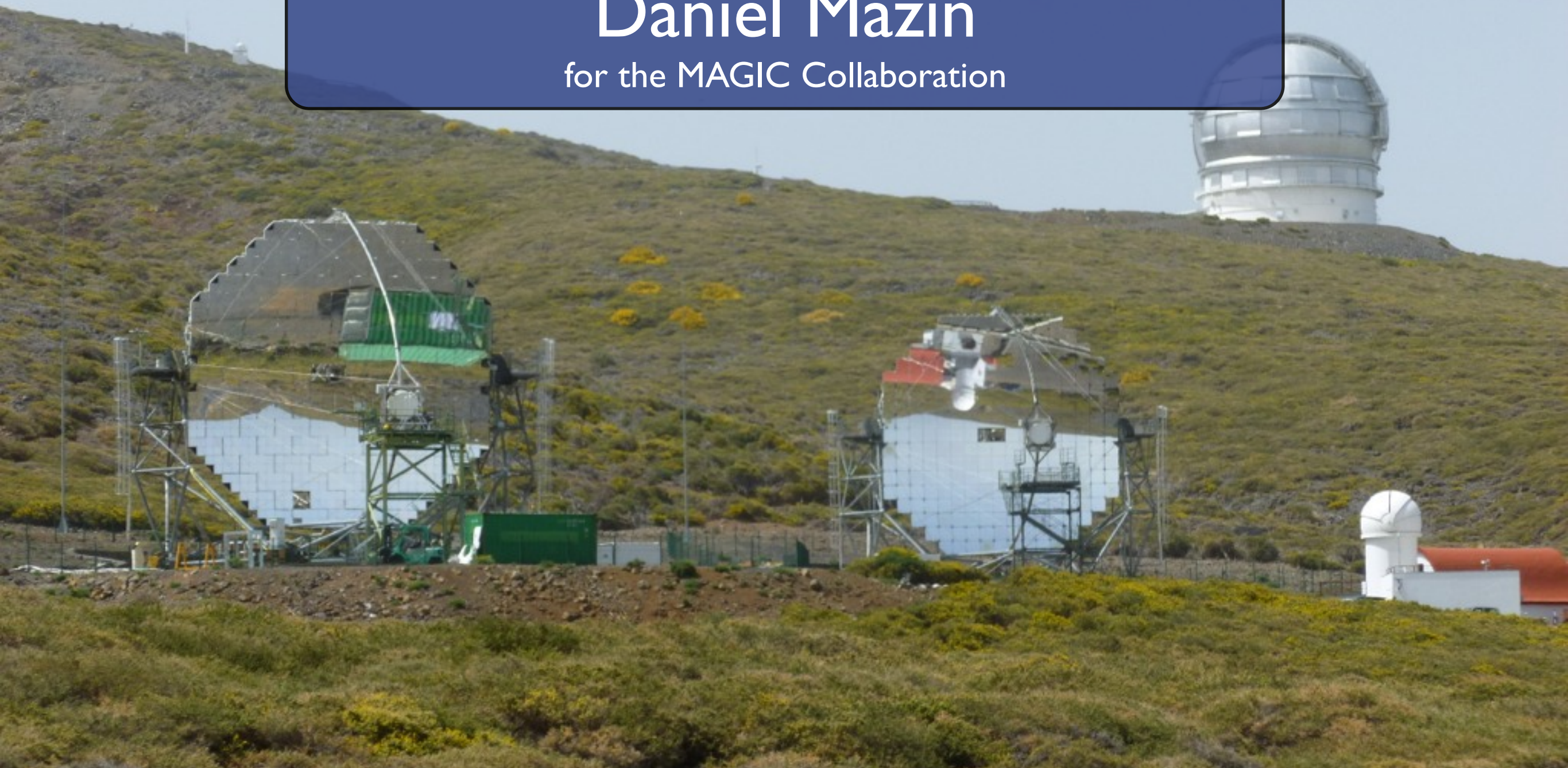


MAGIC highlights

Daniel Mazin

for the MAGIC Collaboration



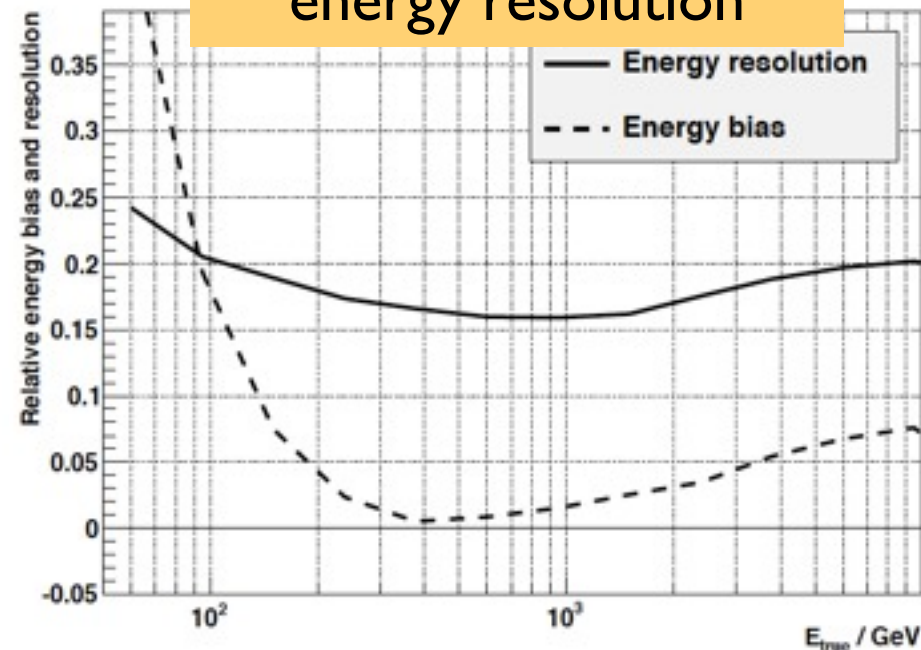
MAGIC contributions at γ -2012

1. **Gianluca Giavitto (talk): VHE gamma-ray measurements of the Crab Nebula and Pulsar by MAGIC**
2. Dorit Eisenacher et al (poster): Short term and multi-band variability of the active nucleus of IC310
3. **Julian Krause (talk): Ongoing Cosmic ray acceleration in the supernova remnant W51C revealed with the MAGIC Telescopes**
4. Cornelia Schultz et al. (poster): Spectral variability and multiwavelength studies of the high-frequency-peaked BL Lacertae object IES 0806+524 with the MAGIC telescopes
5. **Pierre Colin (talk): Study of gamma-ray emissions from the Perseus Cluster of Galaxies with MAGIC**
6. Malwina Uellenbeck (poster): Discovery of VHE gamma-ray emission from the long hunted blazar IES 0033+595 by the MAGIC telescopes
7. Julian Sitarek et al. (poster): Discovery of VHE gamma-ray emission from the blazar IES 1215+303 by the MAGIC telescopes and modeling of the multi-wavelength spectrum.
8. Saverio Lombardi et al. (poster): Observation of the peculiar transient event Sw 1644+57 in the very-high energy regime with the MAGIC telescopes.
9. Victor Stamatescu et al. (poster) Mapping the TeV PWN candidate source HESS J1857+026 down to Fermi-LAT energies with the MAGIC telescopes
10. Gessica De Caneva et al. (poster): MAGIC discovery of the BL Lac IES 1727+502: multiwavelength observations, spectral behavior and variability
11. Gessica De Caneva et al. (poster): Flat Spectrum Radio Quasars: MAGIC latest results and unexpected features
12. Nina Nowak et al. (poster): Unprecedented multi-instrument variability study of the classical TeV objects Mrk421 and Mrk501
13. Shangyu Sun et al. (poster): Detailed characterization and scientific interpretation of the broadband emission of Mrk421 during flaring activity in 2010
14. Michael Backes et al. (poster): Long-term spectral and temporal behavior of the high-frequency peaked BL Lac object IES 1959+650
15. Takayuki Saito et al. (poster): Follow-up observations of the Crab pulsar with MAGIC and re-analysis of archival data
16. Tobias Jogler et al. (poster): Recent results from MAGIC observations of the the binary systems LS I+61 303 and HESS J0632+057
17. Elisa Prandini et al. (poster): Challenging the one zone SSC model in VHE gamma ray emitting BL Lacs: the interesting case of PKS 1424+240
18. Josefa Becerra Gonzalez et al. (poster): Unprecedented gamma-ray flare from PG 1553+113 in Spring 2012
19. Stefan Klepser et al. (poster): Application of a generalized likelihood ratio test statistic to MAGIC data

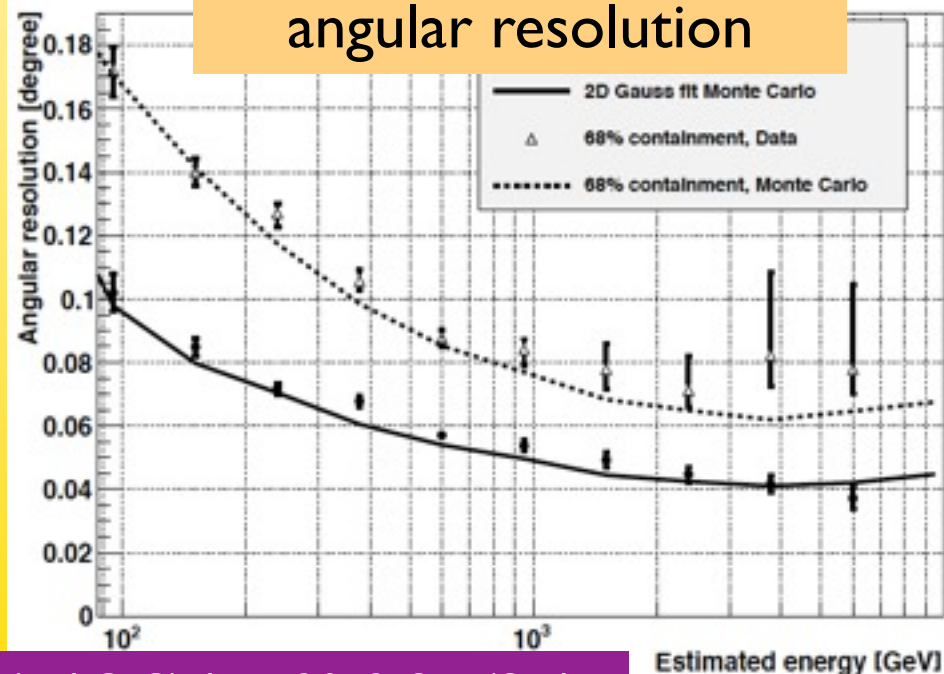
Performance of MAGIC

MAGIC is an Imaging Atmospheric Cherenkov Telescope system consisting of two 17m diameter telescopes, located on Canary island La Palma

