PWNCAT2

Lots of people...

ABSTRACT

Abstract goes here

Subject headings: Catalogs; Fermi Gamma-ray Space Telescope; Gamma rays: observations; pulsar wind nebula

*Todo list

How many pulsars? 3
Put table comments 5
How many pulsars? 6
Put table comments 8
Put table comments 10

1. Introduction

The introduction goes here...

Primary motivations for improved analysis

- More data (3 years vs 18 months)
- Many new GeV pulsars
- Going to higher energies thanks to improved IRFs.
- Better spatial/morphological analysis due to new `pointlike` code.

2. LAT Description and Observations

Description goes here...

3. Timing Analysis

Timing analysis goes here...

4. Off-peak Phase Selection

Off-peak goes here...

5. Analysis of the *Fermi*-LAT data

Analysis goes here...

6. Results

Results goes here...

Table 1 shows the results of the all energy analysis of the off-peak emission for each pulsar.

Table 2 shows the results of the analysis in separate energy bins of each pulsar.

Table 3 shows the results of the cutoff test for pulsars with significant low-energy emission.

Table 1. All Energy spectral fit for the

How many pulsars?

LAT-detected Pulsars

PSR	TS	$F_{0.1-316}$ (10^{-9} ph cm^{-2} s^{-1})	Γ
J0007+7303	55.8	49.25 ± 49.24	2.75 ± 1.45
J0030+0451	13.8	< 7.95	···
J0034−0534	32.6	15.30 ± 5.18	2.38 ± 0.21
J0106+4855	0.0	< 3.95	···
J0205+6449	19.2	< 13.15	···
J0218+4232	7.4	< 13.34	···
J0248+6021	3.5	< 10.97	···
J0340+4130	20.4	< 10.82	···
J0357+3205	0.0	< 2.85	···
J0437−4715	0.0	None	···
J0534+2200	5814.5	456.08 ± 17.22	2.12 ± 0.02
J0610−2100	0.0	< 3.80	···
J0613−0200	0.0	< 3.49	···
J0614−3329	2.7	< 10.06	···
J0622+3749	0.0	< 9.48	···
J0631+1036	12.4	< 20.33	···
J0633+0632	4.4	< 11.27	···
J0633+1746	4816.5	925.99 ± 24.42	2.29 ± 0.02
J0659+1414	0.0	< 1.77	···
J0729−1448	None	None	None
J0734−1559	17.9	< 13.92	···
J0742−2822	6.9	< 8.40	···
J0751+1807	7.4	< 6.88	···
J0835−4510	305.9	285.76 ± 22.79	2.55 ± 0.06
J0908−4913	0.0	< 17.81	···
J0940−5428	0.2	< 3.88	···
J1016−5857	1.4	< 14.51	···
J1019−5749	0.0	< 17.74	···
J1023−5746	16.4	< 30.44	···
J1024−0719	0.0	< 3.19	···
J1028−5819	0.0	< 12.79	···
J1044−5737	0.0	< 7.90	···
J1048−5832	0.0	< 8.81	···
J1057−5226	0.0	None	···
J1105−6107	0.0	< 10.46	···
J1119−6127	None	None	None
J1135−6055	0.0	< 3.52	···
J1231−1411	0.0	< 0.89	···
J1357−6429	0.0	< 4.94	···
J1410−6132	0.0	< 39.96	···
J1413−6205	0.7	< 2.08	···
J1418−6058	4.7	< 7.50	···
J1420−6048	0.0	< 15.33	···
J1429−5911	0.0	< 2.50	···
J1459−6053	0.0	< 1.31	···

