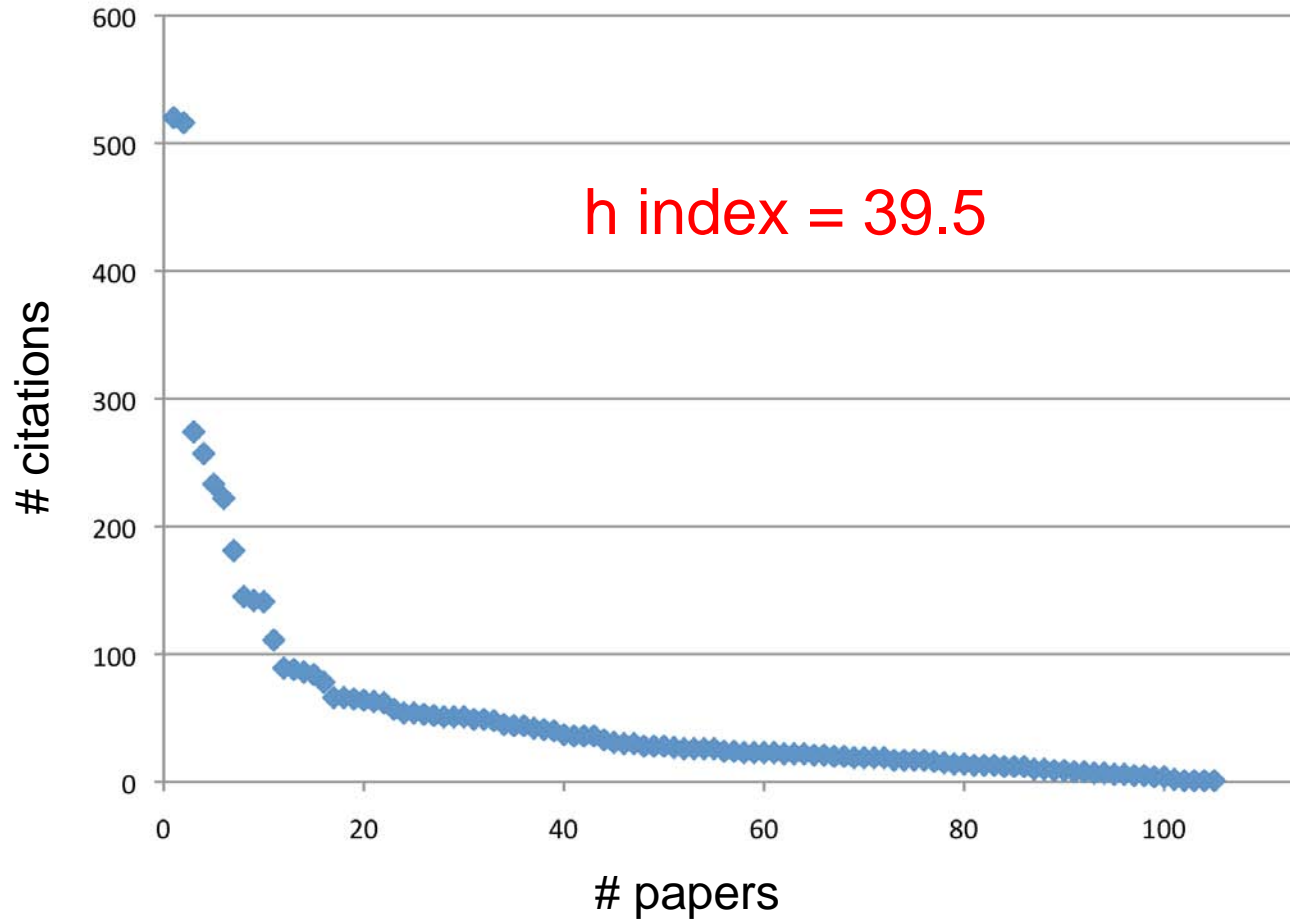
# Fermi LAT CAT I papers and citations

**Total citations to LAT Collaboration CAT I papers: 5,593**

**# citations  
(11/3/2011)**

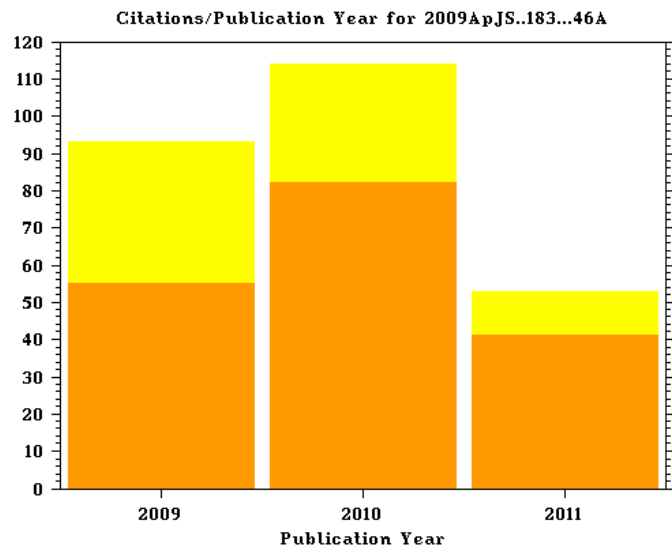
- “The Large Area Telescope on the Fermi Gamma-Ray Space Telescope Mission” (09/2008) **530**
- “Measurement of the Cosmic Ray  $e^+e^-$  Spectrum from 20 GeV to 1 TeV with the Fermi Large Area Telescope” (05/2009) **517**
- “The First Fermi LAT Catalog of High-Energy Gamma-Ray Sources” (06/2010) **275**
- “Fermi/Large Area Telescope Bright Gamma-Ray Source List” (07/2009) **260**
- “Bright Active Galactic Nuclei Source List from the First Three Months of the Fermi Large Area Telescope All-Sky Survey” (07/2009) **233**
- “Fermi Observations of High-Energy Gamma-Ray Emission from GRB 080916C” (03/2009) **223**
- “The First Fermi LAT Catalog of Gamma-Ray Pulsars” (04/2010) **181**
- “Spectrum of the Isotropic Diffuse Gamma-Ray Emission Derived from First-Year Fermi Large Area Telescope Data” **145**
- “A limit on the variation of the speed of light arising from quantum gravity effects” (11/2009) **143**