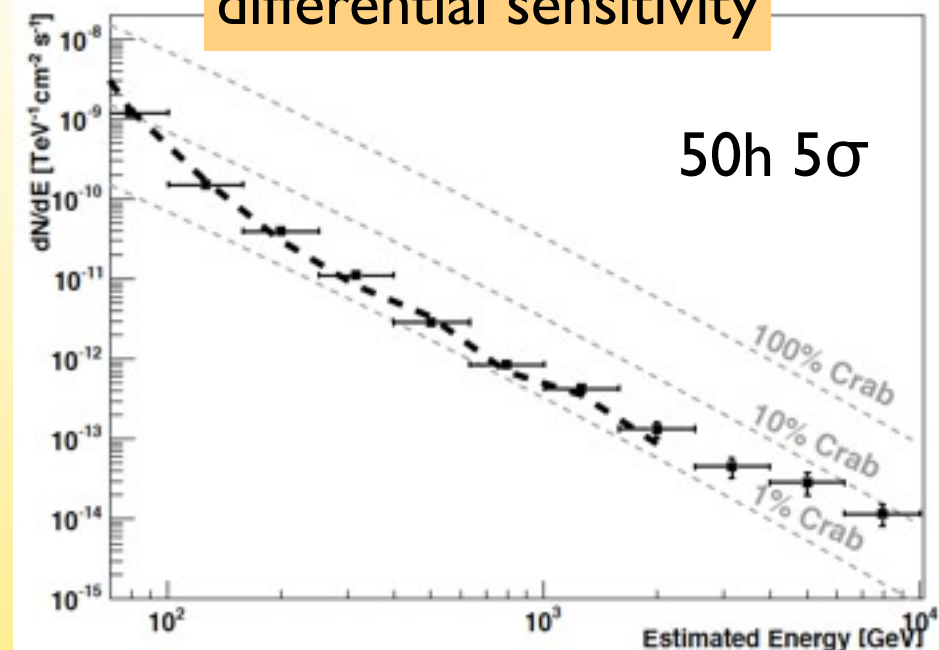
energy resolution



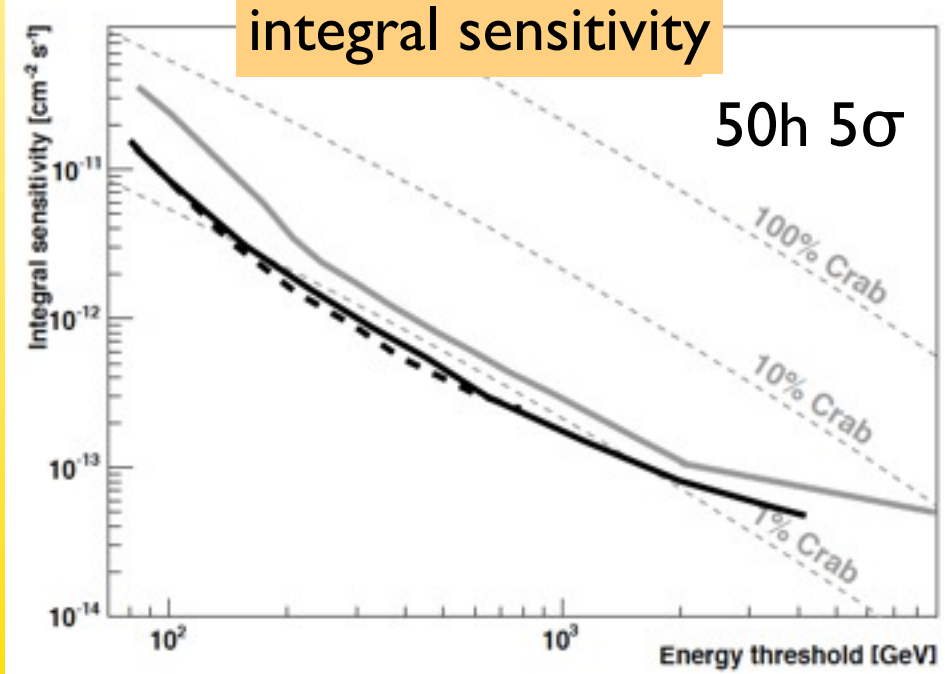
angular resolution



differential sensitivity



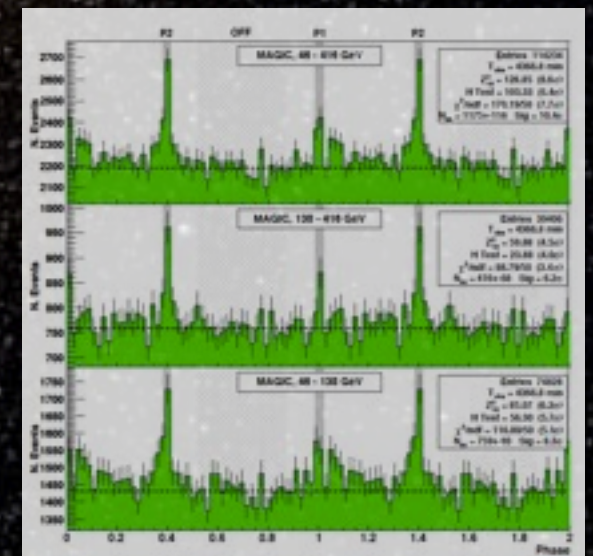
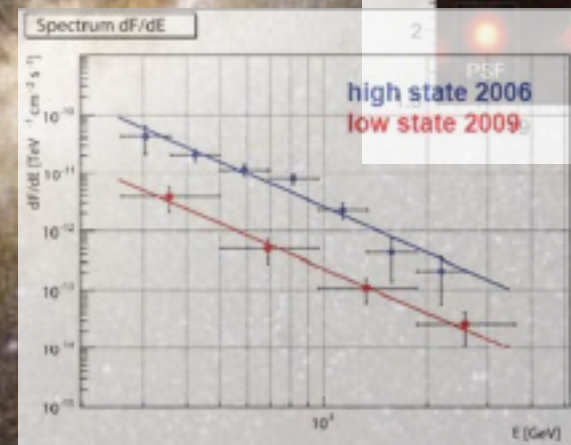
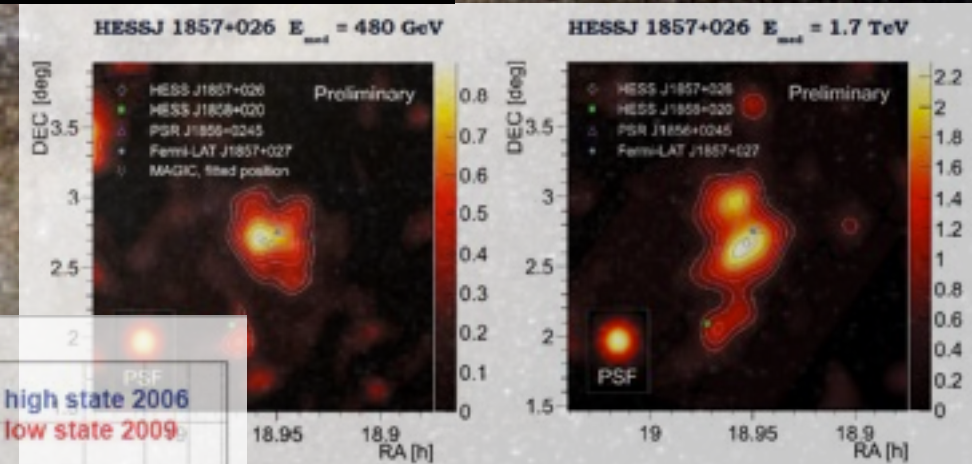
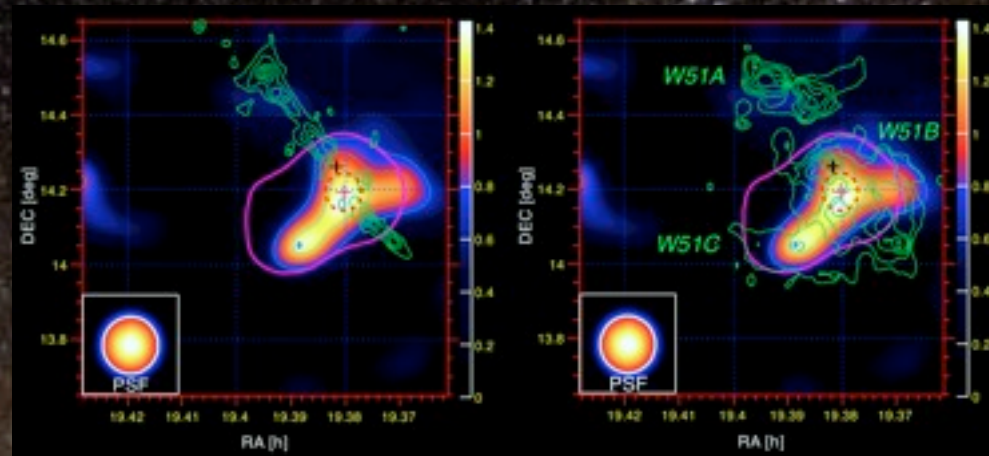
integral sensitivity



Aleksic et al. (MAGIC) APh, 2012, 35, 435A

Galactic science

- W51
- HESSJ 1857+026
- Magnetars
- Binaries
- Crab nebula
- Crab pulsar

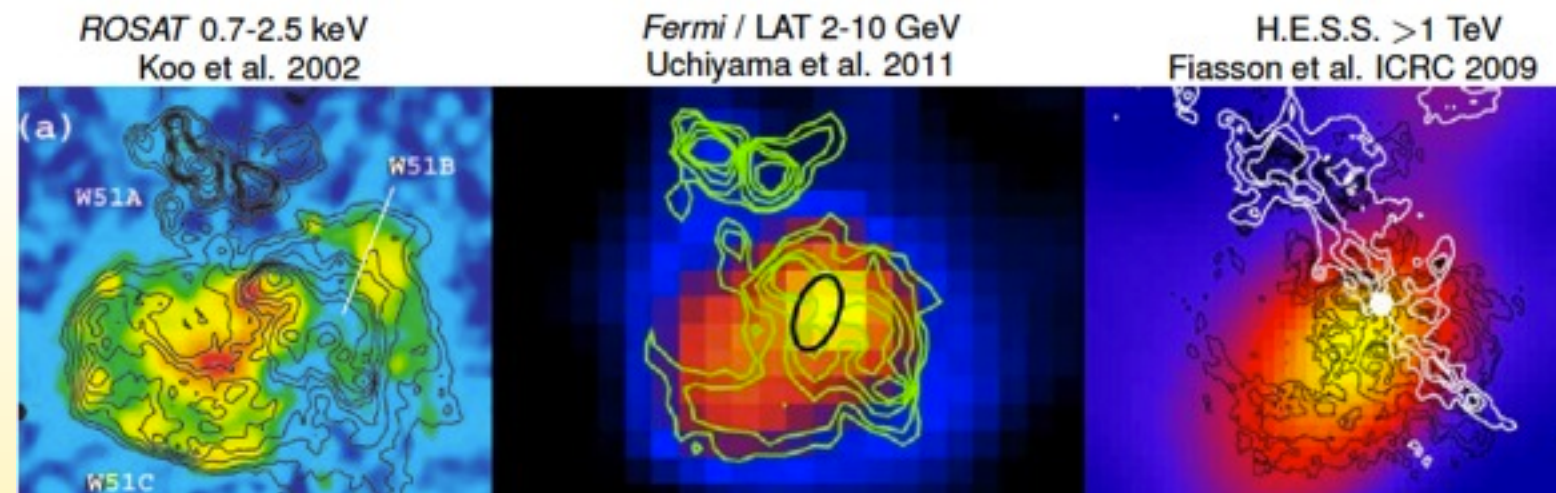


APOD, 2005 October 4

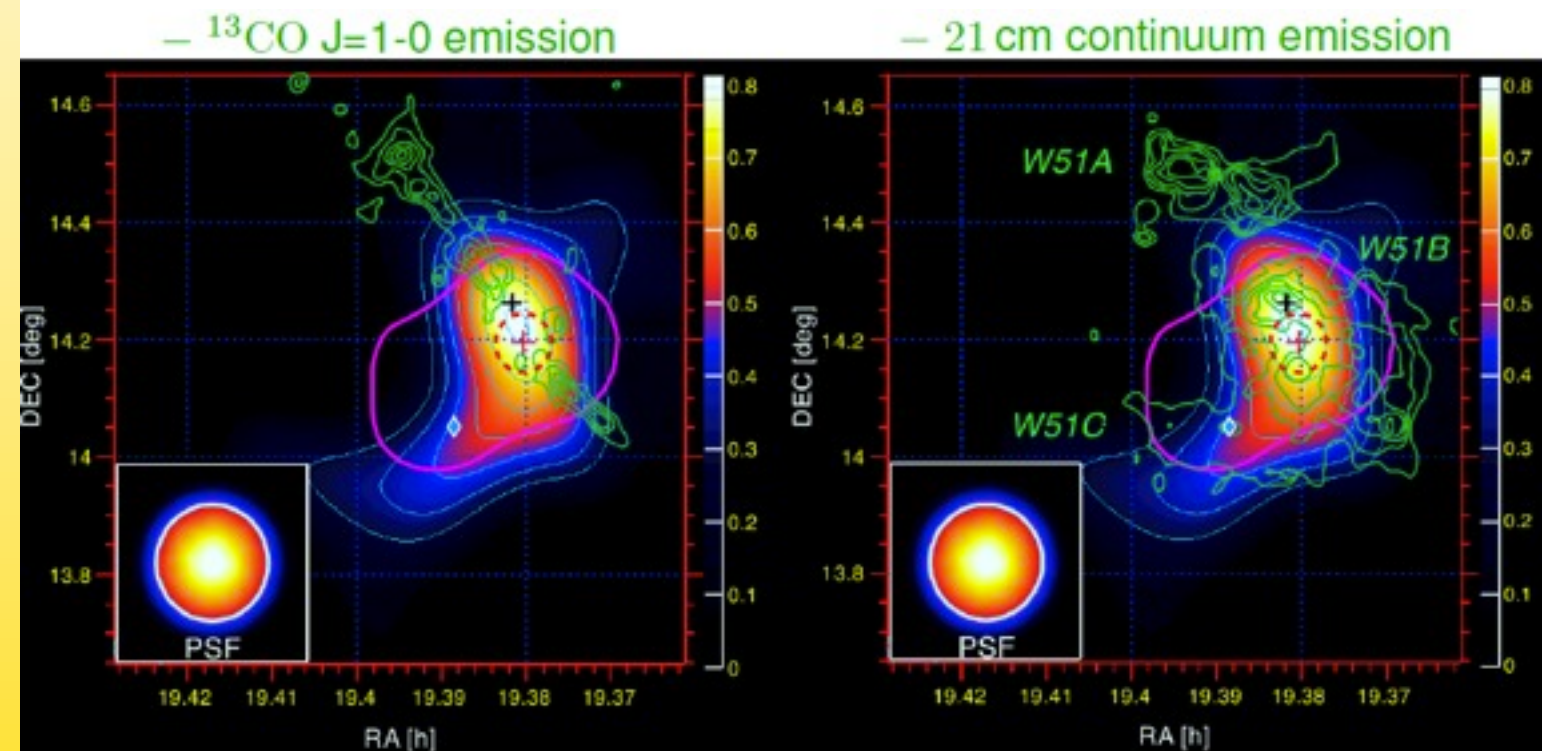
W51

Aleksic et al. (2012) A&A 541, 13

- W51C (d~5.5kpc) is a medium age (~30kyr) supernova remnant [SNR]
- Possible Pulsar Wind Nebula associated to W51C (Koo et al. 2005)
- The SNR interacts with W51B (Koo et al. 1997a&b, Green et al. 1997)
- Discovered by Fermi-LAT (~GeV) and H.E.S.S. (> 1 TeV)
- High CR ionization, ~100xISM value (Ceccarelli et al. 2011)
- MAGIC stereo data taken in 2010 and 2011 (53h), 11 σ signal, clearly extended

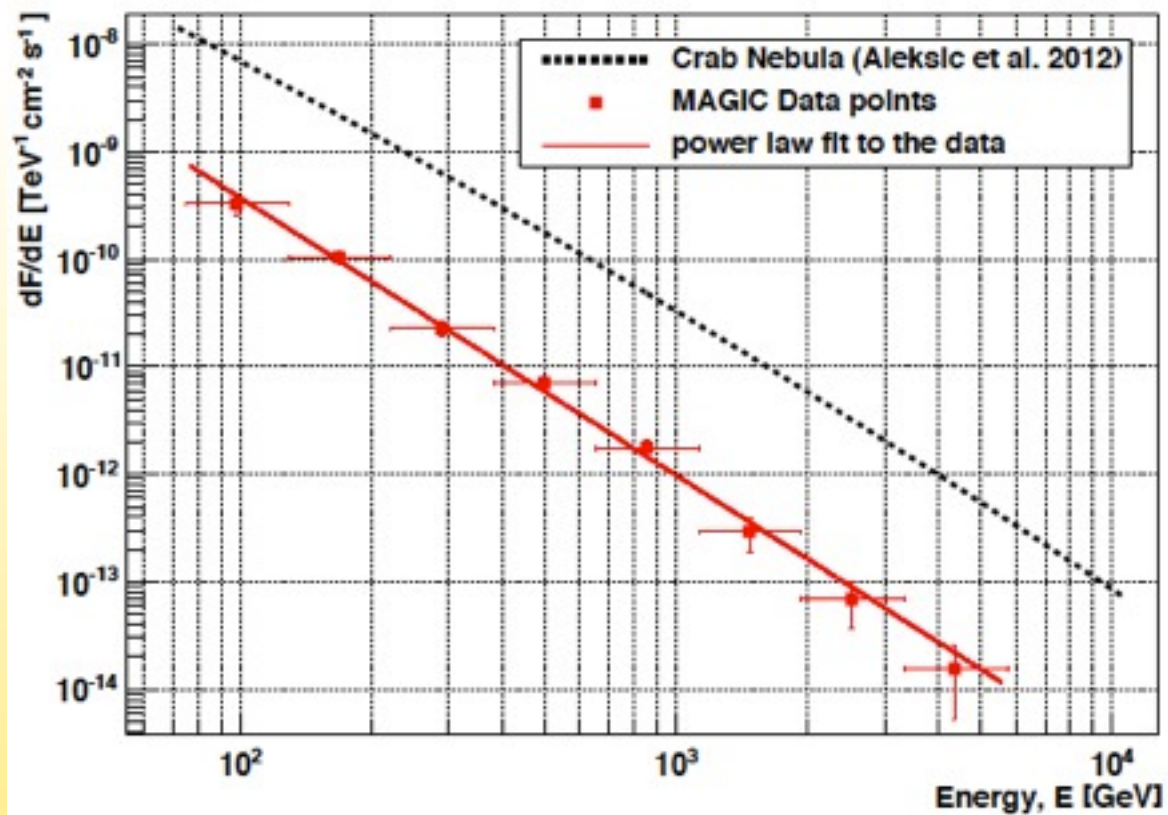


MAGIC maps in $0.3 \text{ TeV} < E < 1.0 \text{ TeV}$



The emission arises in the interaction zone between the cloud and W51C. Neither from the complete shell nor the complete cloud.

W 51

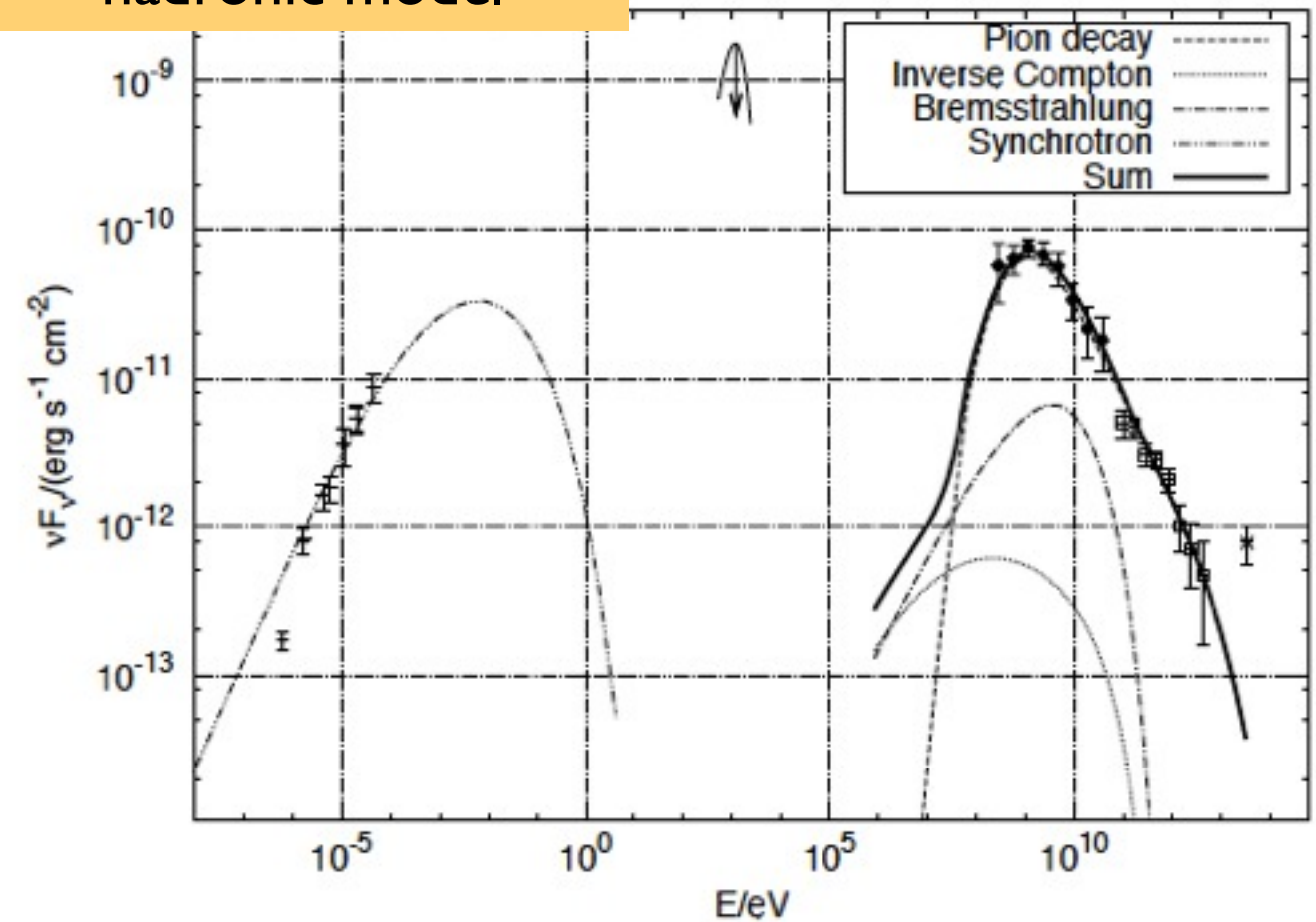


Differential energy spectrum:

