

Fermi

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OVERVIEW

- The beginning of the extended mission.
- Collaboration status and papers.
- Status of the mission and senior review(s).
- Science highlights from the last year.
- Pass 8 status.

Gamma-ray Space Telescope

FIVE SPECTACULAR YEARS IN ORBIT

- Fermi was conceived as a mission with a 5-year minimum lifetime and a 10-year goal.
 - The fifth *birthday* in orbit marks the end of the prime phase of the mission.
- 1130 refereed (including LAT and non-LAT) papers have used Fermi data or results;
 - (with a cumulative 26,038 citations).
 - Fermi papers (sometimes several) are in the top 10 in 2009, 2010 and 2012.

Synergy with other observatories at different wavelengths is key!

- The Pulsar Search Consortium has timed over 700 pulsars.
- Swift has followed up with X-ray and UV observations of hundreds of LAT flaring sources and dozens of LAT GRBs
- And ground-based Cerenkov telescopes: http://arxiv.org/abs/1306.6772
- These results have been widely disseminated to the public:
 - NASA alone has supported 5 media telecons, 22 press releases and 15 features (with videos and supporting animations).
 - In 2012 Fermi videos exceeded 3.4 million views (not counting YouTube views).

FIVE SPECTACULAR YEARS IN ORBIT (CONTINUED)

- Scientists working with Fermi have received several prominent awards:
 - the Rossi prize (twice, in 2011 and 2013!);
 - the Panofsky prize (in 2012);
 - the Duggal prize (also twice, 2009 and 2011!).
- ▶ In the 27537 orbits of the Fermi observatory the FOT has:
 - sent 10206 commands to the observatory;
 - scheduled 18877 KU contacts to downlink the science data.
- The LAT has been readout more than 300 B times in orbit.
 - The LAT Instrument Science Operations Center have used 1200 CPU-years to process over 2 PB of data;
 - Plus 1700 CPU-years devoted to Monte Carlo simulations.
 - The Fermi Science Support Center has served about 20 TB of LAT data for a total of 159,879 queries (not counting direct downloads of the weekly data files).
- ► 1269 individual guest investigators have participated in the six cycles of the Fermi Guest Investigator program (USA only).
- ► The LAT monitored source list now numbers 105 sources, with publicly-available light curves for each.

MISSION EXTENSIONS

- Mission extensions are negotiated through Senior Review process every two years:
 - All operating missions in (or about to begin) their extended phase participate.
 - SR committee evaluates the anticipated science productivity of each mission over the next four years, focusing on the next two years.
- Fermi underwent its first SR in 2012.
 - http://science.nasa.gov/astrophysics/2012-senior-review/

"The SRC recommends funding at the desired level of augmentation to provide for full operations through FY14. We recommend an extension through 2016 with a review in 2014."

- Extended mission just begun.
- Preparing for the next senior review in 2014.
 - Focus on dark matter searches and time-domain astronomy.
- The baseline for *Fermi* is to operate through 2016.
- ► The goal is (still) to operate through 2018.

Collaboration science group leads Last rotations in August 2013 (INFN in red)

Analysis Coordinator (Deputy): Luca Latronico (Philippe Bruel)

Science group	Coordinators
AGN and Blazars	Denis Bastieri
	Marco Ajello \rightarrow Jeremy Perkins
Calibration and analysis	Carmelo Sgrò
	Tracy Husher
Catalog	$Elizabeth\ Ferrara \to Elisabetta\ Cavazzuti$
	Isabelle Grenier
Dark matter and new Phyics	Matthew Wood
	Nicola Mazziotta \rightarrow Luca Baldini
Diffuse emission	Elena Orlando
	Johann Cohen-Tanugi
Galactic sources	Liz Hays
	Tyrel Johnson
GRBs	Dan Kocevski
	Giacomo Vianello \rightarrow Elisabetta Bissaldi
Sources in the solar system	Eric Grove
	Melissa Pesce-Rollins

COLLABORATION PUBLICATIONS



Summary of Fermi LAT science publications

29 August 2013

Category	l and II	papers in re	fereed	journals
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Journal	Published	In press	Total
Astronomical Journal	1+0=1	-	1
Astronomy and Astrophysics	6+17=23	-	23
Astroparticle Physics	2+3=5	-	5
Astrophysical Journal	74+40=114	-	114
Astrophysical Journal Letters	19+12=31	-	31
Astrophysical Journal Supplement	5+1=6	1+0=1	7
Journal of Cosmology and Astroparticle Physics	3+3=6	-	6
Monthly Notices of the RAS	0+17=17	-	17
Nature	2+1=3	-	3
Physical Review D	6+2=8	-	8
Physical Review Letters	6+0=6	-	6
Publications of the ASJ	0+1=1	-	1
Science	16+0=16	-	16
Total	140+97=237	1+0=1	238

List of papers

Papers submitted to journals: 27 Near submission: 7 Published category III papers: 111

PUBLICATIONS USING FERMI DATA VS. TIME



• Fermi papers per year continue to show a rising trend.

