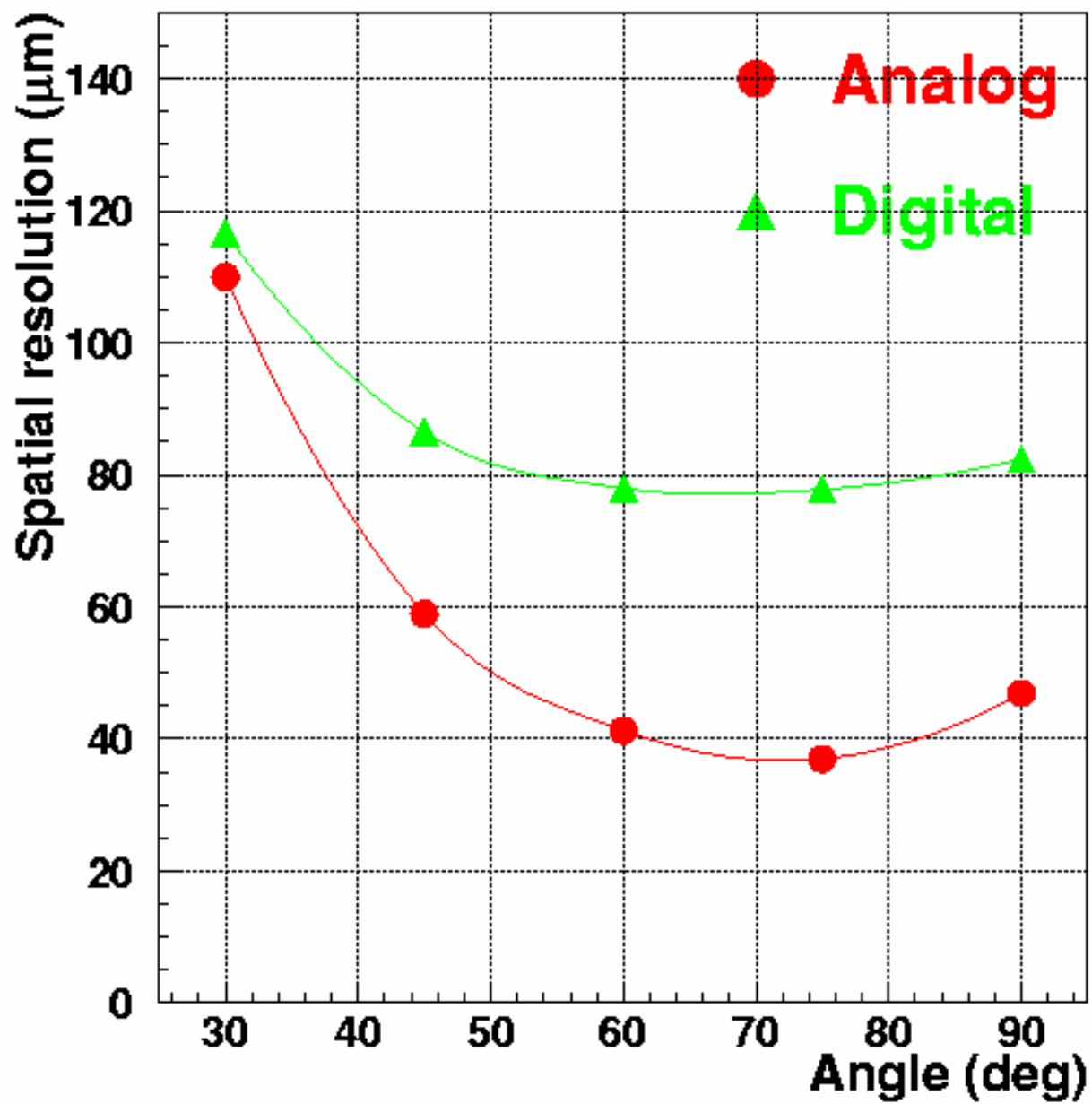
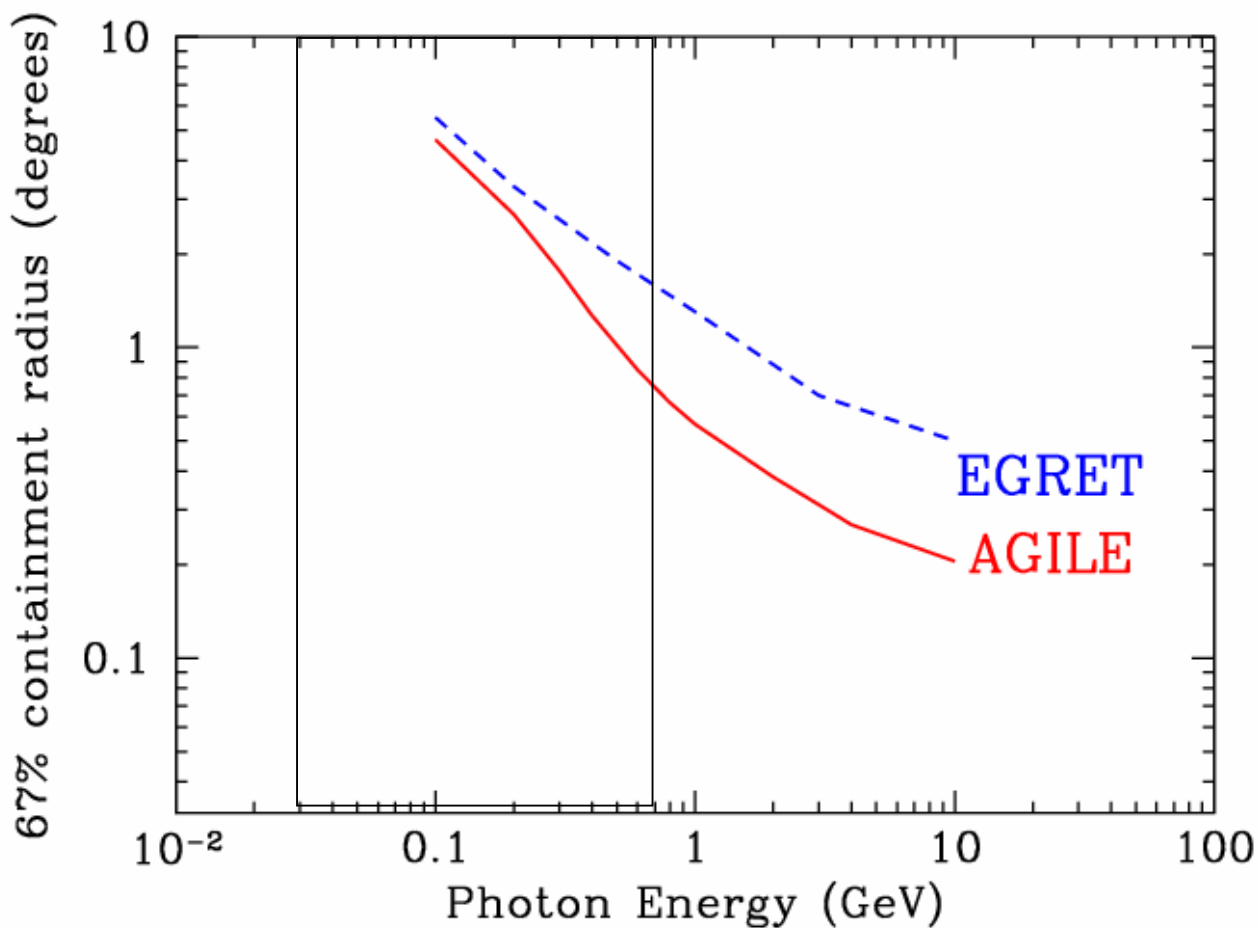