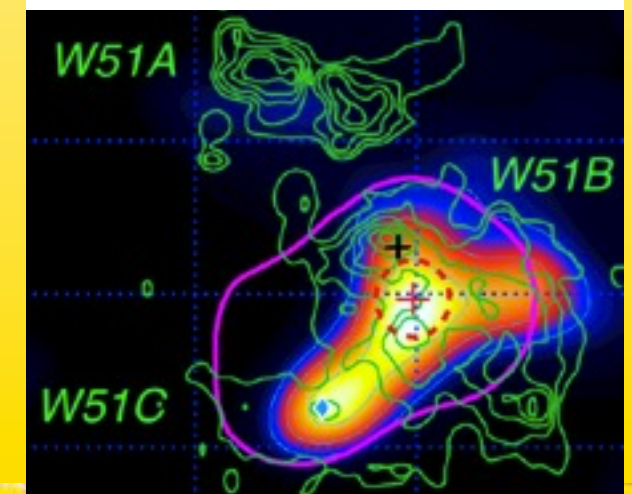
$$\frac{dF}{dE} = (9.7 \pm 1.0_{\text{stat}}) \times 10^{-13} \left(\frac{E}{\text{TeV}} \right)^{(-2.58 \pm 0.07_{\text{stat}})} [\text{TeV}^{-1} \text{cm}^{-2} \text{s}^{-1}]$$

- Emission probably hadronic (at least simple leptonic models fail)
- VHE emission from interaction zone
- Feature towards possible PWN

hadronic model



MAGIC map at E > 1.0 TeV

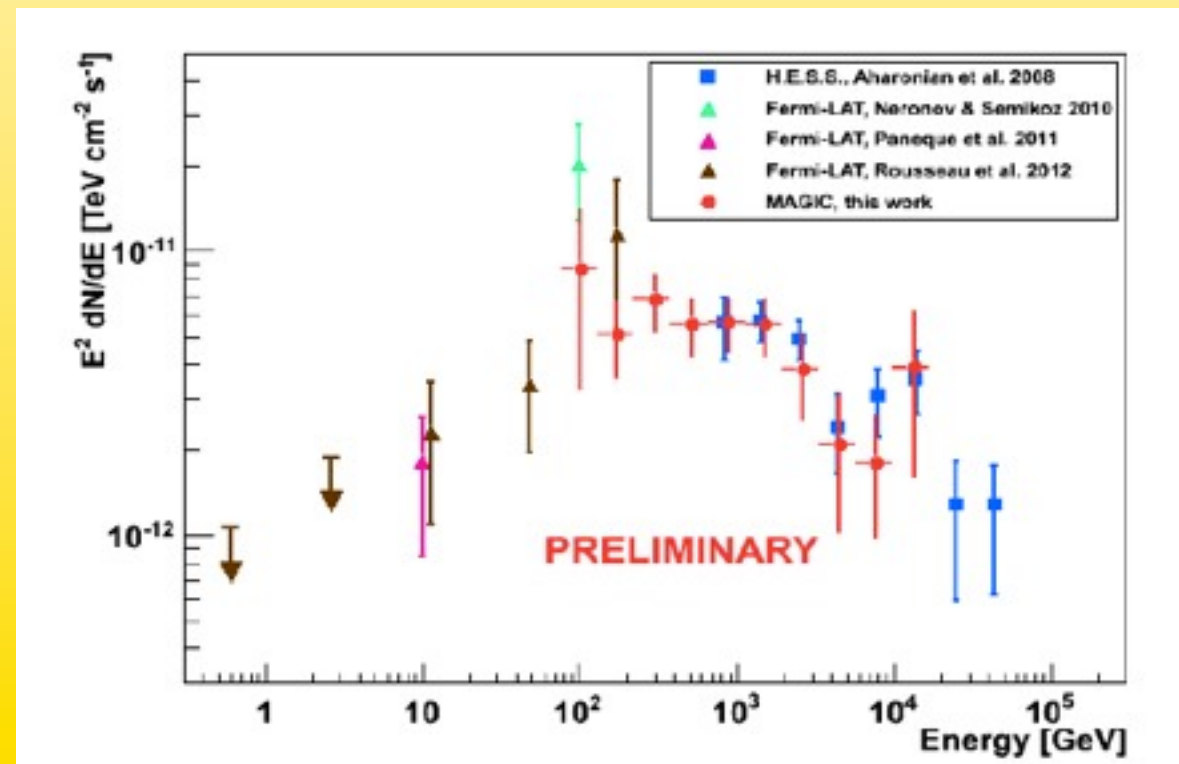
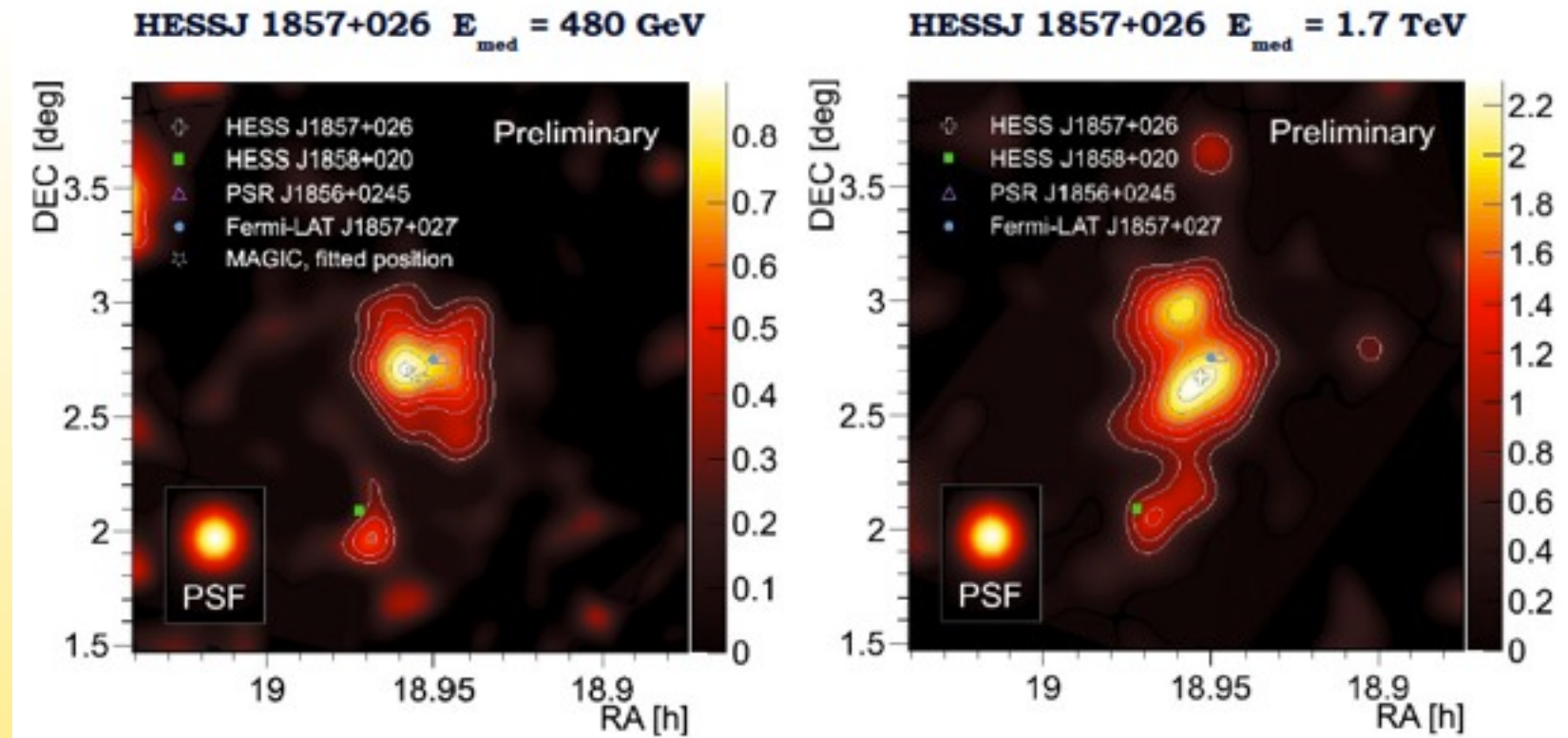


talk by J. Krause later today (16:33-16:46)

HESSJ 1857+026

- Morphological studies of extended H.E.S.S. source
- Also detected with Fermi-LAT
- Coincident with young energetic pulsar PSR J1856+0245
- 29 h MAGIC data in 2010
- Strong hint for PWN based on spectral and morphological information

Details in poster by V. Stamatescu et al.

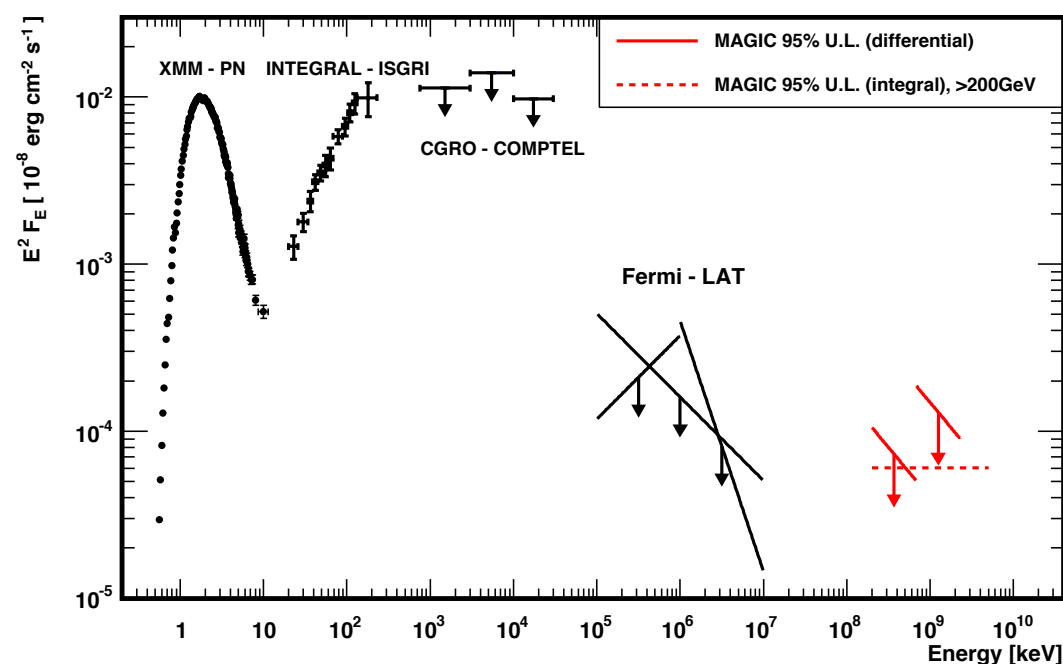


Magnetars

Aleksic et al (MAGIC), 2012, to be submitted

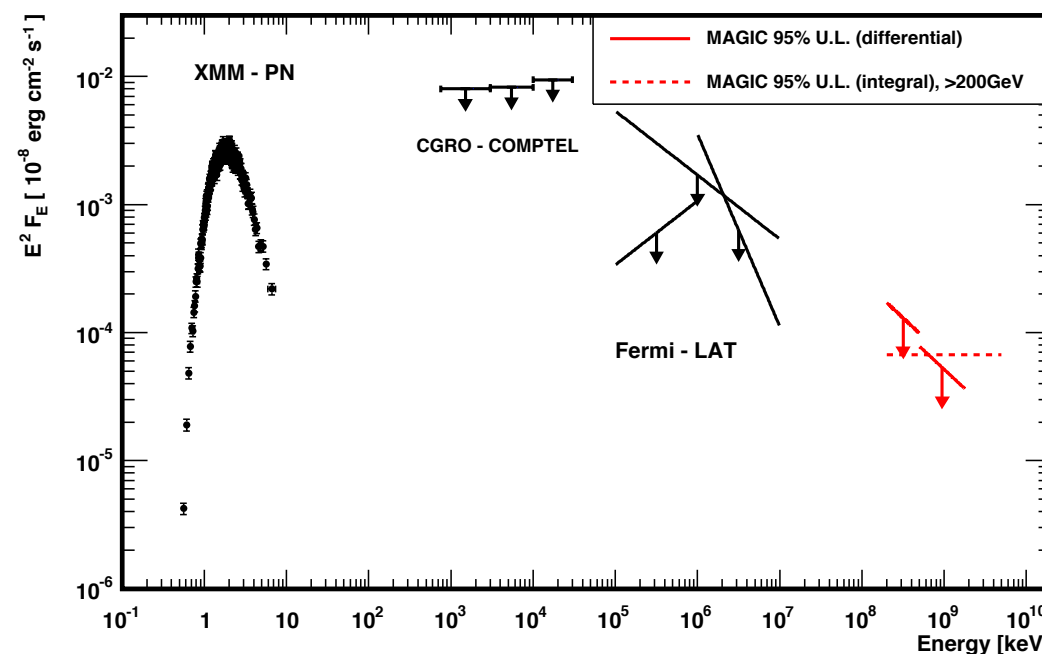
4U 0142+61

- X-ray luminosity: $L_x \sim 10^{35}$ erg s⁻¹ (one of the brightest)
- B on surface: 1.3×10^{14} G
- Distance of 3.6 ± 0.4 kpc
- MAGIC: 17h in 2008, mono data
- No emission found, int. upper limits: 0.5% C.U.



1E 2259+586

- X-ray luminosity: $L_x \sim 0.3 \times 10^{35}$ erg s⁻¹
- B on surface: 0.59×10^{14} G
- Distance of 4.0 ± 0.8 kpc
- Embedded in SNR CTB109
- MAGIC: 8h in 2010, stereo data
- No emission found, int. upper limits: 0.6% C.U.

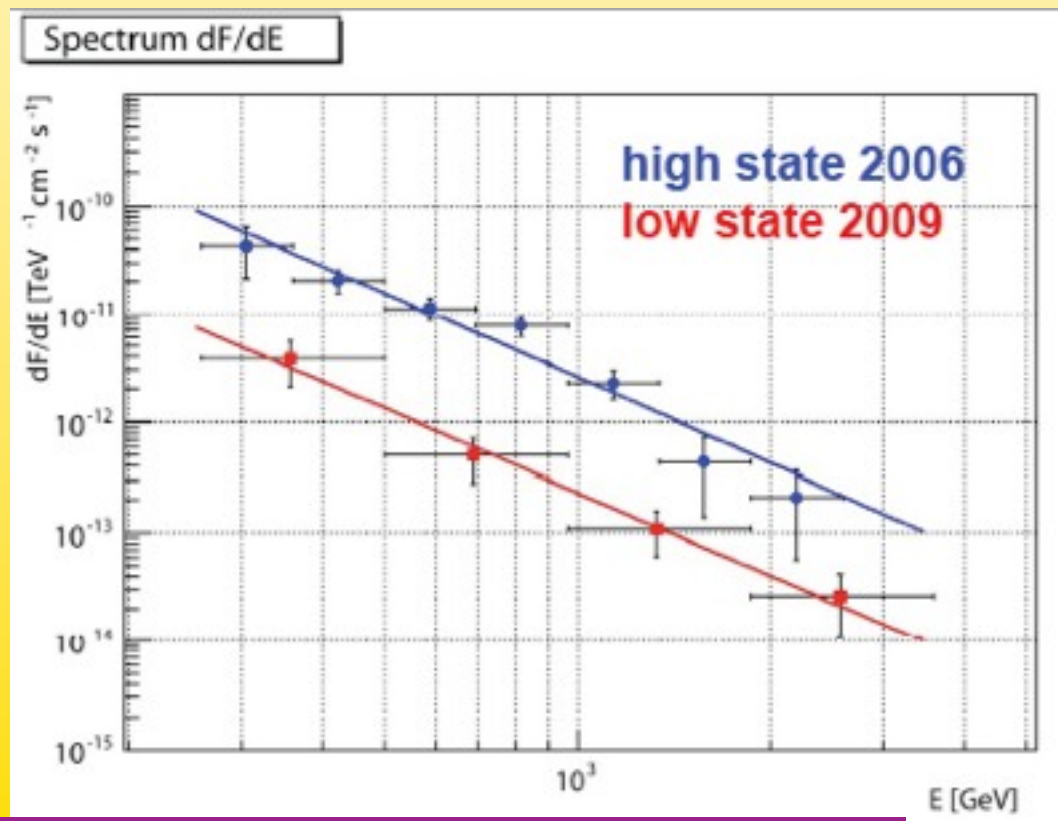


Binaries

there are only 2 (4) binaries visible in the Northern hemisphere

LS I+61 303

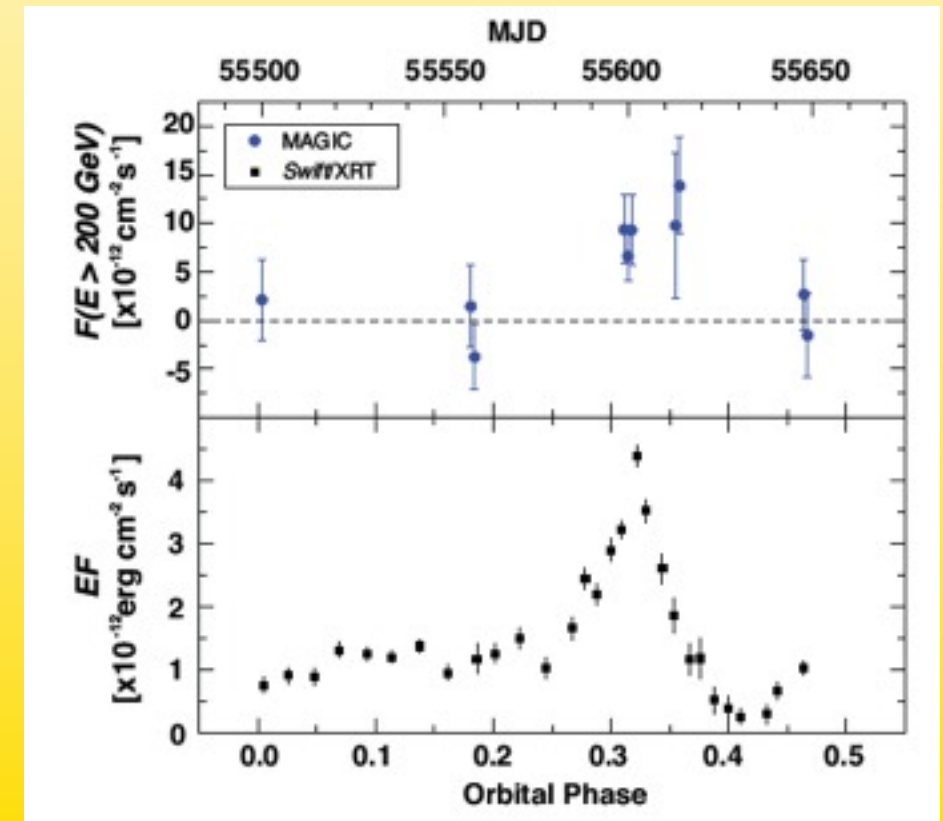
- Observed with MAGIC since 2005
- No spectral variability detected
- Change from high to low state somewhere in 2007/2008
- Change back to high state in 2010/2011