Citations to Fermi paper are very high. ESCODE

Mission status at $\mathsf{L}+\mathsf{5}$



Event statistics:

- The LAT hit 300 B triggers in orbit on June 12, 2013 (i.e., exactly 5 years and 1 day into the mission);
- 60,004,450,944 events downlinked (as of June 19, 2013);
- 770,527,305 gamma-ray candidates distributed to the community.
- ▶ More than 99% up-time collecting science data (out of the SAA)
 - Including detector calibrations/hardware issues

Instrument status at L+5

- The LAT performed beyond expectations through the first four years of the mission.
- All subsystems still well above specifications.
- Some ~ 4000 (out of 884,736 or less than 0.5%) bad strips, with two major contributors:
 - Flight Module A—the first one being assembled and suffering from some processing issue; showed some initial evolution, now stable.
 - ▶ 1/2304 noisy silicon ladder (more about this in a second).
- ► 3/3072 CAL log end trigger channels disabled.
 - Negligible impact on the LAT trigger, energy measurement unaffected.
- ► ACD performing nominally, with no evidence of degradation.
 - No need to change pedestal values or PMT HV.

Observation Summary

► Almost exclusively in nominal data taking in survey mode (> 95%).

- Optimized for uniform sky coverage.
- ▶ $35^{\circ} \rightarrow 50^{\circ}$ rocking angle for better battery usage;
- The remaining few % accounted for by:
 - Autonomous Re-point Requests (~ 2 per month);
 - Targets Of Opportunity;
 - Nadir observations (a.k.a. looking down for TGFs);
 - Routine Limb staring runs;
 - LAT Calibrations/engineering tests.
- Recommendation for increased exposure towards the GC:
 - Mission devised a modified survey profile to gurantee good exposure for the full sky at the same time ("Sky survey with a twist").
 - To be implemented \sim next December for at least one year.
- Main science drivers for the new observing profile:
 - Increased discovery potential for young pulsars;
 - Confirm/rule out hint of a \sim 130 GeV spectral line.

A GAMMA-RAY LINE IN THE DIFFUSE EMISSION?



- ► C. Weniger, JCAP 1208, 2012 (007) and many, many others
 - "Fermi is an observatory" as in "data are public";
 - Good example of a results based on Fermi data from outside the collaboration with a huge echo in the community.
- Call for white papers on possible modifications to the observation strategy on March 27, 2013.
 - ▶ 96% of the observing time in nominal survey mode through the prime phase of the mission.
 - 5 responses (two suggesting more coverage of the Galactic center).
- In the meantime we routinely point the Earth limb (our best control sample) for a few hours a week.



- The LAT collaboration has a line-search paper submitted to PRD (http://lanl.arxiv.org/abs/1305.5597).
 - Significance slightly lower with updated instrument calibration and better energy dispersion model.
 - Feature seems to be narrower than the energy resolution.
 - (Smaller) feature at the same *E* in the Earth limb control sample.
- Too early to draw any definitive conclusion.

A GAMMA-RAY LINE IN THE GALACTIC CENTER? Time evolution of the signal, see arXiv:1303.1798



- Weniger's updated results are consistent with the results from the recent LAT line-search paper.
 - Likely that the original putative line signal was a statistical fluctuation.
- More data, Pass 8 and the new observing strategy will give the final word.

SUPERNOVA REMNANTS PRODUCE COSMIC RAYS



- "SNR paradigm": Galactic Cosmic Rays accelerated in SNRs:
 - provide environment for diffusive shock acceleration, energetics ok;
 - smoking gun: "pion bump" in gamma-ray emission.
- Fermi observations strongly disfavoring leptonic scenarios.
- Most of the gamma-ray emission must be of hadronic origin.
- (Difficult measurement involving the study of extended sources at low energies.)