Table 1—Continued

PSR	TS	$F_{0.1-316}$ (10^{-9}ph cm^{-2} s^{-1})	Γ
J1509−5850	0.0	< 2.20	···
J1513−5908	25.4	7.89 ± 7.44	1.61 ± 0.26
J1531−5610	0.0	< 4.34	···
J1600−3053	0.0	< 1.55	···
J1614−2230	0.0	< 3.15	···
J1620−4927	8.4	< 18.64	···
J1648−4611	None	None	None
J1702−4128	0.0	< 19.98	···
J1709−4429	0.0	< 5.96	···
J1713+0747	0.0	< 2.00	···
J1718−3825	0.0	< 4.61	···
J1730−3350	None	None	None
J1732−3131	0.0	< 1.89	···
J1741−2054	0.0	< 5.74	···
J1744−1134	0.0	< 7.37	···
J1746−3239	0.0	< 6.04	···
J1747−2958	0.0	< 12.97	···
J1801−2451	0.0	< 12.06	···
J1803−2149	0.0	None	···
J1809−2332	0.0	< 12.43	···
J1813−1246	0.0	< 22.65	···
J1823−3021A	None	None	None
J1826−1256	0.2	< 21.07	···
J1835−1106	None	None	None
J1836+5925	0.0	< 14.63	···
J1846+0919	0.0	< 1.85	···
J1907+0602	0.0	< 1.71	···
J1939+2134	0.0	< 5.25	···
J1952+3252	0.0	< 1.05	···
J1954+2836	0.0	< 1.86	···
J1957+5033	0.0	None	···
J1958+2846	0.0	< 2.17	···
J1959+2048	0.0	< 3.63	···
J2017+0603	0.0	< 1.07	···
J2021+3651	0.0	< 5.90	···
J2021+4026	8.2	< 118.88	···
J2028+3332	0.0	< 0.98	···
J2030+3641	0.0	< 2.42	···
J2030+4415	3.5	< 12.66	···
J2032+4127	0.5	< 14.55	···
J2043+2740	0.1	< 2.22	···
J2051−0827	0.0	< 4.64	···
J2055+2539	0.0	< 2.93	···
J2124−3358	4.7	< 5.65	···
J2139+4716	0.0	< 2.60	···

Table 1—Continued

PSR	TS	$F_{0.1-316}$ (10^{-9} ph cm^{-2} s^{-1})	Γ
J2214+3000	0.0	< 1.53	···
J2229+6114	0.0	< 3.78	···
J2238+5903	0.0	< 3.79	···
J2240+5832	0.0	< 5.77	···
J2302+4442	0.0	< 3.73	···

Note. —

Put table comments

Table 2. Energy bin spectral fit for the

How many pulsars?

LAT-detected Pulsars

PSR	$TS_{0.1-1}$	$F_{0.1-1}$ (10^{-9}ph cm^{-2} s^{-1})	TS_{1-10}	F_{1-10} (10^{-9}ph cm^{-2} s^{-1})	TS_{10-316}	F_{10-316} (10^{-9}ph cm^{-2} s^{-1})
J0007+7303	41.0	27.80 ± 4.69	13.8	< 1.30	1.1	< 0.18
J0007+7303	14.4	< 16.69	4.0	< 0.57	0.0	< 0.12
J0030+0451	16.0	< 16.72	19.9	< 1.07	0.0	< 0.10
J0030+0451	0.6	< 9.90	0.0	< 0.49	0.0	< 0.09
J0034−0534	0.7	< 16.87	5.3	< 1.24	11.8	< 0.29
J0034−0534	17.6	< 39.04	0.0	< 0.74	0.0	< 0.20
J0106+4855	6.2	< 35.29	0.2	< 0.86	0.9	< 0.19
J0106+4855	0.5	< 8.95	29.5	1.06 ± 0.26	0.0	< 0.07
J0205+6449	0.0	< 5.95	0.0	< 0.39	0.0	< 0.09
J0205+6449	0.4	< 5.12	2.7	< 0.36	0.0	< 0.06
J0218+4232	2234.6	388.54 ± 10.67	2647.3	28.41 ± 1.14	1581.1	5.42 ± 0.43
J0218+4232	0.0	< 8.07	0.0	< 0.59	0.0	< 0.22
J0248+6021	0.2	< 10.61	0.0	< 0.42	0.0	< 0.10
J0248+6021	3.1	< 20.98	0.0	< 0.95	0.0	< 0.29
J0340+4130	1.6	< 10.60	12.6	< 1.21	0.0	< 0.10
J0340+4130	7.6	< 37.83	3.2	< 1.72	3.7	< 0.29
J0357+3205	0.1	< 17.85	1.3	< 1.30	1.0	< 0.23
J0357+3205	4203.6	808.77 ± 18.44	1408.6	41.25 ± 2.12	0.0	< 0.31
J0437−4715	0.0	< 5.15	0.0	< 0.23	0.0	< 0.07
J0437−4715	None	None	None	None	None	None
J0534+2200	29.9	33.13 ± 6.40	0.1	< 0.78	0.0	< 0.11
J0534+2200	8.0	< 21.93	0.6	< 0.63	2.6	< 0.13
J0610−2100	0.1	< 6.64	11.7	< 1.04	0.0	< 0.09
J0610−2100	322.5	213.83 ± 13.41	62.9	6.62 ± 1.09	0.0	< 0.34
J0613−0200	8.8	< 52.07	0.0	< 1.15	2.2	< 0.32
J0613−0200	0.0	< 6.30	0.0	< 0.62	0.7	< 0.23
J0614−3329	1.1	< 30.74	0.4	< 1.52	1.1	< 0.22
J0614−3329	1.4	< 50.68	1.7	< 2.36	0.0	< 0.20
J0622+3749	0.0	< 26.83	3.2	< 2.62	18.9	< 0.73
J0622+3749	0.0	< 8.59	0.0	< 0.41	0.0	< 0.24
J0631+1036	0.2	< 31.93	0.0	< 1.32	0.1	< 0.34
J0631+1036	0.0	< 18.90	0.0	< 1.00	0.0	< 0.17
J0633+0632	0.0	< 21.14	0.1	< 1.20	0.0	< 0.17
J0633+0632	0.0	< 0.76	0.0	< 0.09	0.0	< 0.11
J0633+1746	0.0	< 25.20	0.2	< 1.98	0.0	< 0.16
J0633+1746	None	None	None	None	None	None
J0659+1414	0.0	< 8.77	0.0	< 0.35	2.9	< 0.25
J0659+1414	0.0	< 1.69	0.0	< 0.17	0.0	< 0.13
J0729−1448	0.0	< 9.79	0.0	< 0.65	0.6	< 0.26
J0734−1559	9.2	< 96.63	0.0	< 2.93	0.0	< 0.56
J0734−1559	0.0	< 6.97	0.0	< 0.23	0.8	< 0.22
J0742−2822	0.0	< 15.50	0.0	< 0.76	2.6	< 0.45
J0742−2822	0.0	< 30.53	0.0	< 1.03	6.3	< 0.44
J0751+1807	0.0	< 6.41	0.0	< 0.35	0.0	< 0.18
J0751+1807	0.0	< 3.04	0.0	< 0.19	0.0	< 0.21