Details in poster by T. Jogler et al

HESS J0632+057

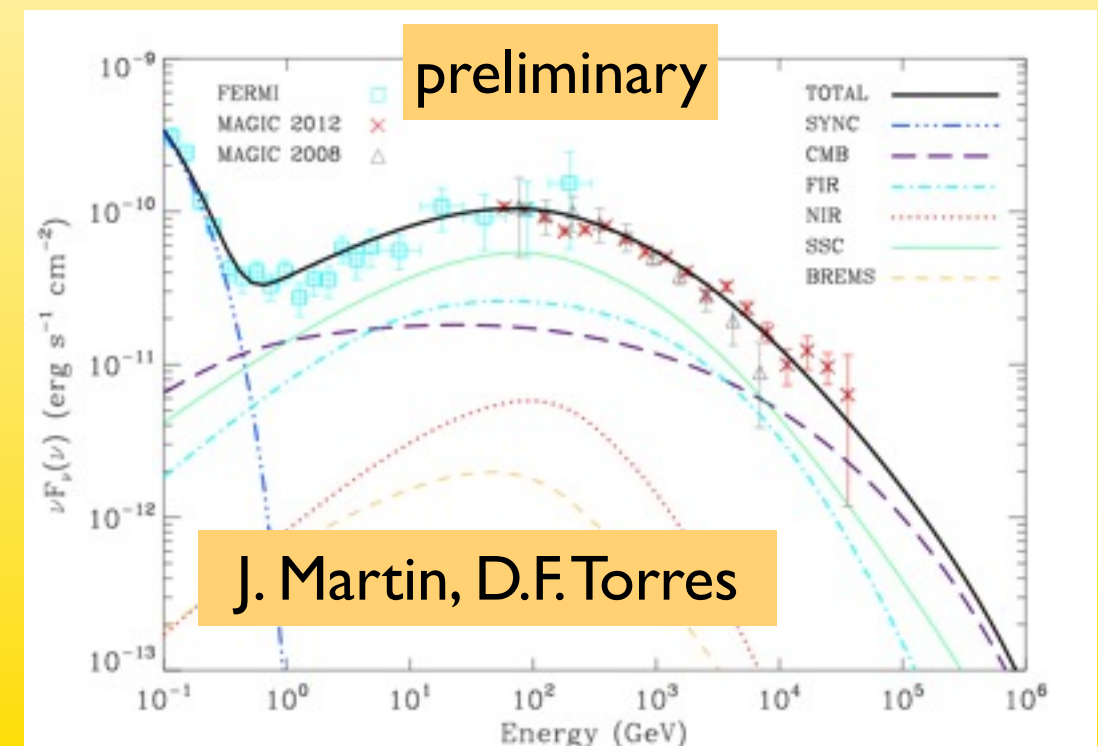
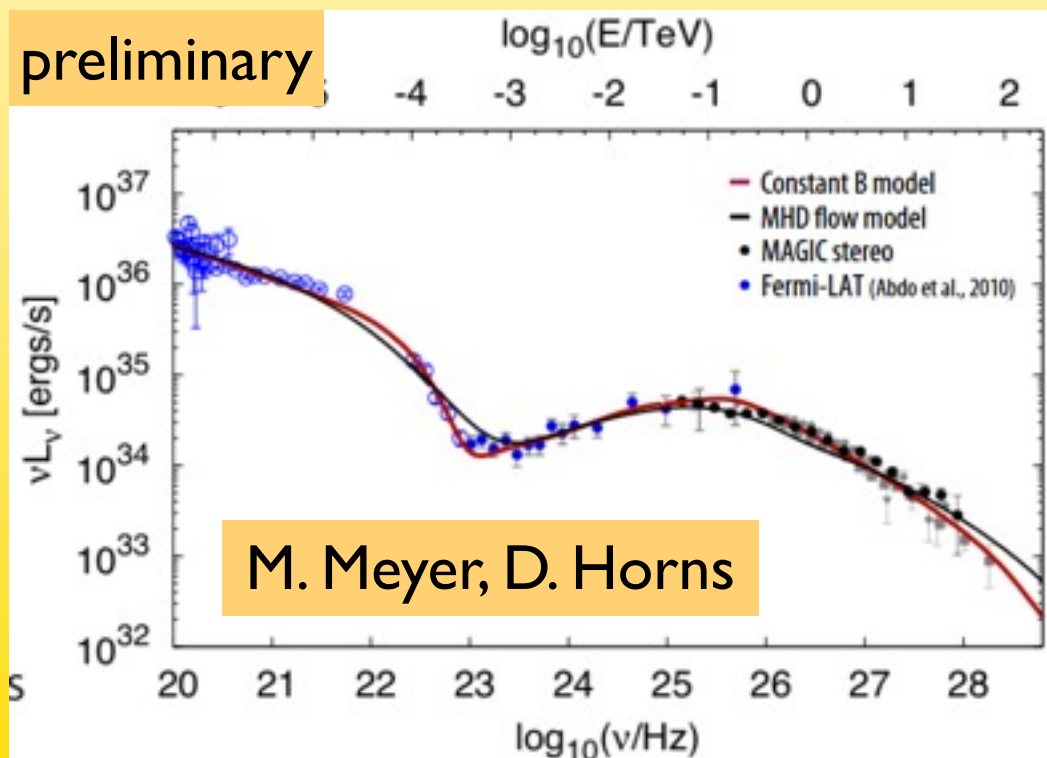
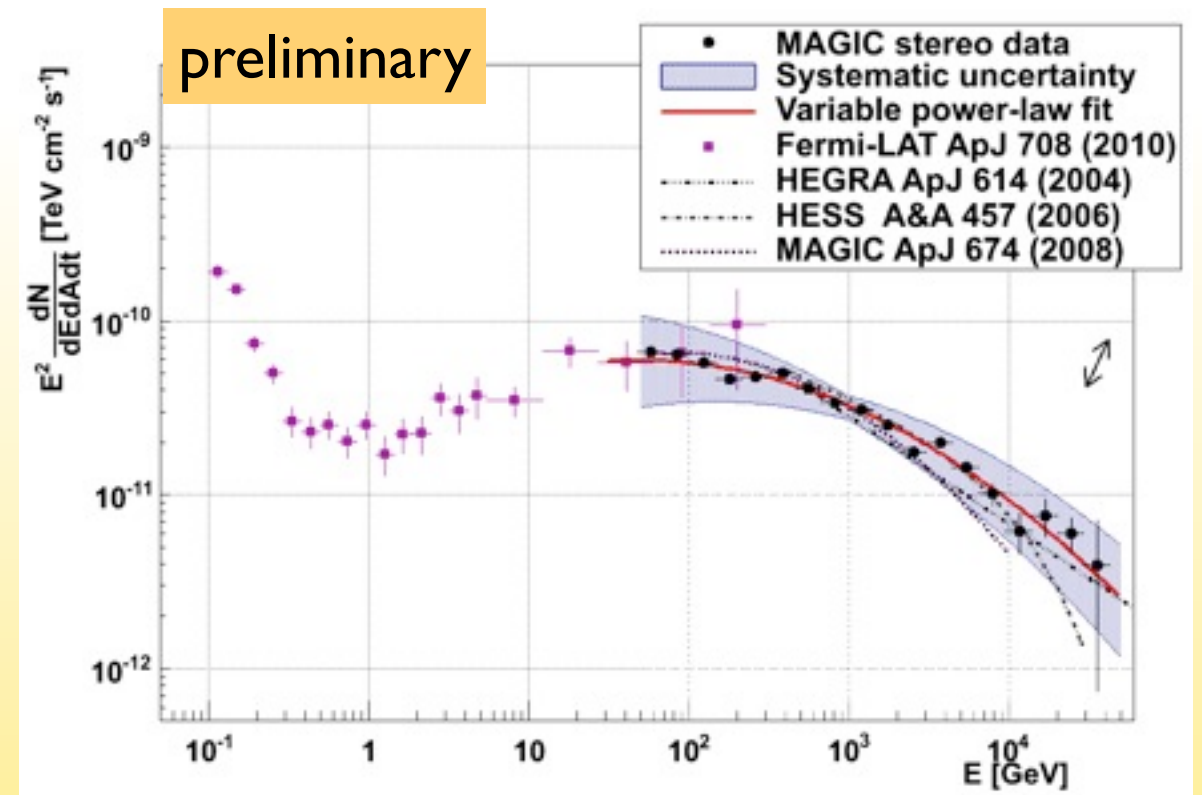
- Monitored with MAGIC since 2010
- Clear detection in Feb 2011
- No significant variability during outburst detected
- Simple one zone SSC describes available data



Aleksic et al. (MAGIC) ApJ, 754, L10

Crab nebula

- MAGIC spectrum from 50 GeV to 45 TeV
- Dominated by systematic uncertainties
- very good overlap with Fermi-LAT
- SED modeling with help of external authors ongoing
- Daily light curve at $E > 300$ GeV constant within systematic uncertainty
- No enhanced emission during Fermi and Agile flares in the energy range 1-10 TeV



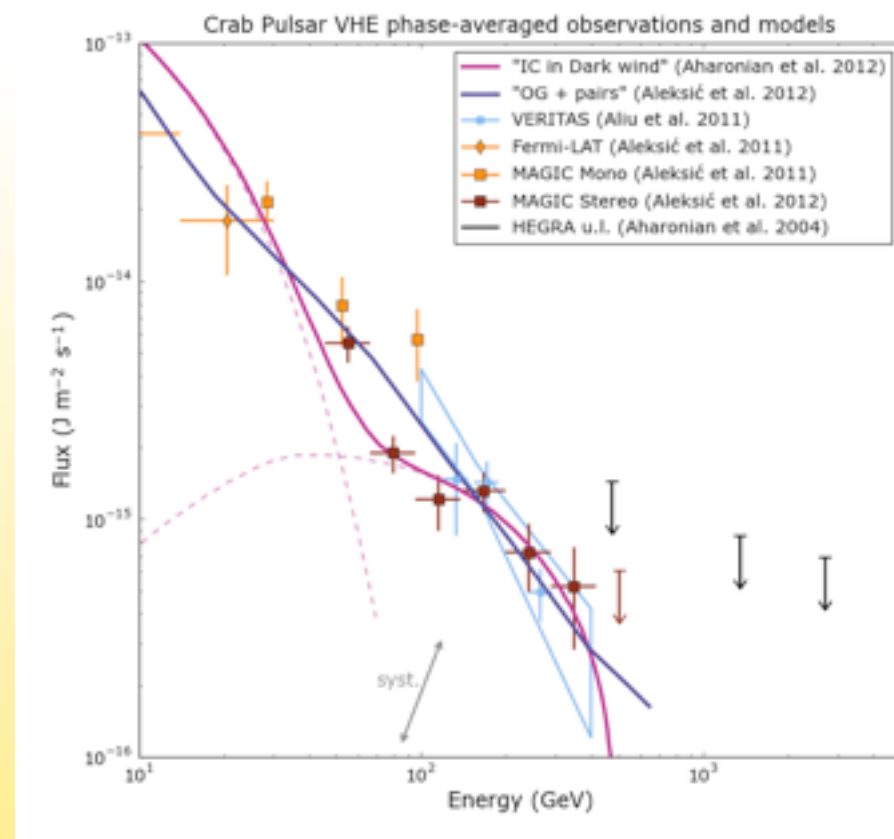
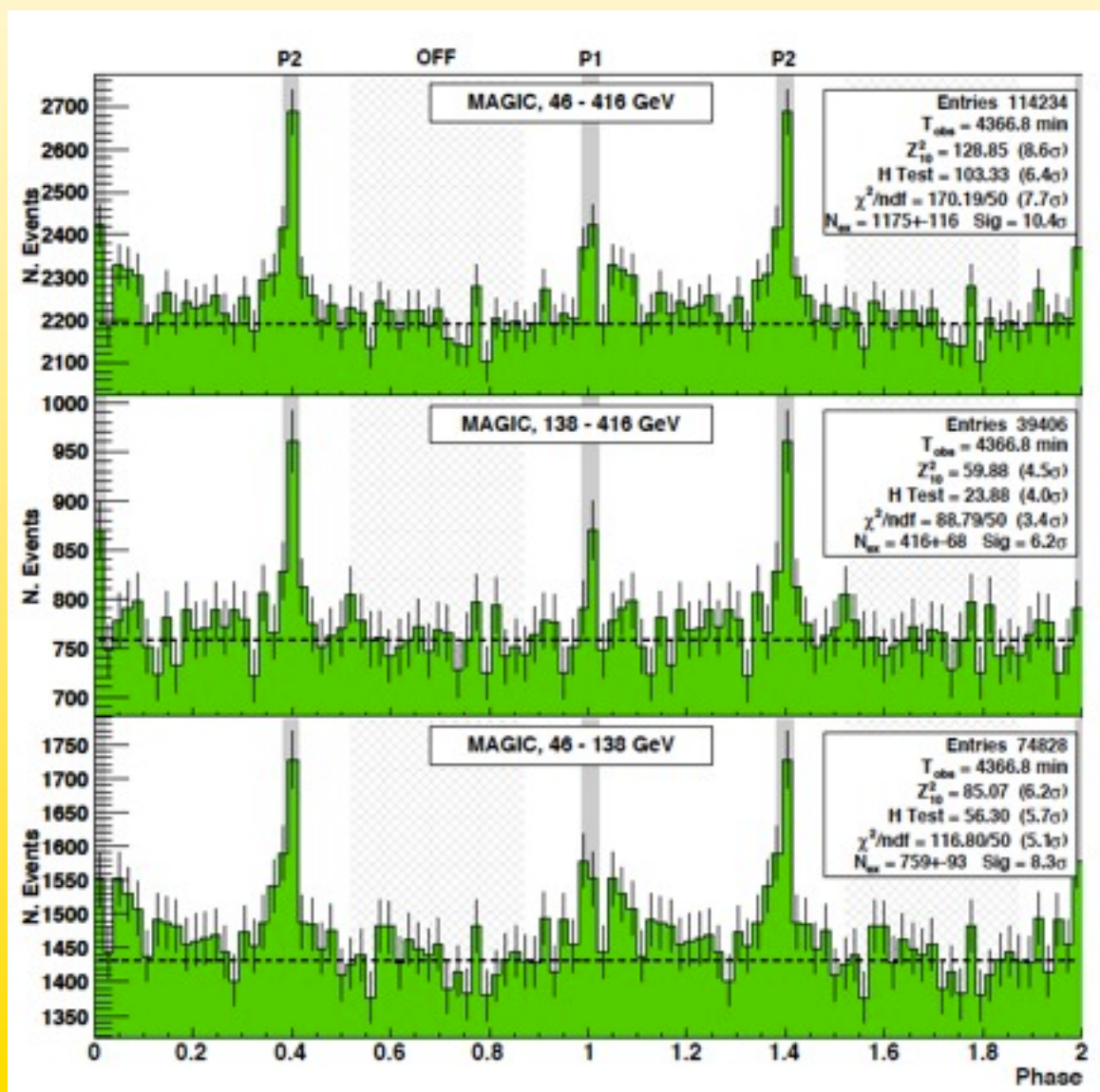
Details in talk by G. Giavitto (yesterday)