FERMI SEES A "SHOCKINGLY BRIGHT" BURST http://www.nasa.gov/topics/universe/features/shocking-burst.html (05.03.13)



▶ 130427A, by many measures the most extreme GRB ever detected:

- largest fluence ever recorded;
- highest-energy photon (95 GeV) in the observer frame.
- longest gamma-ray duration (20 hours);
- ▶ 53 observatories have reported observations of this burst, so far.
 - ► IceCube issued a GCN—no signal detected.
- Multi-paper submission to Science a few weeks ago.

The second Pulsar catalog (accepted by ApJS)



- ▶ 117 high-confidence above 100 MeV (were 46 in 1PC).
- Three populations: millisecond pulsars, young radio-loud pulsars, and young radio-quiet pulsars.
- Constraints emission mechanisms and NS population in the Galaxy.

Ronaldo Bellazzini (INFN-Pisa)

THE FIRST VARIABLE GAMMA-RAY PULSAR http://arxiv.org/abs/1308.0358



Sudden decrease in flux above 100 MeV in less than a week;

- and associated change in the pulsar timing.
- Breaks the axiom of pulsars as steady gamma-ray emitters.
 - Reconfiguration of the magnetic field structure?

The first SNR catalog



- \blacktriangleright > 13 sources, Work well underway toward publication.
- Difficult analysis: extended sources along the galactic plane;
 - modeling of the diffuse gamma-ray emission is one of the main uncertainties.

DARK MATTER SEARCH IN DSPHS



Dwarf Spheroidal Galaxies are the most DM-dominated objects;

- and the cleanest target for DM search with Fermi.
- Joint likelihood of 15 dSphs (4 years of reprocessed data) about to be submitted.

- Long term effort aimed at a substantial rewrite of the LAT event-level analysis:
 - including Monte Carlo simulation, event reconstruction and background rejection.
- Main goal: deliver to the community a new instrument with significantly better science performance.
 - Better effective area, angular resolution, S/N ratio.
 - Extend the scientific reach to unexplored areas (e.g., multi-photon event, polarization).
- Project started in December, 2009.
 - INFN gave major contributions to several different development areas.
- Current status: event reconstruction frozen and preliminary event selection in place.
 - Full data reprocessing (from the start of the mission) started—to be completed by December this year.
 - The first two years of Pass 8 reprocessed data are available for science validation.

PASS 8 INSTRUMENT RESPONSE FUNCTIONS



First iteration of the event selection in place.

- Uniformly larger acceptance;
- huge increase at ~ 100 MeV and below.
- Effectively opening up new territories!
- ► All the analysis components ready to analyze real data.
 - ► A second (the last?) iteration expected beginning next year.

Pass 8 is for real!

THE ASTROPHYSICAL JOURNAL, 774:76 (6pp), 2013 September 1 © 2013. The American Astronomical Society. All rights reserved. Printed in the U.S.A. doi:10.1088/0004-637X/774/1/76

NEW FERMI-LAT EVENT RECONSTRUCTION REVEALS MORE HIGH-ENERGY GAMMA RAYS FROM GAMMA-RAY BURSTS

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ABSTRACT

Based on the experience gained during the four and a half years of the mission, the *Fermi*-LAT Collaboration has undertaken a comprehensive revision of the event-level analysis going under the name of Pass 8. Although it is not yet finalized, we can test the improvements in the new event reconstruction with the special case of the prompt phase of bright gamma-ray bursts (GRBs), where the signal-to-noise ratio is large enough that loose selection cuts are sufficient to identify gamma rays associated with the source. Using the new event reconstruction, we have re-analyzed 10 GRBs previously detected by the Large Area Telescope (LAT) for which an X-ray/optical follow-up was possible and found four new gamma rays with energies greater than 10 GeV in addition to the seven previously known. Among these four is a 27.4 GeV gamma ray from GRB 080916C, which has a redshift of 4.35, hus making it the gamma ray with the highest intrinsic energy (~147 GeV) detected from a GRB. We present here the salient aspects of the new event reconstruction and discuss the scientific implications of these new high-energy gamma rays, such as constraining extragalactic background light models, Lorentz invariance violation tests, the prompt emission mechanism, and the bulk Lorentz factor of the emitting region.