AGILE Gamma-Ray Calibration

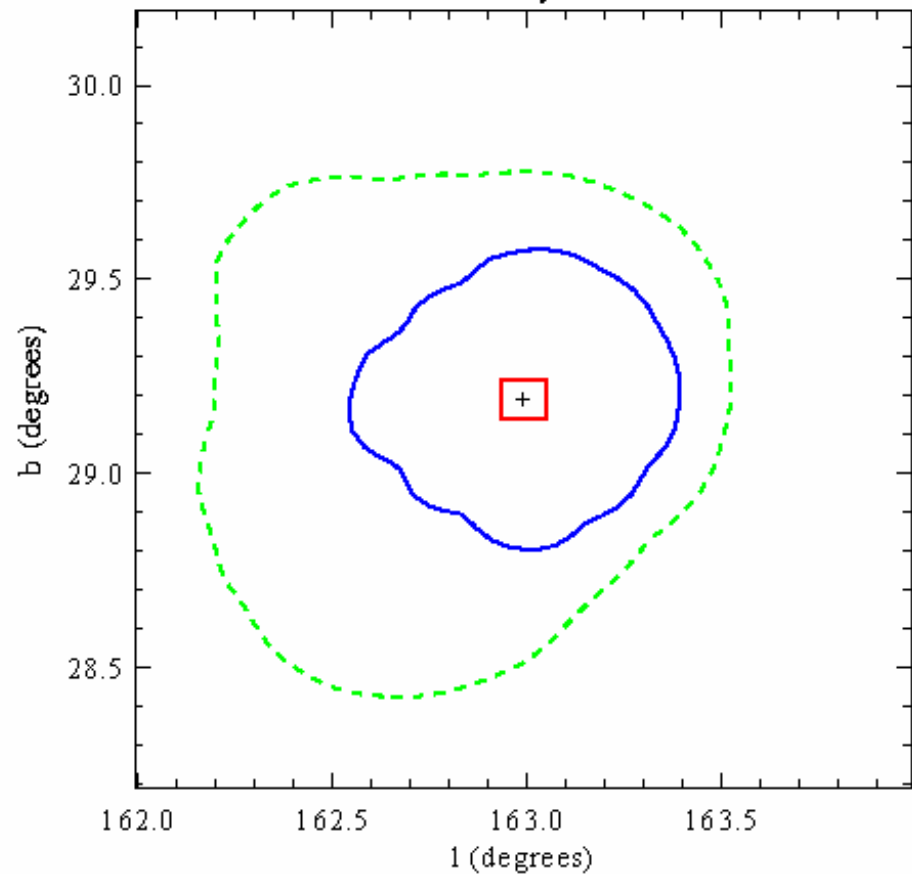
Gamma-Ray Imaging Detector (GRID) expected performance