Crab pulsar

the only pulsar detected above 25 GeV

Details in talk by G. Giavitto

- MAGIC mono and stereo data establish a gap-less phase resolved (P1 and P2) spectrum from 25 to 400 GeV
- Agreement with VERITAS in the overlap regime
- Hint of VHE emission from the “bridge” [0.04-0.14]



- Polar cap emission models excluded (emission must come from outer regions)
- Outer gap, SSC from secondary and tertiary pairs at $r > 0.5$ LR (Hirotani)
- IC upscattering of pulsed X photons in “Dark wind region” outside LC (Aharonian)
- Synchrotron emission or Curvature emission by ultra-relativistic particles @LC (Chkheidze+II, Bednarek12)

Extragalactic science

- New MAGIC sources
- PKS 1424+240
- Flare of PGI 553+113
- Markarian 421
- Perseus cluster
- Flat Spectrum Radio Quassars (FSRQs)

Perseus. Credit: X-ray: NASA/CXC/IoA/A.Fabian et al.;
Radio: NRAO/VLA/G. Taylor; Optical: NASA/ESA/Hubble
Heritage (STScI/AURA) & Univ. of Cambridge/IoA/A. Fabian

List of detected sources

6 new detections in the last 15 (analysis) months

29 detected sources (out of 53? worldwide)

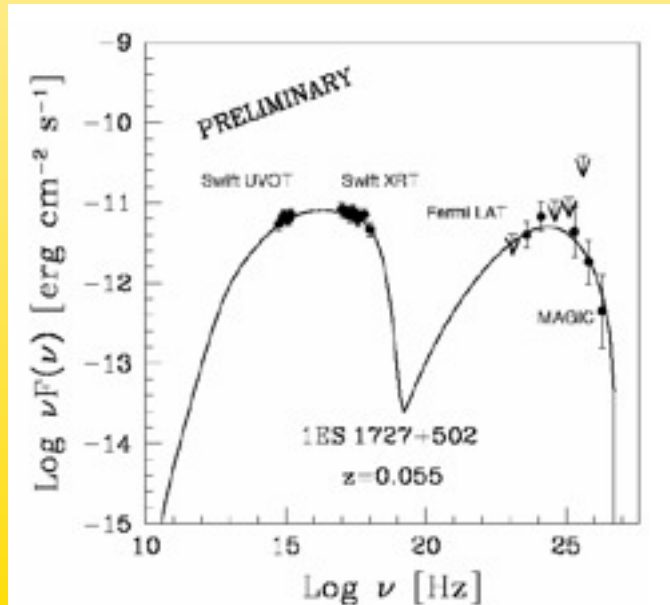
- | | | | | | |
|---------------------------|-------|----------------|-------|----------------|----------|
| • IES 1727+502 | NEW | • IC310 | | • IES1959+650 | |
| • IES 0033+595 | NEW | • 3C66A | | • Mrk 501 | |
| • IES 0806+524 | NEW | • Mrk 180 | | • J0136+3905 | NEW |
| • BL Lac | | • PG 1553+113 | | • PKS 1510-089 | FSRQ NEW |
| • MG4 J200112+4352 (C023) | | • 3C279 | FSRQ | • IES 0647+250 | |
| • IES 1011+496 | | • PKS 1424+240 | | • S5 0716+714 | |
| • PKS1222+21 | FSRQ | • Mrk 421 | | • B3 2247+381 | |
| • IES1215+304 (ON325) | | • M87 | radio | • IES2344+514 | |
| • IES1218+304 | | • IES1426+428 | | • PKS2155-304 | |
| • NGC 1275 | radio | • IES1741+196 | NEW | | |

New MAGIC sources

4 new detections in the last 12 (analysis) months

IES 1727+502

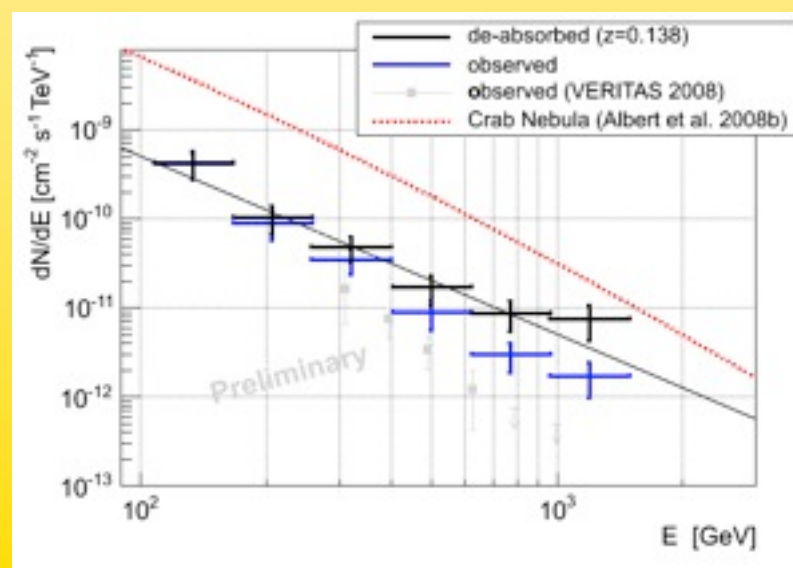
- HBL, promising TeV emitter (Costamante & Ghisellini 2002), $z=0.055$
- 1.5σ in previous observations (06/07)
- re-observed for 13h in 2011, $S=5.5 \sigma$
- no variability
- $\Gamma=3.2 \pm 0.4$



Poster by G. de Caneva et al.

IES 0806+524

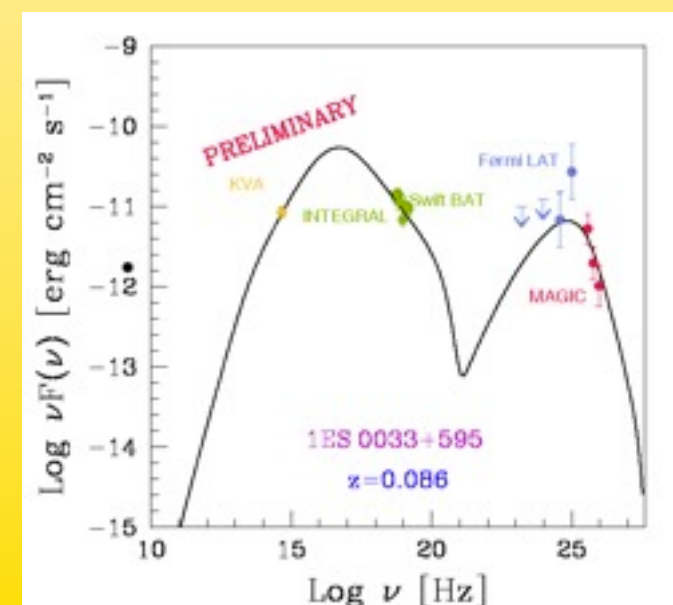
- HBL (promising TeV emitter, C&G02), $z=0.138$
- Discovered by VERITAS 08
- Triggered by optical high state (KVA) in Feb 2011
- 16 h, $S=10 \sigma$
- day-by-day variability
- $\Gamma=2 \pm 0.32$ after EBL corr.



Poster by C. Schultz et al.

IES 0033+595

- HBL, redshift unknown $z=0.086$ (Perlman+96); $z>0.24$ (Sbarufatti+05)
- Promising TeV emitter C&G02
- 24h in 2009, $S=5.5 \sigma$
- no variability detected
- $\Gamma=3.8 \pm 0.7$



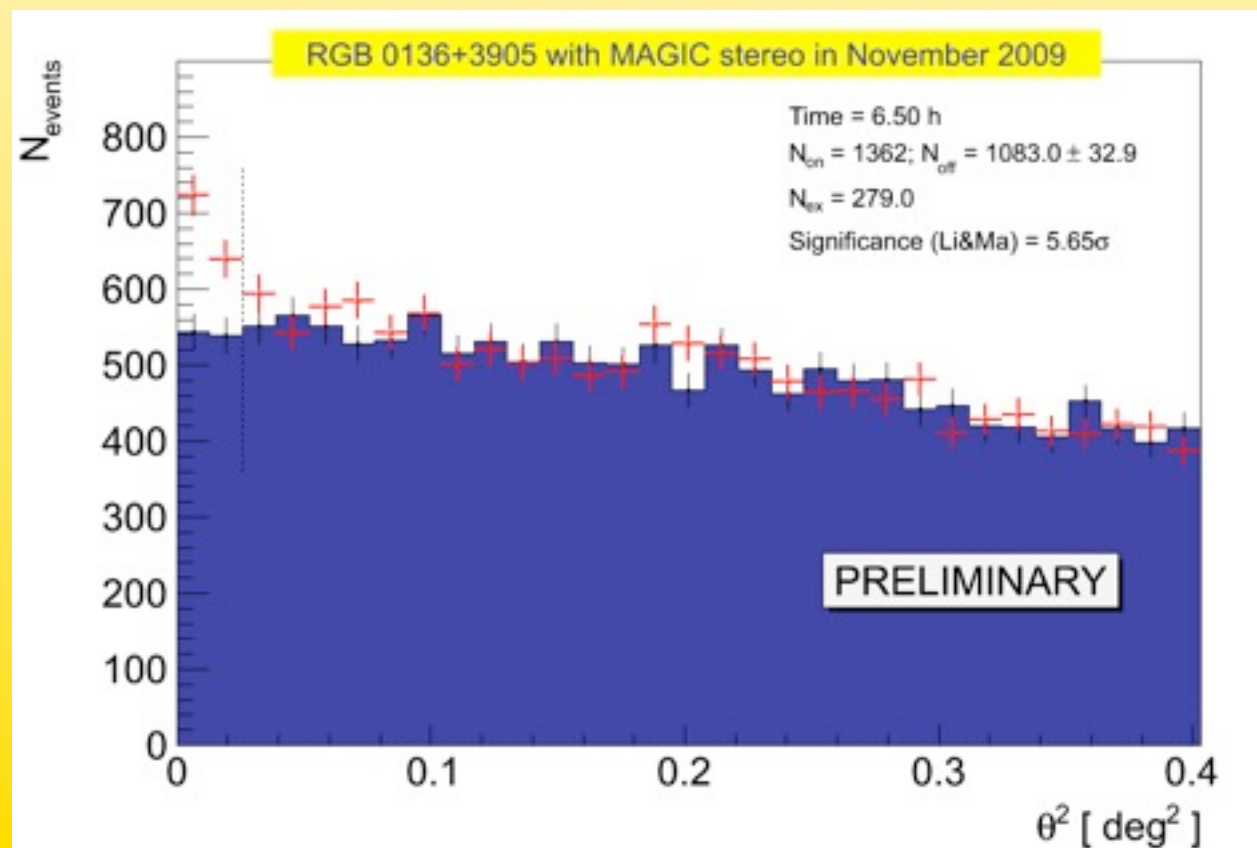
Poster by M. Uellenbeck et al.

New MAGIC sources

announced for the first time

RGB 0136+3905

- HBL, redshift unknown. New estimation $z > 0.4$ at 95% c.l. based on non detection of host galaxy (Nilsson et al, 2012)
- Promising TeV emitter (Costamante & Ghisellini 02)
- Motivated by Fermi-LAT spectrum of the source (collaboration with Fermi-LAT team)
- 6.5h good quality data in November 2009, taken in the commissioning phase of the stereo system (analysis takes longer)
- Clear detection. Spectral analysis in progress, paper in preparation.



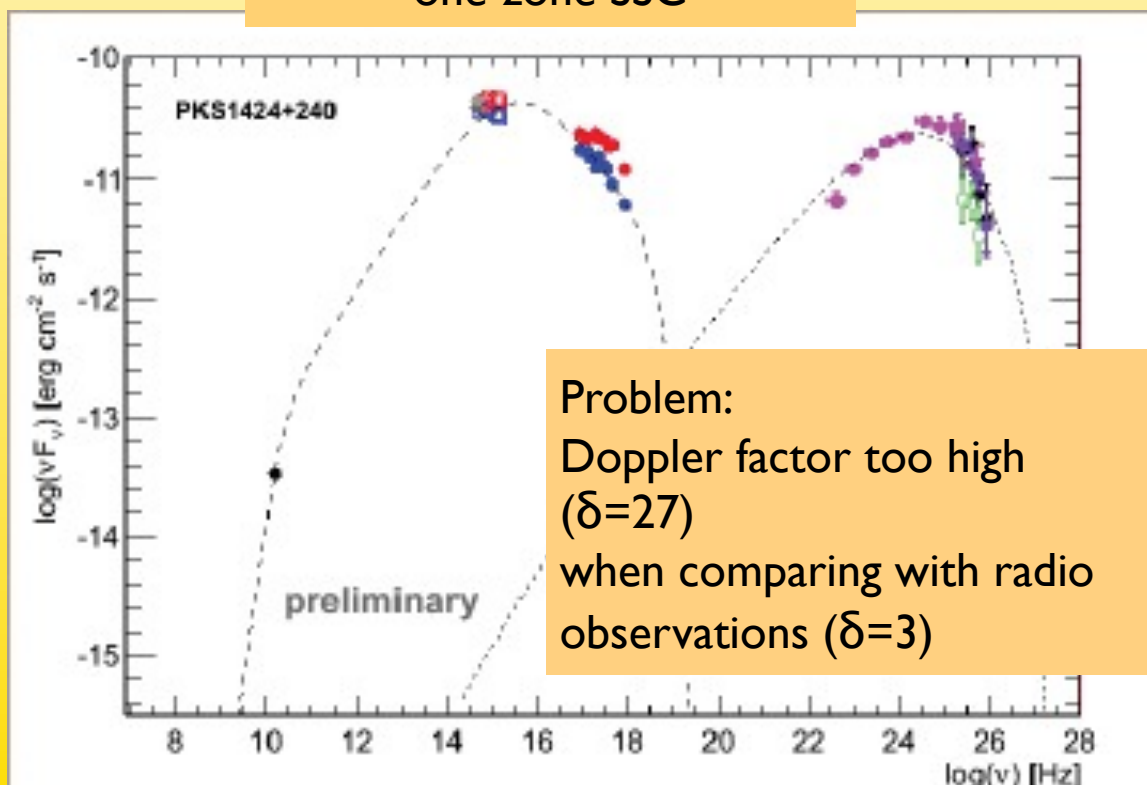
PKS 1424+240

Poster by E. Prandini et al.

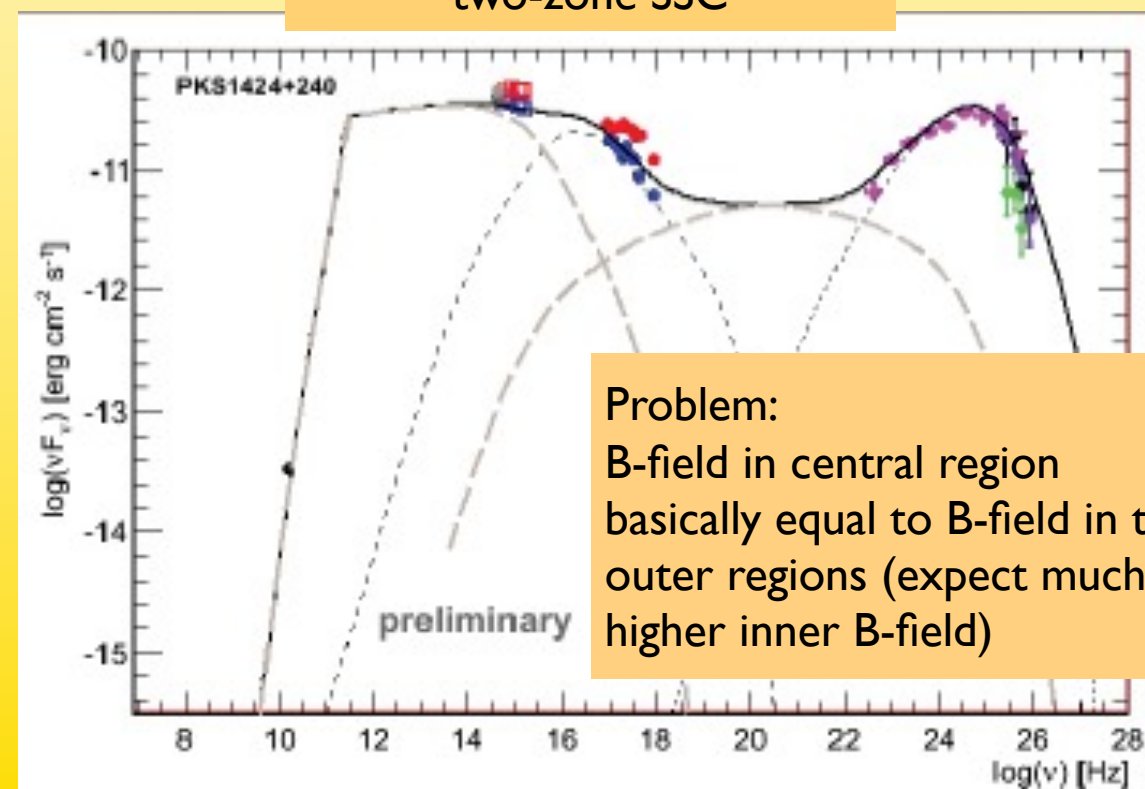
- BL Lac object with unknown redshift. Using EBL to measure the distance: $z \sim 0.26$ (Prandini et al., 2011)
- Observed by MAGIC regularly since 2006
- Detected in VHE first by VERITAS in 2009
- Since 2009 regularly detected by MAGIC (thanks to improved sensitivity in stereo)
- No spectral variability detected, weak source (few % of Crab flux)
- Detailed SED modeling using simultaneous MWL data