Table 2—Continued

PSR	$TS_{0.1-1}$	$F_{0.1-1}$ (10^{-9}ph cm^{-2} s^{-1})	TS_{1-10}	F_{1-10} (10^{-9}ph cm^{-2} s^{-1})	TS_{10-316}	F_{10-316} (10^{-9}ph cm^{-2} s^{-1})
J0835−4510	0.0	< 7.16	0.0	< 0.33	0.0	< 0.13
J0835−4510	1.4	< 45.32	1.6	< 2.57	25.9	0.58 ± 0.20
J0908−4913	0.0	< 7.40	0.0	< 1.03	0.0	< 0.15
J0908−4913	0.0	< 3.34	0.0	< 0.29	0.0	< 0.07
J0940−5428	0.0	< 6.98	0.0	< 0.56	0.0	< 0.18
J0940−5428	0.0	< 21.77	0.2	< 1.98	5.6	< 0.42
J1016−5857	None	None	None	None	None	None
J1016−5857	0.0	< 43.09	0.0	< 2.15	0.6	< 0.67
J1019−5749	0.0	< 13.18	0.1	< 1.06	0.0	< 0.12
J1019−5749	0.0	< 7.19	0.0	< 0.26	0.0	< 0.09
J1023−5746	0.0	< 17.07	0.0	< 0.52	0.1	< 0.18
J1023−5746	None	None	None	None	None	None
J1024−0719	0.0	< 6.02	0.0	< 0.25	0.0	< 0.20
J1024−0719	0.0	< 14.48	0.0	< 0.71	0.1	< 0.13
J1028−5819	0.0	< 16.20	0.2	< 1.23	0.0	< 0.17
J1028−5819	0.0	< 16.63	0.1	< 1.23	0.0	< 0.09
J1044−5737	0.1	< 41.60	0.0	< 2.20	0.0	< 0.18
J1044−5737	0.0	< 42.85	0.0	< 1.26	0.2	< 0.49
J1048−5832	479425.7	13825.60 ± 34.88	0.0	< 1.01	0.0	< 0.14
J1048−5832	0.0	< 23.09	1.6	< 1.70	0.2	< 0.18
J1057−5226	0.0	< 53.08	0.1	< 3.45	0.0	< 0.41
J1057−5226	None	None	None	None	None	None
J1105−6107	0.0	< 32.74	1.1	< 3.29	0.0	< 0.35
J1105−6107	None	None	None	None	None	None
J1119−6127	0.0	< 26.61	0.0	< 3.52	0.0	< 0.22
J1135−6055	0.0	< 6.73	0.0	< 0.25	0.0	< 0.14
J1135−6055	0.0	< 4.90	0.0	< 0.26	0.0	< 0.17
J1231−1411	0.0	< 9.45	0.0	< 0.98	0.0	< 0.16
J1231−1411	0.0	< 2.26	0.0	< 0.18	0.0	< 0.13
J1357−6429	0.0	< 6.57	0.0	< 0.25	0.0	< 0.13
J1357−6429	0.0	< 1.57	0.0	< 0.15	0.2	< 0.10
J1410−6132	0.0	< 6.63	0.0	< 0.32	0.0	< 0.12
J1410−6132	0.0	< 14.61	0.0	< 0.45	0.0	< 0.17
J1413−6205	0.0	< 3.99	0.0	< 0.14	0.0	< 0.10
J1413−6205	0.0	< 25.10	0.0	< 0.95	0.0	< 0.13
J1418−6058	21.1	< 148.99	15.4	< 11.58	9.2	< 1.11
J1418−6058	0.0	< 2.58	0.0	< 0.16	0.0	< 0.09
J1420−6048	0.0	< 12.02	0.0	< 0.31	0.0	< 0.12
J1420−6048	4.3	< 43.88	0.0	< 1.10	1.4	< 0.21
J1429−5911	0.5	< 25.13	0.7	< 1.49	2.6	< 0.24
J1429−5911	0.0	< 4.63	0.1	< 0.31	0.0	< 0.10
J1459−6053	0.0	< 10.72	0.0	< 0.52	0.0	< 0.32
J1459−6053	0.1	< 9.10	0.0	< 0.41	0.0	< 0.07
J1509−5850	0.0	< 5.75	5.5	< 0.88	2.2	< 0.10
J1509−5850	0.0	< 7.75	0.0	< 0.39	0.0	< 0.18