# Fermi LAT papers and citations

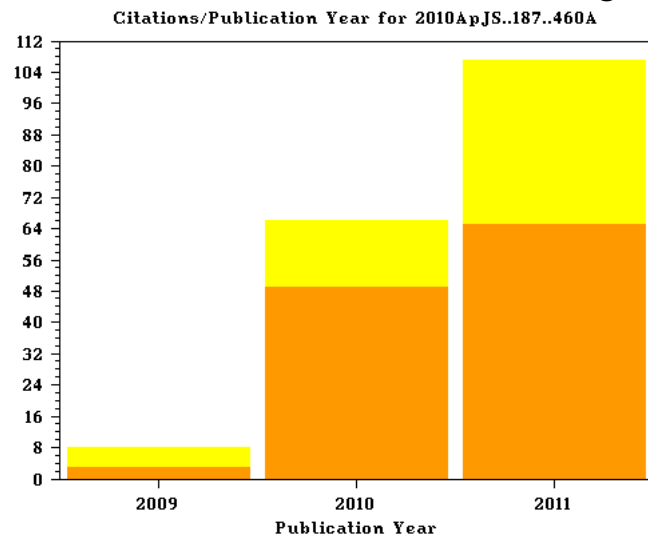


# Fermi LAT CAT I papers and citations

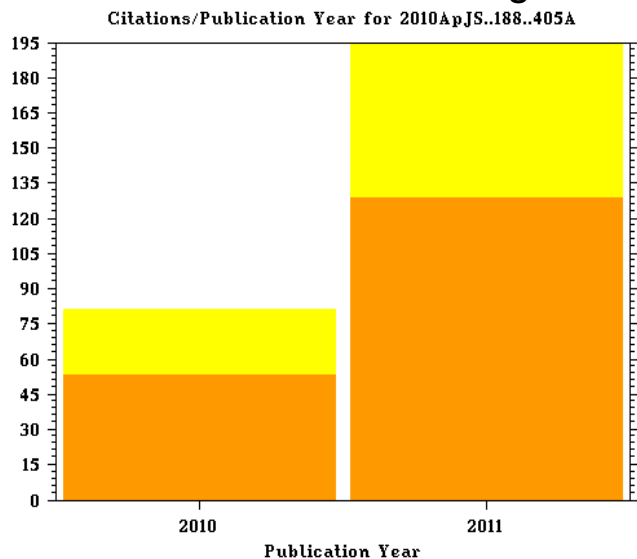
## Bright Source List



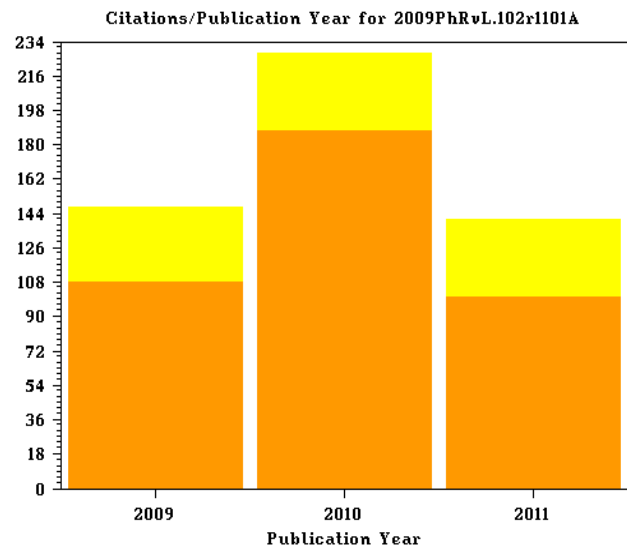
## 1st Fermi LAT Pulsar Catalog



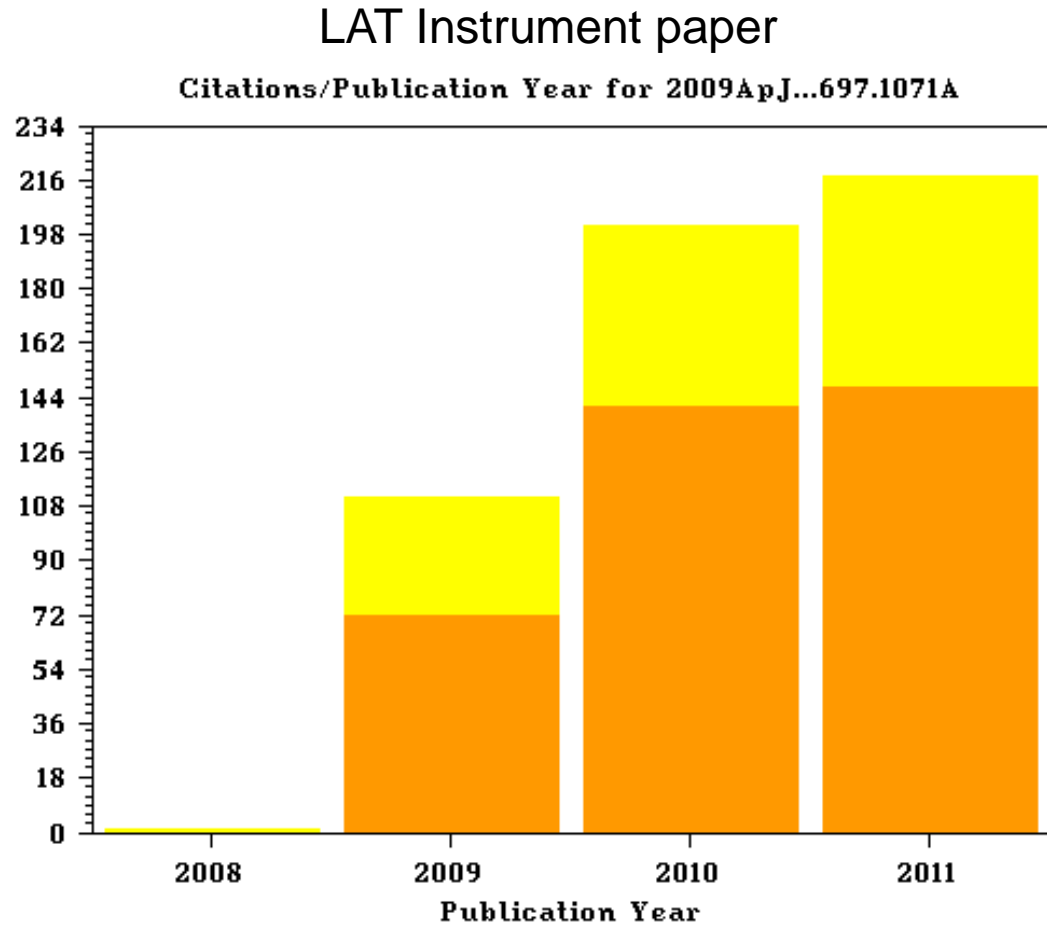
## 1st Fermi LAT Catalog



## e+e- spectrum



# Fermi LAT CAT I papers and citations



# Backup

# Fermi LAT CAT I papers and citations

Total citations to LAT Collaboration CAT I papers: 5,593

	# papers	# citations
2008	1	63
2009	35	3,147
2010	54	2,241
2011	18	142
Total	117	5,593

# Top 20 publications in astrophysics published in 2009

Source: NASA ADS

1. Five-Year Wilkinson Microwave Anisotropy Probe Observations: Cosmological Interpretation
2. Five-Year Wilkinson Microwave Anisotropy Probe Observations: Likelihoods and Parameters from the WMAP Data
3. Five-Year Wilkinson Microwave Anisotropy Probe Observations: Data Processing, Sky Maps, and Basic Results
4. An anomalous positron abundance in cosmic rays with energies 1.5-100 GeV
5. The Seventh Data Release of the Sloan Digital Sky Survey
- 6. Measurement of the Cosmic Ray  $e^+ + e^-$  Spectrum from 20 GeV to 1 TeV with the Fermi Large Area Telescope**
7. A theory of dark matter
- 8. The Large Area Telescope on the Fermi Gamma-Ray Space Telescope Mission**