Year	Obs. Time [h]	$F > 150 \text{ GeV}$ [$\text{cm}^{-2} \text{s}^{-1}$]* 10^{-11}	Spectral Slope
2006	5.8	< 16.6	-
2008	15.8	< 1.37	-
2009	12.5	1.66 ± 0.50	5.0 ± 1.7
2010	11.6	0.53 ± 0.25	3.5 ± 1.2
2011	9.5	1.00 ± 0.30	3.9 ± 0.7

one-zone SSC



two-zone SSC



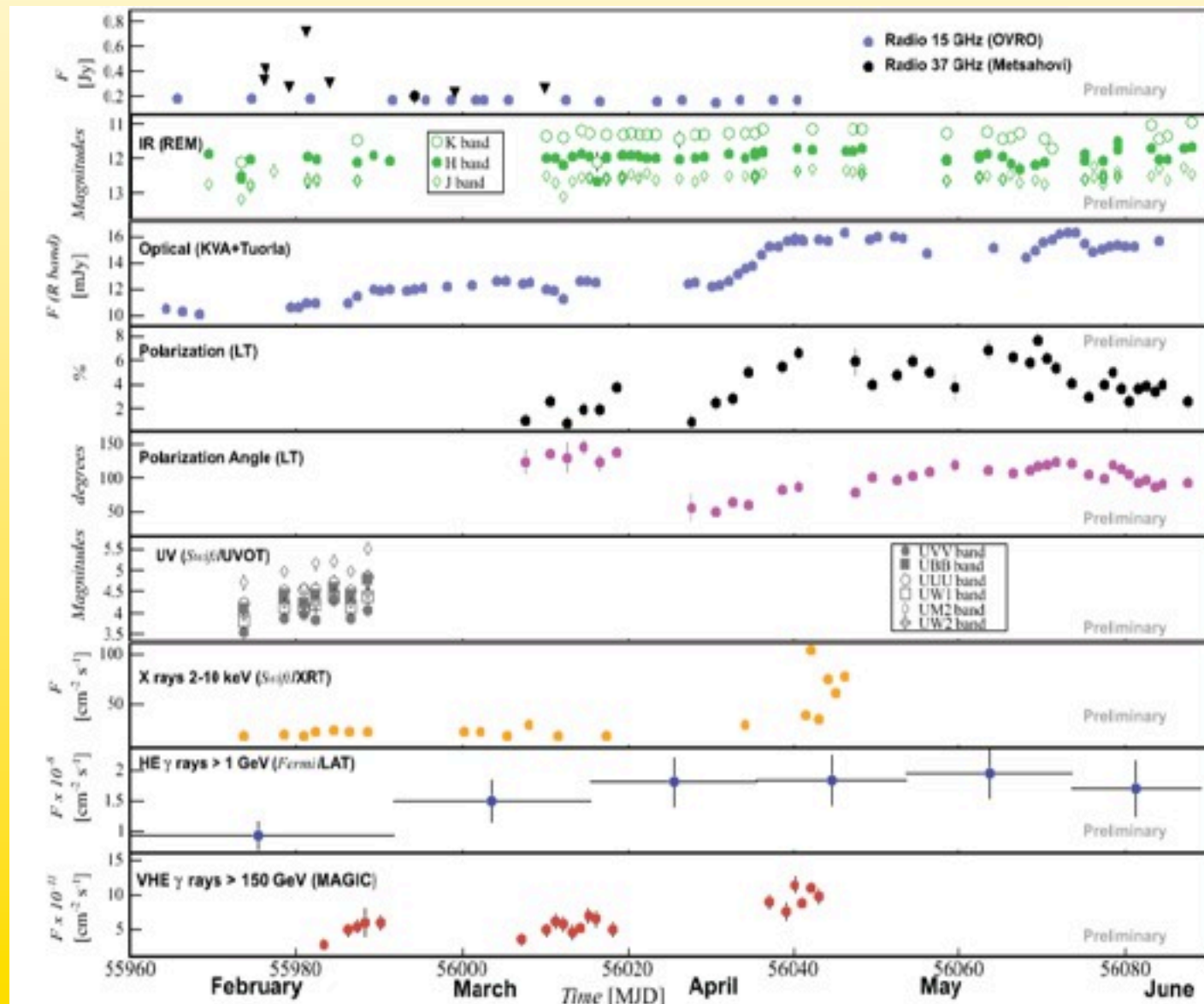
Flare of PG 1553+113

Poster by J. Becerra-Gonzalez et al.

- BL Lac object with unknown redshift. Using EBL to measure the distance: $z \sim 0.4$ (Prandini et al., 2011). This also agrees with Danforth et al. 2010
- Detected in VHE contemporaneously by HESS and MAGIC in 2005
- Since 2005 regularly monitored by MAGIC
- During the 2012 campaign (February - May) detected a strong flare reaching a Crab Nebula flux at 100 GeV for few days, i.e. factor 2-8 higher than before
- MWL picture complicated, analysis ongoing

year	Flux ($E > 150$ GeV) [$\text{cm}^{-2} \text{s}^{-1}$]
2007	$(1.40 \pm 0.38) \times 10^{-11}$ [2]
2008	$(3.70 \pm 0.47) \times 10^{-11}$ [2]
2009	$(1.63 \pm 0.45) \times 10^{-11}$ [2]
2012 (pre-flare)	$(5.03 \pm 0.25) \times 10^{-11}$
2012 (flare)	$(9.63 \pm 0.37) \times 10^{-11}$

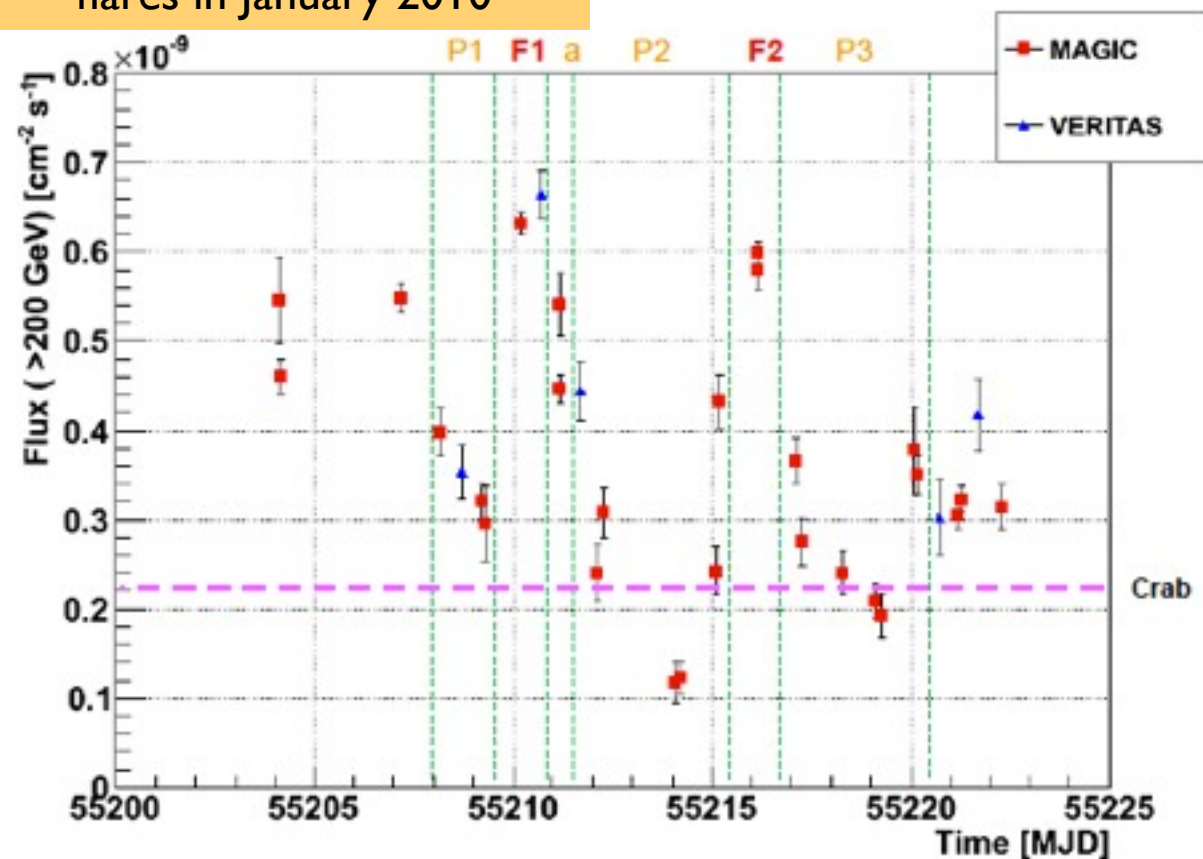
Preliminary



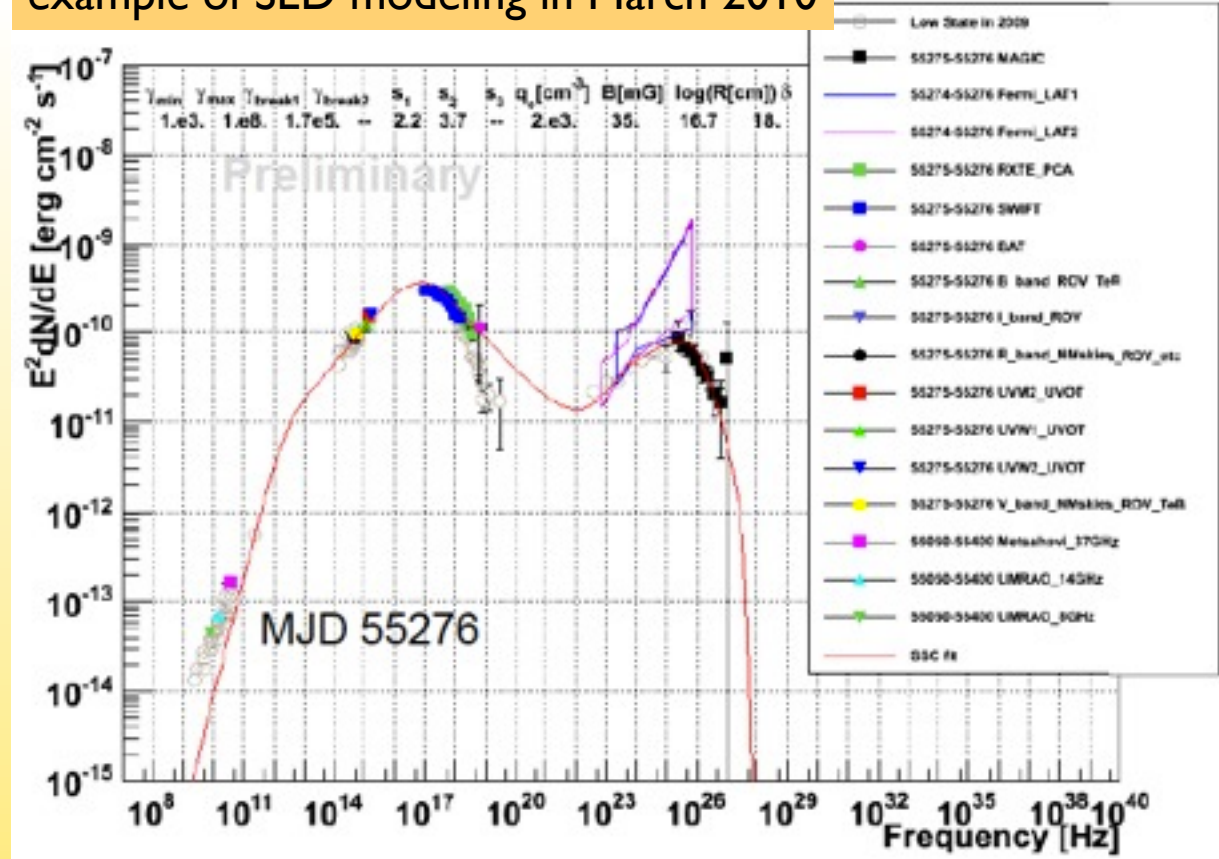
Markarian 421

Poster by S. Sun et al.

flares in January 2010



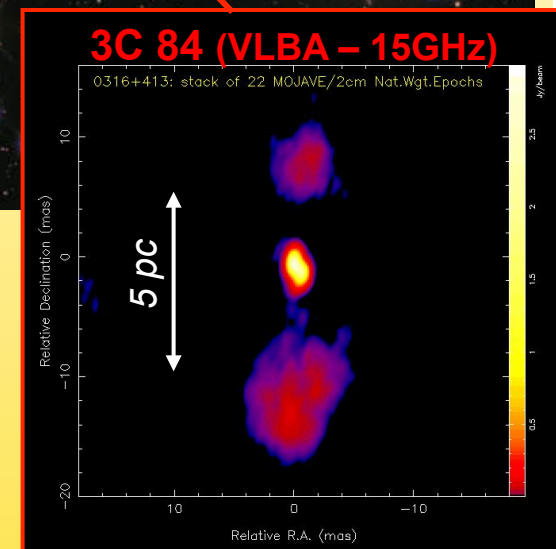
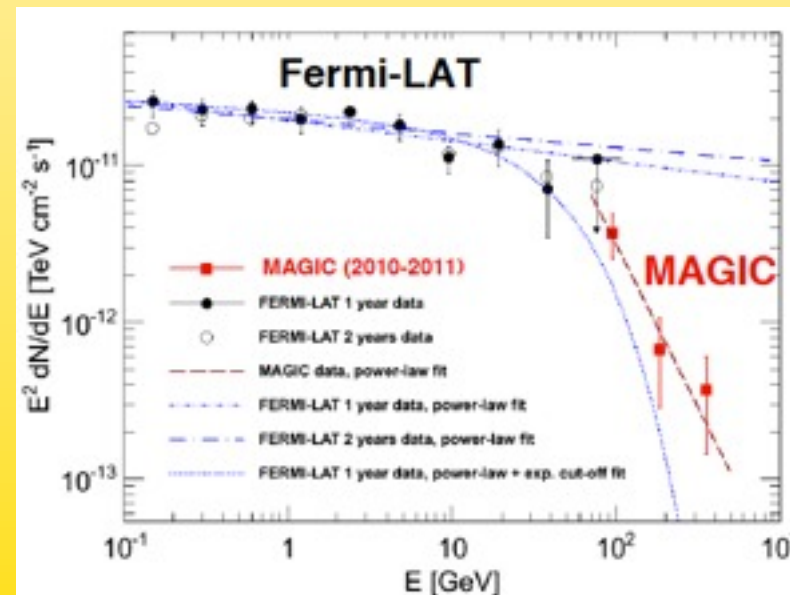
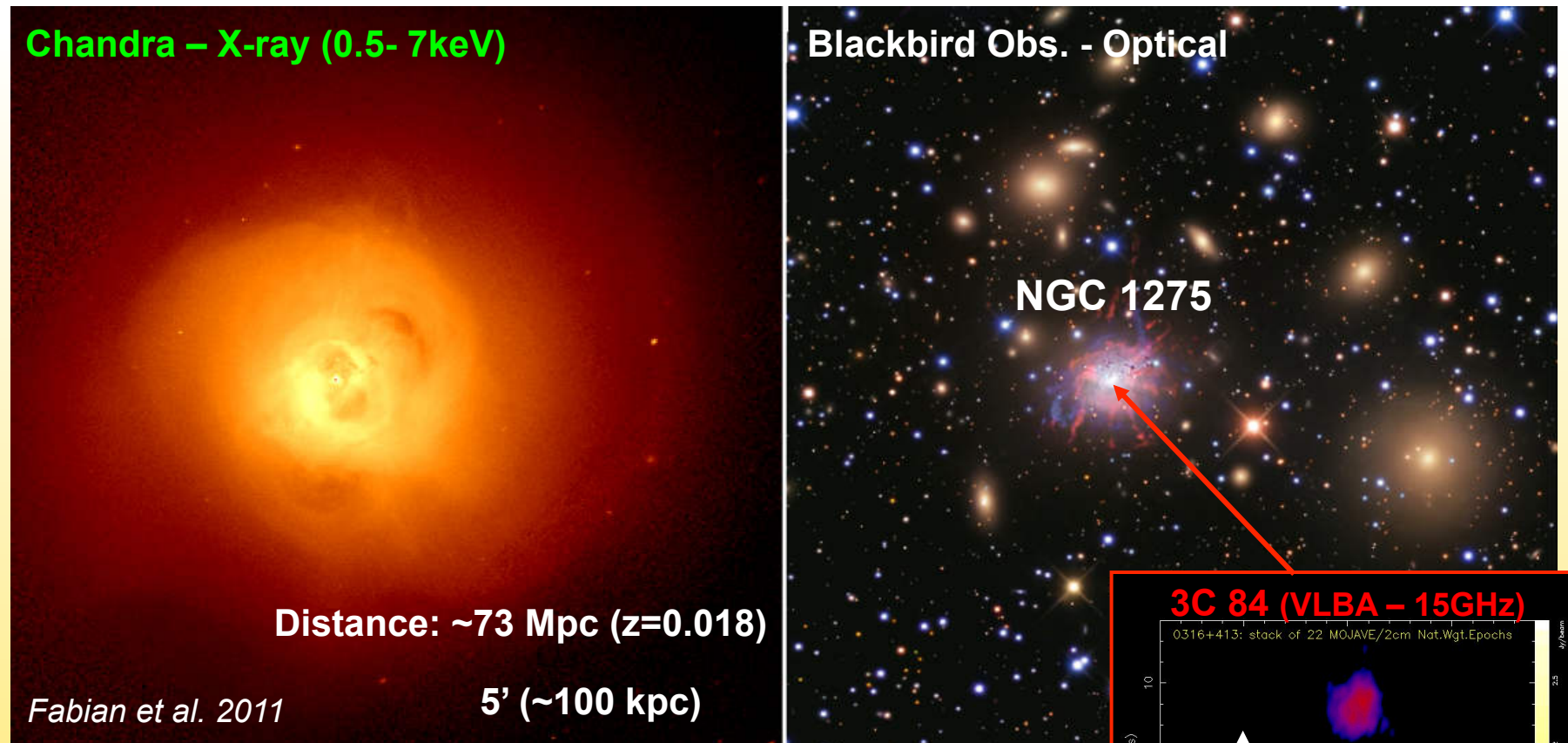
example of SED modeling in March 2010