7. Discussion

The discussion goes here...

The *Fermi* LAT Collaboration acknowledges generous ongoing support from a number of agencies and institutes that have supported both the development and the operation of the LAT as well as scientific data analysis. These include the National Aeronautics and Space Administration and the Department of Energy in the United States, the Commissariat à l'Energie Atomique and the Centre National de la Recherche Scientifique / Institut National de Physique Nucléaire et de Physique des Particules in France, the Agenzia Spaziale Italiana and the Istituto Nazionale di Fisica Nucleare in Italy, the Ministry of Education, Culture, Sports, Science and Technology (MEXT), High Energy Accelerator Research Organization (KEK) and Japan Aerospace Exploration Agency (JAXA) in Japan, and the K. A. Wallenberg Foundation, the Swedish Research Council and the Swedish National Space Board in Sweden.

Additional support for science analysis during the operations phase is gratefully acknowledged from the Istituto Nazionale di Astrofisica in Italy and the Centre National d'Études Spatiales in France.

The authors acknowledge the use of HEALPix[1] (Górski et al. 2005).

[1] `http://healpix.jpl.nasa.gov/`

Table 2—Continued

PSR	$TS_{0.1-1}$	$F_{0.1-1}$ (10^{-9}ph cm^{-2} s^{-1})	TS_{1-10}	F_{1-10} (10^{-9}ph cm^{-2} s^{-1})	TS_{10-316}	F_{10-316} (10^{-9}ph cm^{-2} s^{-1})
J1513−5908	0.0	< 3.95	0.0	< 0.23	0.0	< 0.17
J1513−5908	0.0	< 10.75	0.0	< 0.59	0.0	< 0.08
J1531−5610	0.0	< 10.11	0.0	< 0.54	0.0	< 0.07
J1531−5610	0.0	< 19.40	0.0	< 0.86	0.0	< 0.12
J1600−3053	0.0	< 7.06	0.0	< 0.52	0.1	< 0.10

Note. —

Put table comments

REFERENCES

Górski, K. M., Hivon, E., Banday, A. J., Wandelt, B. D., Hansen, F. K., Reinecke, M., & Bartelmann, M. 2005, ApJ, 622, 759

A. Validation of Extension Upper Limits

This preprint was prepared with the AAS LaTeX macros v5.2.

Table 3. Spectral fitting of pulsar wind nebula candidates with low energy component

PSR	$G_{0.1-316}$ ($10^{-12}\,\mathrm{erg\,cm^{-2}\,s^{-1}}$)	Γ	E_{cutoff} (GeV)	$\mathrm{TS}_{\mathrm{cutoff}}$
J0034−0534	5.72 ± 1.75	1.09 ± 0.90	1.00 ± 0.75	5.5
J0633+1746	434.98 ± 10.35	1.46 ± 0.07	1.05 ± 0.11	284.2
J1813−1246	0.01 ± 4.25	1.36 ± 0.28	1.00 ± 1310.30	0.0
J1836+5925	None	None	None	None
J2021+4026	503.02 ± 6.30	1.48 ± 0.01	1.19 ± 0.01	2.3
J2055+2539	None	None	None	None
J2124−3358	3.93 ± 16.68	1.51 ± 1.63	1000.00 ± 25442.21	0.0

Note. —

Put table comments