Key words: astroparticle physics – cosmology: observations – gamma rays: general – methods: data analysis Online-only material: color figure

CONCLUSIONS

- At the end of the prime phase of the mission there is no sign of decline in any of the metrics quantifying the Fermi scientific impact.
 - The LAT collaboration remains vital.
 - Large community (outside the collaboration) interested in the Fermi Science and in analyzing Fermi data.
- ▶ Pass 8 promises to extend the scientific reach of the observatory.
- ► INFN among the main contributors to the success of the mission:
 - Instrument development and calibration.
 - Collaboration management.
 - Key contributions in many science analysis in all areas.
- Preparing for the second Senior Review and aiming at the original goal of a 10-year mission.

SPARE SLIDES

Gamma-ray Space Telescope

IFC BUDGET FOR CY13

FGST Operating Collaboration Fund Budget	Calendar 2012 Approved Budget	Calendar 2012 Actual Costs	Calendar 2013 Approved Budget	
1. ISOC Core Staff (CHS) Cost*	\$366,460	\$329,794	\$390,196	
Flight Operations	\$173,947		\$188,472	
Annual Salary With Overhead	\$196,560		\$212,973	
Level 1 Data Processing	\$150.354		\$156.834	
Annual Salary With Overhead	\$169,900		\$177,223	
2. Computing - SAS	\$707,380	\$492,869	\$694,950	
Disk, boxes, servers, and tapes	\$626,000		\$615,000	
Total With Overhead	\$707,380		\$694,950	
3. Publication	\$24,000	\$47,910	\$24,000	
Page charges			*	
Total With Overhead			99	
4. Living and Travel Expenses	\$13,560	\$18,194	\$57,482	
1 Analysis Coordinator			\$50,869	
Total With Overhead			\$57,482	
1 Analysis Coordinator Travel (Charles)	\$12,000			
Total With Overhead	\$13,560			
5. Computing Coordinator Travel	\$11,300	\$3,051	\$11,300	
Travel Costs				
Total With Overhead				
6. Sustaining Engineering Support	\$55,000	\$47,150	\$55,000	
DAQ-NYCB				
GLAST OCF Total	\$1,177,700	\$938,968	\$1,232,928	
Computing Carry Forward		\$214,511		
Net to Invoice	\$1 177 700		\$1 232 928	
	+_,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		<i><i><i><i>x</i>1,152,525</i></i></i>	
Footnotes:				
(1) Publication: excess costs were absorbed by the NASA contract				
(2) Purchases were delayed in CY12 due to resources for Pass8 not b	eing required until spring	2013		

COLLABORATION MEMBERSHIP TO BE UPDATED IN SEPTEMBER 2013

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

Collaboration share

CY13

Table 4. Contribution to the Operation Of FGST Based on OCF Collaborative Membership Count As of Oct 2012 When using SV = 6500, calc'd Common Fund in 2013 USD should be = Approved Budget for OCF 2013 =

\$ 1,576,900 \$ 1,232,928

					C. Fractional Share of			Т		1						
A. Collabo	orator	B. Mer	nbership Ca	tegory	OCF	D. Shar	D. Share of OCF		share of OCF		re of OCF		E. F.		G.	
							If		CY 2013	R	evised to					
					Full Member +		@\$6,500/Sha	re In	voice Based		Absorb					
			Affliliated		0.2*Affiliated	# of	Per IFC		on Budget	U	npaying	2013	Effective			
		Member	Scientist	Postdoc	Scientists + Postdocs	Collaborator	Agreement		Proposed	C	ountries	\$/3	Share			
France		16	6	3	8%	20.2	\$ 131,30	0 \$	102,659	S	113,826	\$	5,635			
	CEA	4	2	1	2%	5.4	\$ 35,10	0 \$	27,444		30,429		5,635			
	IN2P3	12	4	2	6%	14.8	\$ 96,20	o s	75,216		83,397		5,635			
Italy		24	24	21	21%	49.8	\$ 323,70	o s	253,091	s	280,621	\$	5,635			
	ASI	4	18	8	6%	15.6	\$ 101,40	0 \$	79,281	S	87,905		5,635			
	INFN	20	6	13	14%	34.2	\$ 222,30	0 \$	173,809	S	192,715		5,635			
Germany		3	7	6	4%	10.4	\$ 67,60	0 \$	52,854							
Australia			1	4	2%	4.2	\$ 27,30	0 \$	21,345							
Great Brita	iin		4	2	1%	2.8	\$ 18,20	o s	14,230							
Spain		1	1	1	1%	2.2	\$ 14,30	o s	11,181							
Austria		2	1	2	2%	4.2	\$ 27,30	o s	21,345							
Japan		11	8	5	7%	17.6	\$ 114,40	o s	89,446	s	99,175		5,635			
Sweden		4	11	0	3% 21	6.2	\$ 40,30	o s	31,509	s	34,937		5,635			
USA		68	40	49	52%	125.0	\$ 812.50	o s	635,268	s	704,369	s	5.635			
	DOE	39	14	20	25%	61.8	\$ 401,70	o s	314,076		348,240		5,635			
	NASA & Other	29	26	29	26%	63.2	\$ 410,80	o s	321,191	\$	356,129		5,635			
	NASA Only	25	22	23	22%	52.4	\$ 340,60	0 5	266,304	\$	295,272	s	5,635			
	other	4	4	6	4%	10.8	\$ 70,20	0 \$	54,887	\$	60,857	\$	5,635			
Total Payir	ng Member	123	89	78	90%	218.8	\$ 1,422,20	0 \$	1,111,973	S	1,232,928	\$	5,635			
Total Non-	Paying Member	6	14	15	10%	23.8	\$ 154,70	0 \$	120,955	\$						
Grand Tota	al	129	103	93	100%	242.6	\$ 1,576,90	0 \$	1,232,928	S	1,232,928					