- Part of the ongoing multi-year campaign (VLBA, Swift, RXTE, Fermi, MAGIC, VERITAS, F-GAMMA, GASP-WEBT, and other collaborations and instruments)
- Generally: wealth of data, unprecedented level of blazar SED modeling
- March 2010 data: precise SED fitting on daily basis!
- January 2010 flares can be explained by changes in electron number density
- March 2010 flares can be explained by changes in the high end of electron spectrum

Perseus cluster: NGC 1275

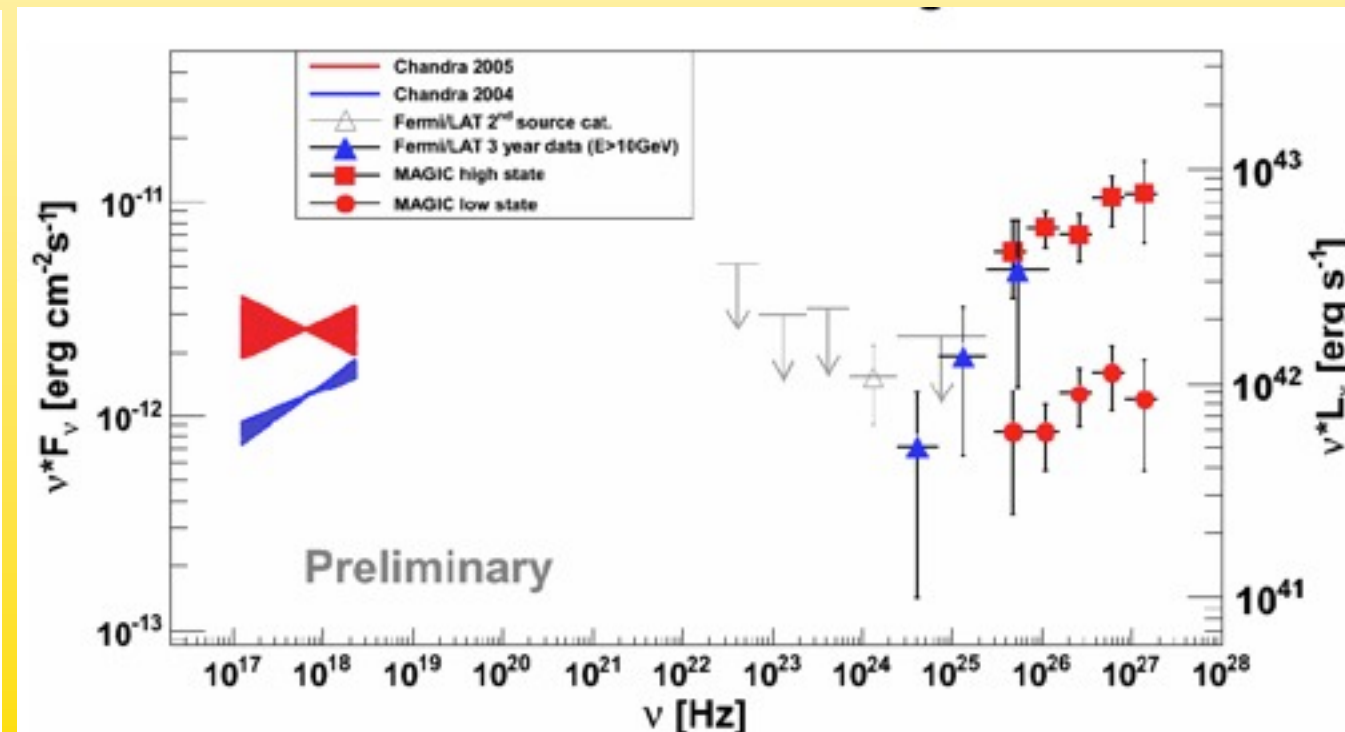
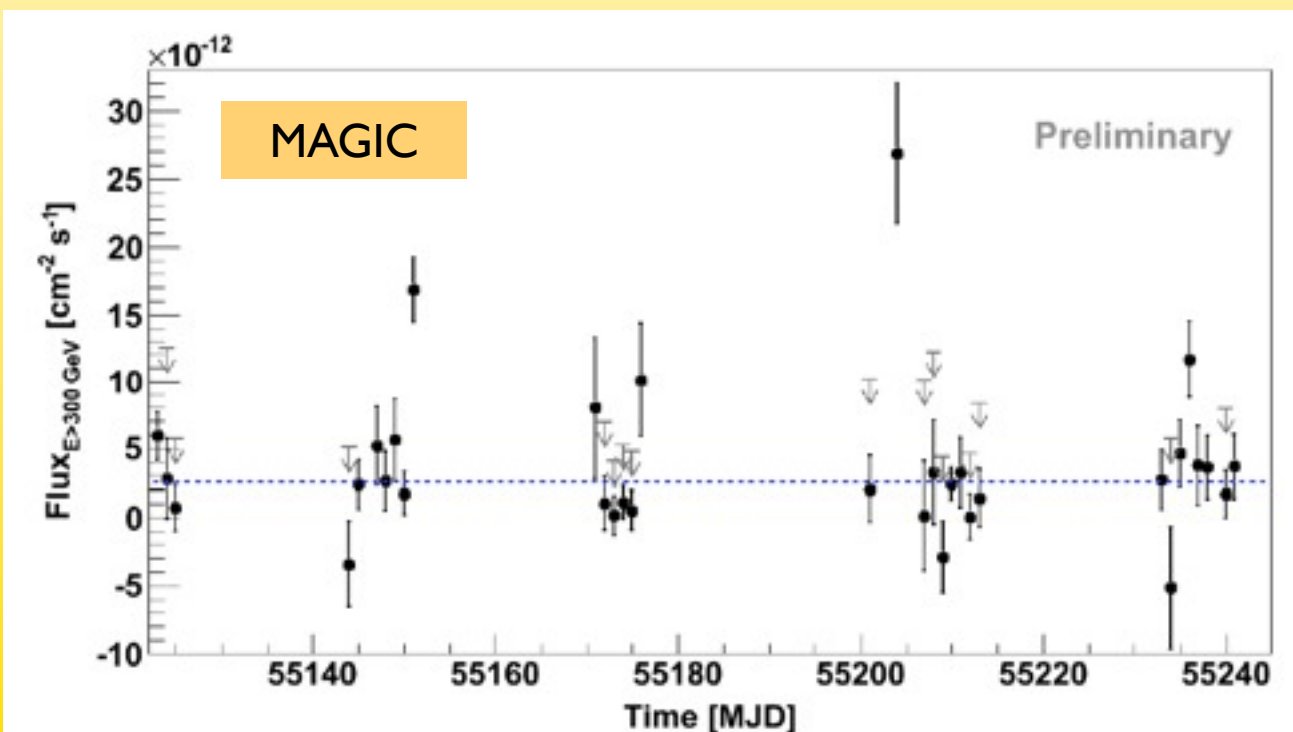
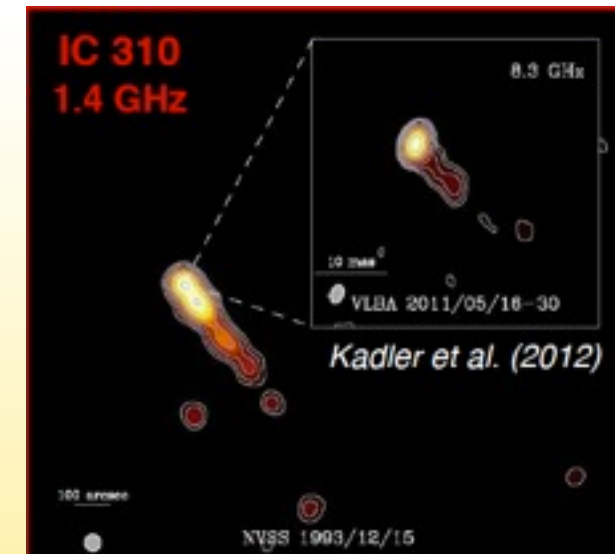
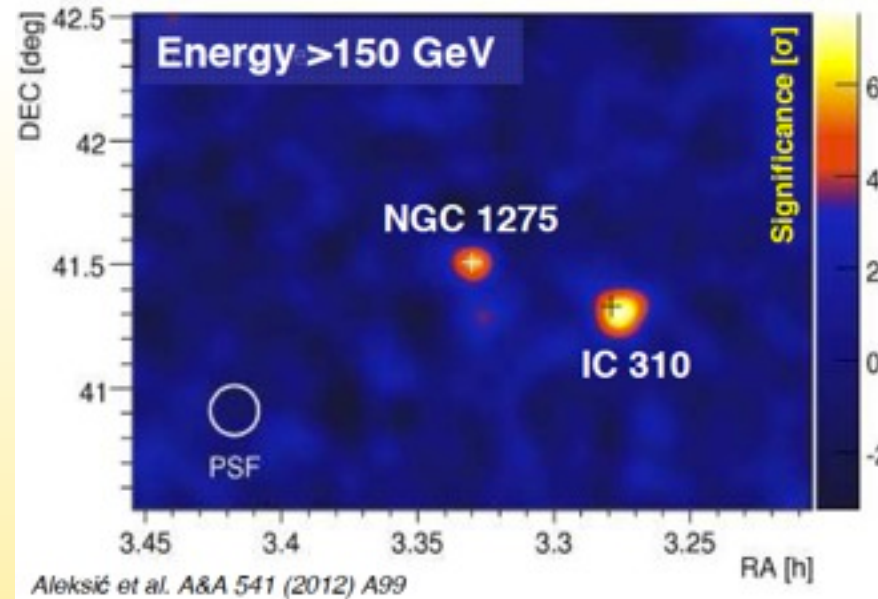
- Perseus is the brightest cluster of galaxies in X-rays
- NGC1275 is the dominant central galaxy of Perseus
- Expect CR-ISM interactions and consequent Gamma-rays
- NGC 1275 discovered by MAGIC in VHE in 2010-2011 campaign (46h of good data) $\Gamma=4.1\pm0.7$
- Highlight at Gamma2012:
 - re-analysis of previous data in 2009-2010 season (39h) leads to a significant signal
 - spectrum and light curve with MAGIC



see talk by P. Colin, Wednesday 15:23

Perseus cluster: IC 310

- IC 310 originally classified "head-tail" but no bending in the Jet
- Blazar-like radio morphology of inner jet
- Day scale variability established in MAGIC data, supports blazar-like properties
- VHE spectrum very hard: $\Gamma = 1.8 \pm 0.1$



see talk by P. Colin, Wednesday 15:23

see poster by D. Eisenacher et al.

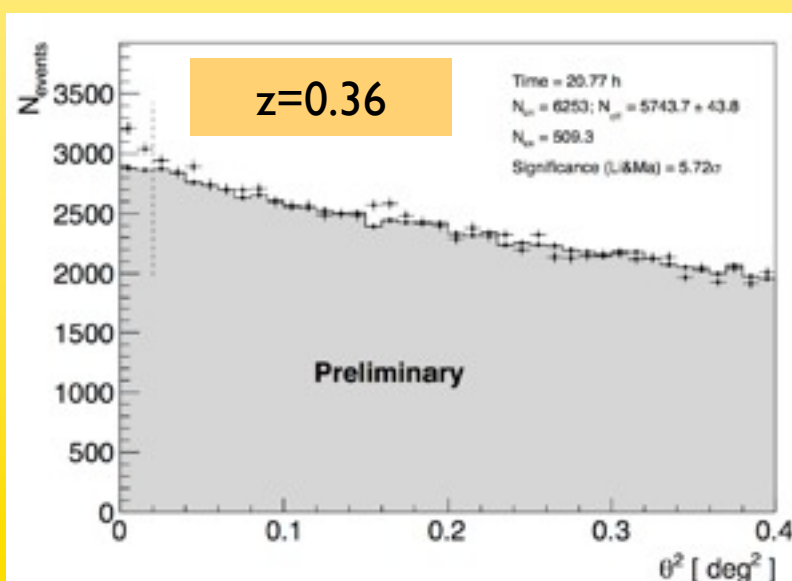
FSRQs

Poster by G. de Caneva et al.

only 3 FSRQ among more than 50 extragal. sources!

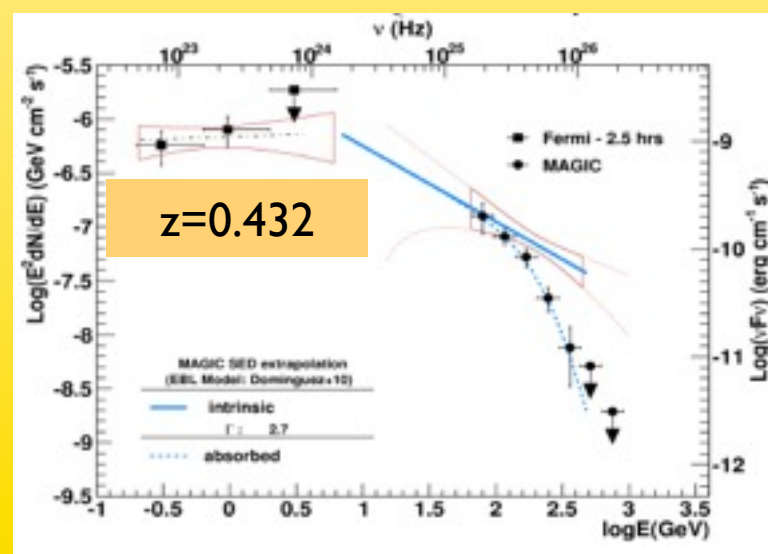
PKS 1510-089

- Discovered in VHE by HESS in 2009 after a strong outburst
- MAGIC data Feb-Apr 2012 triggered by Fermi-LAT
- Good data 21h
- 5.7σ , ATel #3975
- MWL campaign, interpretation ongoing



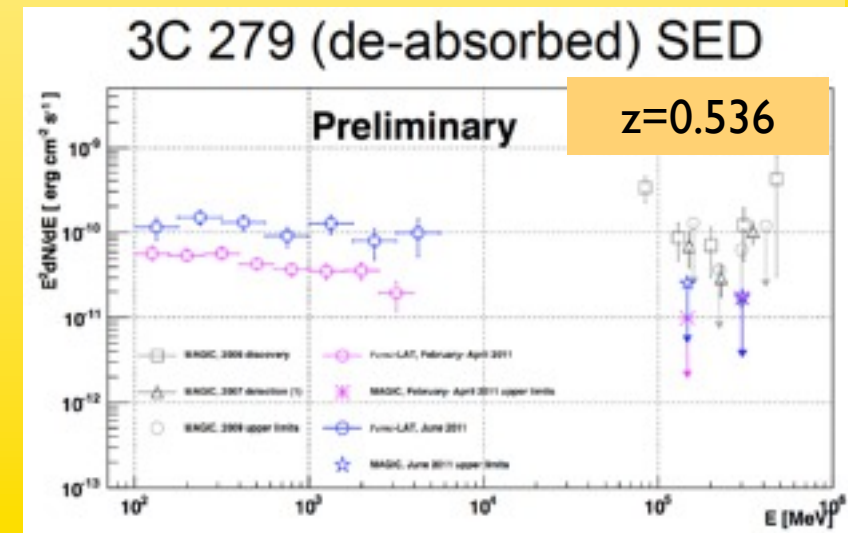
PKS 1222+216

- Discovered in VHE by MAGIC in 2010 triggered by Fermi-LAT
- coincidence with brightest flare seen by Fermi-LAT
- 30min observation, clear variability on 10min scale
- Details in Aleksić et al., ApJ 730 (2011) L8