9. Search for Weakly Interacting Massive Particles with the First Five-Tower Data from the Cryogenic Dark Matter Search at the Soudan Underground Laboratory
10. The Chemical Composition of the Sun
11. New Measurement of the Antiproton-to-Proton Flux Ratio up to 100 GeV in the Cosmic Radiation
12. Model-independent implications of the  $e, p^-$  cosmic ray spectra on properties of Dark Matter
13. Five-Year Wilkinson Microwave Anisotropy Probe Observations: Angular Power Spectra
14. Improved Dark Energy Constraints from ~100 New CfA Supernova Type Ia Light Curves
- 15. Fermi Large Area Telescope Bright Gamma-Ray Source List**
16. High-Resolution CMB Power Spectrum from the Complete ACBAR Data Set
17. Lectures on holographic methods for condensed matter physics
18. Cold streams in early massive hot haloes as the main mode of galaxy formation
19. Pulsars as the sources of high energy cosmic ray positrons
20. A Redetermination of the Hubble Constant with the Hubble Space Telescope from a Differential Distance Ladder

# Top 20 publications in astrophysics published in 2010

Source: NASA ADS

1.  $f(R)$  theories of gravity
2. Dark Matter Search Results from the CDMS II Experiment
3. Herschel Space Observatory. An ESA facility for far-infrared and submillimetre astronomy