*Note:

[1] Headcount from Germany, Australia, Great Britain, Spain, and Austria are not included in the invoice calculation.
[2] Six full members from non-IFC countries have been absorbed by DOE and NASA. Germany = 3. Spain = 1. Austria = 2

\$ 310,044.07

Collaboration papers and citations

- 1. [841] The Large Area Telescope on the Fermi Gamma-ray Space Telescope Mission, ApJ **697**, 2009 (1071–1102)
- 2. [674] Measurement of the Cosmic Ray $e^+ + e^-$ spectrum from 20 GeV to 1 TeV with the Fermi Large Area Telescope, PRL 102, 2009 (181101)
- 3. [418] Fermi Large Area Telescope First Source Catalog, ApJS 188, 2010 (405–436)
- 4. [279] Fermi Observations of High-Energy Gamma-Ray Emission from GRB 080916C, Science **323**, 2009 (1688–1693)
- 5. [277] The First Fermi LAT Catalog of Gamma-ray Pulsars, ApJS 187, 2010 (460–494)
- 6. [271] Fermi Large Area Telescope Bright Gamma-ray Source List, ApJS 183, 2009 (46–66)
- 7. [269] The Spectrum of the Isotropic Diffuse Gamma-Ray Emission Derived From First-Year Fermi Large Area Telescope Data, PRL **104**, 2010 (101101)
- [252] Bright AGN Source List from the First Three Months of the Fermi Large Area Telescope All-Sky Survey, ApJ 700, 2009 (597–622)
- 9. [242] Constraining Dark Matter Models from a Combined Analysis of Milky Way Satellites with the Fermi Large Area Telescope, PRL 107, 2011 (241302)
- 10. [227] A limit on the variation of the speed of light arising from quantum gravity effects, Nature **462**, 2009 (331–334)
- 11. [199] On possible interpretations of the high energy electron-positron spectrum measured by the Fermi Large Area Telescope, Astropart.Phys. **32**, 2009 (140–151)

COLLABORATION PUBLICATIONS AKA FERMI'S H-INDEX, FROM INSPIRE



Monitoring the γ -ray sky



Rapid Publications from the Fermi LAT Collaboration: <u>GCN</u> and <u>ATEL</u>

Add a new GCN or ATEL

Astronomer's Telegrams (ATEL):