3C 279

- Discovered in VHE by MAGIC in 2006
- Seen again on 5σ level in 2007
- Monitoring in 2011: 20h, no signal
- ToO in June 2011: 10h, no signal



MAGIC upgrade

Goals of the upgrade:

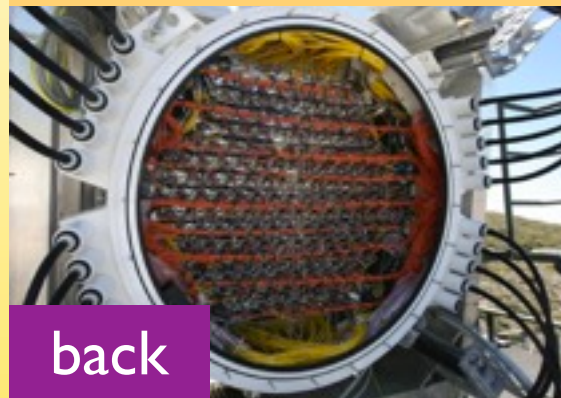
- stability of operation for the next 5-10 years (increase duty cycle)
- unification of the subsystems (easy maintenance)
- increase sensitivity to extended sources (due to larger trigger area of M-I, now equal to the one of M-II)
- Decrease readout dead-time from 10% to $<1\%$ at stereo rate 300 Hz
- and possibly lower the energy threshold (due to analog sum trigger)

Items of the upgrade:

- New M-I camera to be identical to the M-2 camera (576 \rightarrow 1039 pixels)
- New receiver boards
- New readout system based on DRS4
- New M-I trigger
- New sum trigger



new M-I camera identical to the M-II camera



back



front

installation of the new M-I camera



MPI team after installing the new camera (July 2012)

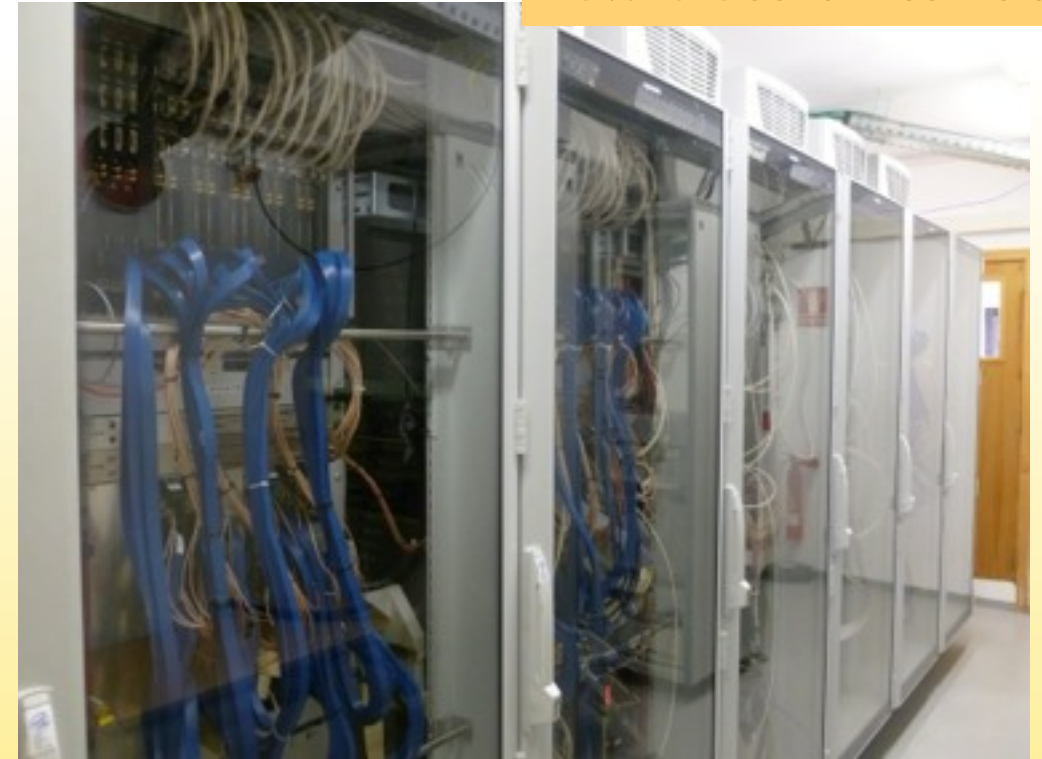


MAGIC upgrade

Status:

- readout upgraded in MAGIC-I (from MUX-FADC) and MAGIC-II (from DRS2) to DRS4 in 2011 ✓✓✓
- Improved electronics room in 2011
- Improved computing (separate room) in 2011
- Camera and trigger of MAGIC-I exchanged June-July 2012
- Commissioning until October 2012
- Installation of new sum-trigger in Winter 2012-13 (does not interfere with data taking)

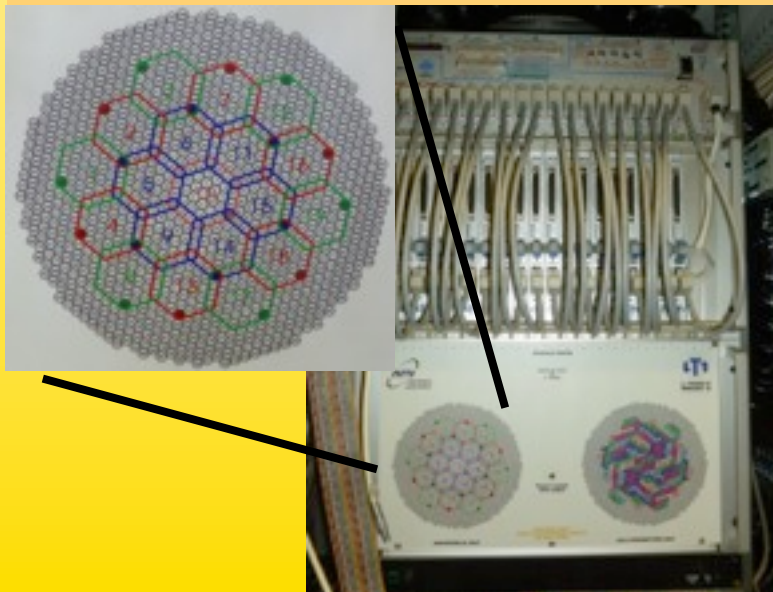
new electronics room



new computer room



LI in MI trigger has double the area of the old trigger



readout based on DRS4 chip has $<30 \mu\text{s}$ dead-time



Summary

- Improving imaging capabilities for extended sources: Study of CR origin and acceleration in W51 is an excellent example
- Thanks to low energy threshold the best pulsar detector at energies above 25 GeV
- MAGIC is superb instrument to discover and study distant and close-by AGNs at VHE gamma-rays
- Fundamental physics through deep Perseus cluster observations, dark matter search, Lorentz Invariance and EBL studies of blazars
- Ongoing upgrade is aimed to provide stable operation and improved performance for the next 5-10 years to bridge to CTA

MAGIC discovery of the BL Lac 1ES 1727+502: multiwavelength observations, spectral behavior and variability.

G. De Caneva¹, K. Berger^{2,3}, E. Lindfors⁴, S. Lombardi⁵, N. Mankuzhiyil⁶, D. Paneque⁷, A. Stamerra⁸, F. Tavecchio⁹ for the MAGIC Collaboration



Short term and multi-band variability of the active nucleus of IC310

Dorit Eisenacher⁽¹⁾, Pierre Colin⁽²⁾, Saverio Lombardi⁽³⁾, Julian Sitarek⁽⁴⁾, Fabio Zandanel⁽⁵⁾ on behalf of the MAGIC Collaboration, David Paneque⁽⁶⁾ for Fermi-LAT Collaboration, Thomas Dauter⁽⁷⁾, Felicia Krauß⁽⁸⁾, Sven Wilbert⁽⁹⁾, Matthias Kadler⁽¹⁰⁾, Joern Wilms⁽¹¹⁾, Uwe Bach⁽¹²⁾, Eduardo Ros⁽¹³⁾

(1) Universität Würzburg, D-97074, Würzburg, Germany; (2) Max-Planck-Institut für Physik, D-80805, München, Germany; (3) Università di Padova and INFN, I-35131 Padova, Italy; (4) IFAE, Edifici C4, Campus UAB, E-08193 Bellaterra, Spain; (5) Inst. de Astrofísica de Andalucía (CSIC), E-18000 Granada, Spain; (6) Dr. Remeis-Sternwarte Bamberg, Astronomisches Institut der Universität Erlangen-Nürnberg, ECAP, Germany; (7) Max-Planck-Institut für Radioastronomie, D-53121, Bonn, Germany; (8) Departament d'Astronomia i Astrofísica, Universitat de València, E-46100, Valencia, Spain
E-mail: deisenacher@mpa-wuerzburg.de

MAGIC telescopes: Discovery of VHE gamma-ray emission from the long hunted blazar 1ES 0033+595

Malwina Uellenbeck¹, Michele Palatiello², Saverio Lombardi³, Nijl Mankuzhiyil⁴,

Massimo Persic⁵ (on behalf of the MAGIC collaboration) and Valentina Tronconi⁶, Sara Buson⁷ (on behalf of the Fermi-LAT collaboration)
¹ Technische Universität Dortmund, D-44221 Dortmund, Germany; ² Università di Udine, and INFN Trieste, I-33100 Udine, Italy; ³ Università di Padova and INFN, I-35131 Padova, Italy

Follow-up observations of the Crab Pulsar with MAGIC and re-analysis of archival data

F. Dazzi¹, G. Giavitto², K. Hirotani³, S. Klepser⁴, M. Lopez⁵, D. Nakajima⁶, T. Y. Saito⁷, T. Schweizer⁸, R. Zanini⁹
On behalf of the MAGIC collaboration

Mapping the TeV PWN candidate source HESS J1857+026 down to Fermi-LAT energies with the MAGIC telescopes

V. Stamatescu¹, J. Krause², S. Klepser^{1,3}, R. Gozzini³ and D. Paneque², for the MAGIC collaboration

Spectral variability and multiwavelength studies of the high-frequency-peaked BL Lacertae object 1ES 0806+524 with the MAGIC telescopes

C. Schultz⁽¹⁾, K. Berger⁽²⁾, E. Lindfors⁽³⁾, R. Rheinta⁽⁴⁾, A. Stamerra⁽⁵⁾ and S. Buson⁽⁶⁾ and T. Hovatta⁽⁷⁾ on behalf of the MAGIC, Fermi and OVRO collaborations

Ongoing cosmic ray acceleration in the supernova remnant W51C revealed with the MAGIC Telescopes

J. Krause¹, I. Reichardt², E. Carmona^{1,3}, S. R. Gozzini⁴, F. Jankowski⁴ on behalf of



¹ Max Planck Institute for physics (Munich); ² IFAE, Bellaterra, Spain; ³ CIEMAT, Spain; ⁴ Deutsches Elektron-Synchrotron (DESY)

GAMMA 2012, July 9 – 13, 2012

Gamma-ray emission from the Perseus cluster of galaxy observed with MAGIC

P. Collin¹, D. Eisenacher, D. Hildebrand, S. Lombardi, E. Lindorfs, D. Paneque, S. Partini, F. Prada, J. Sitarek, F. Zandanel for the MAGIC collaboration, and T. Dauter, M. Kadler, F. Krauss, J. Kataoka, C. Pfrommer, A. Pinzke, Y. Takahashi, S. Wilbert, J. Wilms
¹Max-Planck-Institut für Physik

VHE measurements of the Crab Nebula and Pulsar by the MAGIC Telescopes

Gianluca Giavitto on behalf the MAGIC Collaboration and K. Hirotani, D. Horns, M. Meyer



Challenging the one zone SSC model in VHE gamma ray emitting BL Lacs: the interesting case of PKS 1424+240

Elisa Prandini⁽¹⁾, Josefa Becerra-Gonzalez^(2,3), Elina Lindfors⁽⁴⁾, Nijl Mankuzhiyil⁽⁵⁾, Antonio Stamerra⁽⁶⁾, Fabrizio Tavecchio⁽⁷⁾ for the MAGIC Collaboration; Sara Cutini⁽⁸⁾, Dario Gasparri⁽⁹⁾ for the Fermi/LAT Collaboration; and Talvikki Hovatta⁽¹⁰⁾, Anne Lähteenmäki⁽¹¹⁾, Matt Lister⁽¹²⁾

Flat Spectrum Radio Quasars: MAGIC latest results and unexpected features.

G. De Caneva¹, U. Barres de Almeida², J. Becerra Gonzalez^{3,4}, K. Berger^{5,6}, E. Lindfors⁷, D. Maiti^{8,9}, D. Paneque¹⁰, K. Saito¹¹, C. Schultz¹², J. Sitarek^{13,14}, A. Stamerra¹⁵, F. Tavecchio¹⁶ for the MAGIC Collaboration and Massimo Hayashida¹⁷ for the Fermi-LAT Collaboration



UNPRECEDENTED GAMMA-RAY FLARE FROM PG 1553+113 IN SPRING 2012

J. Becerra-González^(1,2), P. De Yebra^(3,4), E. Prandini^(5,6), E. Lindfors^(7,8), A. Stamerra^(9,10), S. Cutini⁽¹¹⁾, U. Barres⁽¹²⁾, K. Nilsson⁽¹³⁾ on behalf of the MAGIC Collaboration⁽¹⁴⁾ and A. Lähteenmäki⁽¹⁵⁾, T. Hovatta⁽¹⁶⁾, G. Mundak⁽¹⁷⁾, I. Steele⁽¹⁸⁾, A. Norum⁽¹⁹⁾

MAGIC telescopes: Discovery of VHE gamma-ray emission from the long hunted blazar 1ES 0033+595

Malwina Uellenbeck¹, Michele Palatiello², Saverio Lombardi³, Nijl Mankuzhiyil⁴,

Massimo Persic⁵ (on behalf of the MAGIC collaboration) and Valentina Tronconi⁶, Sara Buson⁷ (on behalf of the Fermi-LAT collaboration)
¹ Technische Universität Dortmund, D-44221 Dortmund, Germany; ² Università di Udine, and INFN Trieste, I-33100 Udine, Italy; ³ Università di Padova and INFN, I-35131 Padova, Italy

Recent results from MAGIC observations of the binary systems LS I+61 303 and HESS J0632+057

T. Jørgen, O. Blanch, A. López-Oramas, P. Munar-Adrover, M. Ribó and J. M. Paredes for the MAGIC Collaboration and V. Bosch-Ramon



Very high energy observation of the peculiar transient event Swift J1644+57 with the MAGIC telescopes

Saverio Lombardi⁽¹⁾, Alessandro Carosi^(1,2), Lucio Angelo Antonelli^(1,2), Ulisses Barres de Almeida⁽³⁾, Stefano Covino⁽¹⁾, Massimo Persic⁽⁴⁾, Fabrizio Tavecchio⁽⁵⁾ on behalf of the MAGIC Collaboration

Multi-instrument variability study of the classical TeV objects Mrk 421 and Mrk 501

N. Notwak¹, M. Doerfl², D. Paneque³, U. Barres de Almeida⁴, A. C. Pichel⁵, D. Tesaro⁶, W. Benbow⁷ on behalf of the MAGIC, VERITAS, Whipple, Fermi-LAT and other collaborations and groups involved in the multi-wavelength campaigns

Detailed Characterization and Scientific Interpretation of the Broadband Emission of Mrk 421 during Flaring Activity in 2010

Shangyu Sun¹, A. Boller², L. Farioli³, N. Galante⁴, D. Paneque⁵ and B. Stenke⁶ On behalf of the Fermi, MAGIC, VERITAS collaborations and the participating groups of the MW campaign in MAGIC in 2010, which include GASP-WEST, F-GAMMA and many others



Abstract

Long-term spectral and temporal behavior of the high-frequency peaked BL Lac object 1ES1959+650

M. Backes¹, M. Uellenbeck², M. Hayashida³, K. Sitarek⁴, D. Tesaro⁵, and T. Terzić⁶ for the MAGIC Collaboration
L. Farioli⁷ and I. Nesterov⁸ for the F-GAMMA project
A. Lähteenmäki⁹, M. Tornikoski¹⁰, and E. Nappola¹¹ for Mrk421
M. Westinger¹², M. Boettcher¹³

Application of a generalized likelihood ratio test statistic to MAGIC data.

Stefan Klepser^{1,2}, Julian Krause³ and Julian Sitarek⁴ for the MAGIC collaboration
¹Technische Universität Dortmund (TU Dortmund), Dortmund, Germany
²IFAE, Edifici C4, Campus UAB, Bellaterra, Spain
³Max-Planck-Institut für Physik, München, Germany