4. Baryon acoustic oscillations in the Sloan Digital Sky Survey Data Release 7 galaxy sample
- 5. Fermi Large Area Telescope First Source Catalog**
6. First Dark Matter Results from the XENON100 Experiment
7. The Photodetector Array Camera and Spectrometer (PACS) on the Herschel Space Observatory
8. The Herschel-SPIRE instrument and its in-flight performance
9. Spectra and Hubble Space Telescope Light Curves of Six Type Ia Supernovae at  $0.511 < z$
10. The diversity and similarity of simulated cold dark matter haloes
- 11. The First Fermi Large Area Telescope Catalog of Gamma-ray Pulsars**
12. Cosmological constraints from the clustering of the Sloan Digital Sky Survey DR7 luminous red galaxies
13. Understanding the origin of CMB constraints on dark energy
14.  $f(R)$  Theories
15. Thermodynamical aspects of gravity: new insights
16. Discovery of  $z \sim 8$  Galaxies in the Hubble Ultra Deep Field from Ultra-Deep WFC3/IR Observations
17. Kepler Planet-Detection Mission: Introduction and First Results
- 18. The First Catalog of Active Galactic Nuclei Detected by the Fermi Large Area Telescope**
- 19. Spectrum of the Isotropic Diffuse Gamma-Ray Emission Derived from First-Year Fermi Large Area Telescope Data**
20. HAT-P-11b: A Super-Neptune Planet Transiting a Bright K Star in the Kepler Field

# Fermi LAT papers and citations

May 2011