date	number	title
2013-Aug-26	5326	Fermi LAT detection of a new gamma-ray source associated with PKS 0920-39
2013-Aug-20	<u>5302</u>	Detection of gamma rays from Nova Delphini 2013
2013-Jul-29	<u>5232</u>	Fermi LAT detection of a GeV flare from FSRQ 4C +38.41
2013-Jul-28	5231	Fermi LAT detection of a GeV flare from blazar B2 2319+31
2013-Jul-10	5202	Fermi LAT Detection of a GeV flare from spectrally hard FSRQ TXS 1100+122
2013-Jun-23	<u>5156</u>	Fermi LAT detection of a GeV flare from blazar NRAO 190 (PKS 0440-00)
2013-May-27	5089	Fermi LAT detection of a GeV flare from FSRQ PMN J0017-0512
2013-Apr-27	<u>5022</u>	Fermi LAT Detection of a GeV Flare from FSRQ PKS 2320-035
2013-Apr-23	<u>5001</u>	Fermi-LAT detection of a gamma-ray flaring source in the vicinity of PKS 0507+17
2013-Apr-13	<u>4977</u>	Fermi-LAT and Swift-XRT observe exceptionally high activity from the nearby TeV blazar Mrk421
2013-Apr-03	<u>4941</u>	Fermi LAT detection of a gamma-ray flare from FSRQ S5 1044+71
2013-Mar-21	4905	Swift detection of an X-ray flare from the flaring blazar PKS 0502+049
2013-Mar-13	<u>4885</u>	Fermi LAT detection of a GeV flare from blazar S5 1217+71
2013-Mar-05	<u>4858</u>	Fermi LAT detection of a new gamma-ray flare from FSRQ PKS 0502+049
2013-Mar-04	<u>4855</u>	Fermi LAT detection of a new gamma-ray flare from the Crab Nebula region
2013-Jan-30	<u>4770</u>	Swift detection of increased X-ray activity from gamma-ray flaring blazar PKS 1424-41

Pass 8 Reveals more high-energy γ s from GRBs ApJ, Volume 774, 76 (2013); arXiv1307.3037



Sample of 10 GRBs with measured redshift re-analyzed.

- ▶ 4 new photons above 10 GeV (in addition to the 6 previously known).
- Interesting implications for the γ -ray opacity of the Universe.
- ► First Pass 8 science paper, led by INFN.

THE HIGHEST-ENERGY LIGHT FROM A SOLAR FLARE http://www.nasa.gov/mission_pages/glast/news/highest-energy.html (06.11.12)

Milky Way plane Vela pulsar Sun

DETECTOR PERFORMANCE STABILITY: TKR



DETECTOR PERFORMANCE STABILITY: CAL



Ronaldo Bellazzini (INFN-Pisa)

A (MINOR) HARDWARE ISSUE



Noise in one silicon ladder increasing since January 2010

- Test at reduced HV gave no evidence of reduced noise.
- Keep masking strips, max loss would be 1/2304 silicon ladders...
- ... but we might have evidence that the phenomenon is saturating.

DATA SETS AND IRF: PASS 7 REPROCESSING

- Entire data set (from the start of the mission to date) reprocessed with updated calibrations.
 - Full reprocessing as in "re-run the event reconstruction".
 - Correct for the small decrease in the CAL light yield (affecting the absolute energy scale);
 - better calibration of the CAL longitudinal position (affecting the high-energy PSF).
- ► Need to contextually revise all the analysis components:
 - Instrument response functions (effective area, PSF, energy dispersion);
 - Galactic diffuse emission model;
 - isotropic template.
- And then validate all the products:
 - Quantify the systematic uncertainties in the IRFs;
 - repeat standard analysis and see the changes.
- ► The first new results were presented at the Fermi Symposium in November 2012.

- ► The Pass 7 reprocessing was more painful than we necessarily anticipated.
- And we are redoing all over again for Pass 8:
 - hopefully it will be smoother the second time around.
- Public release target is September 10, 2013.
- ► IRFs ready and blessed by the Calibration and Analysis group.
- Isotropic template ready.
- Documentation for the FSSC being updated.



FERMI GUEST INVESTIGATOR PROGRAM



Mostly limited to US users.

Testifies that there are new guest investigators every year.

NEW OBSERVATION STRATEGY A.K.A. "Sky survey with a twist"

- In January 2013 the Fermi Project solicited suggestions, via white papers, from the community in an effort to transform Fermi observational strategies in view of our evolving scientific knowledge:
 - ► 3/5 papers focusing on the Galactic Center (LAT team, GBM team, Weniger et al.);
 - the other 2 focusing on magnetars and the binary PSR B1259-63/LS 2883 (could be more properly accommodated within the GI program).
- The recommendation is to undertake a new observing strategy that emphasizes coverage of the Galactic center region:
 - confirm or reject the putative gamma-ray line at 130 GeV...
 - ... but not only! e.g., young pulsars in the GC region.
- Thermal/attitude/reaction wheels studies currently ongoing.
- ► Switch to a Galactic center biased all sky survey by December 2013.
 - We shall review the decision after a year.