AGILE-GRID angular resolution

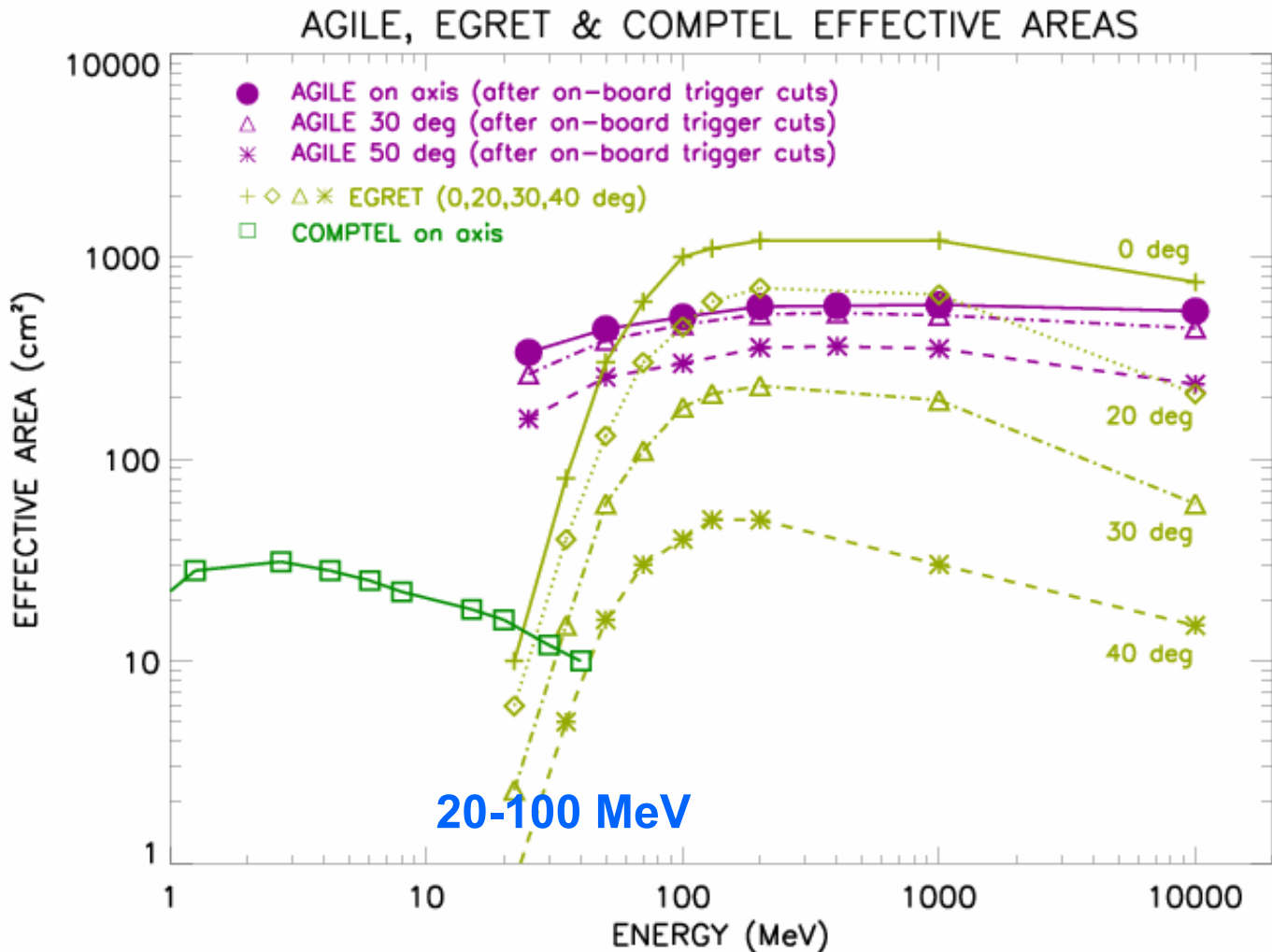


Source Location Accuracy - AGN 95% Contours

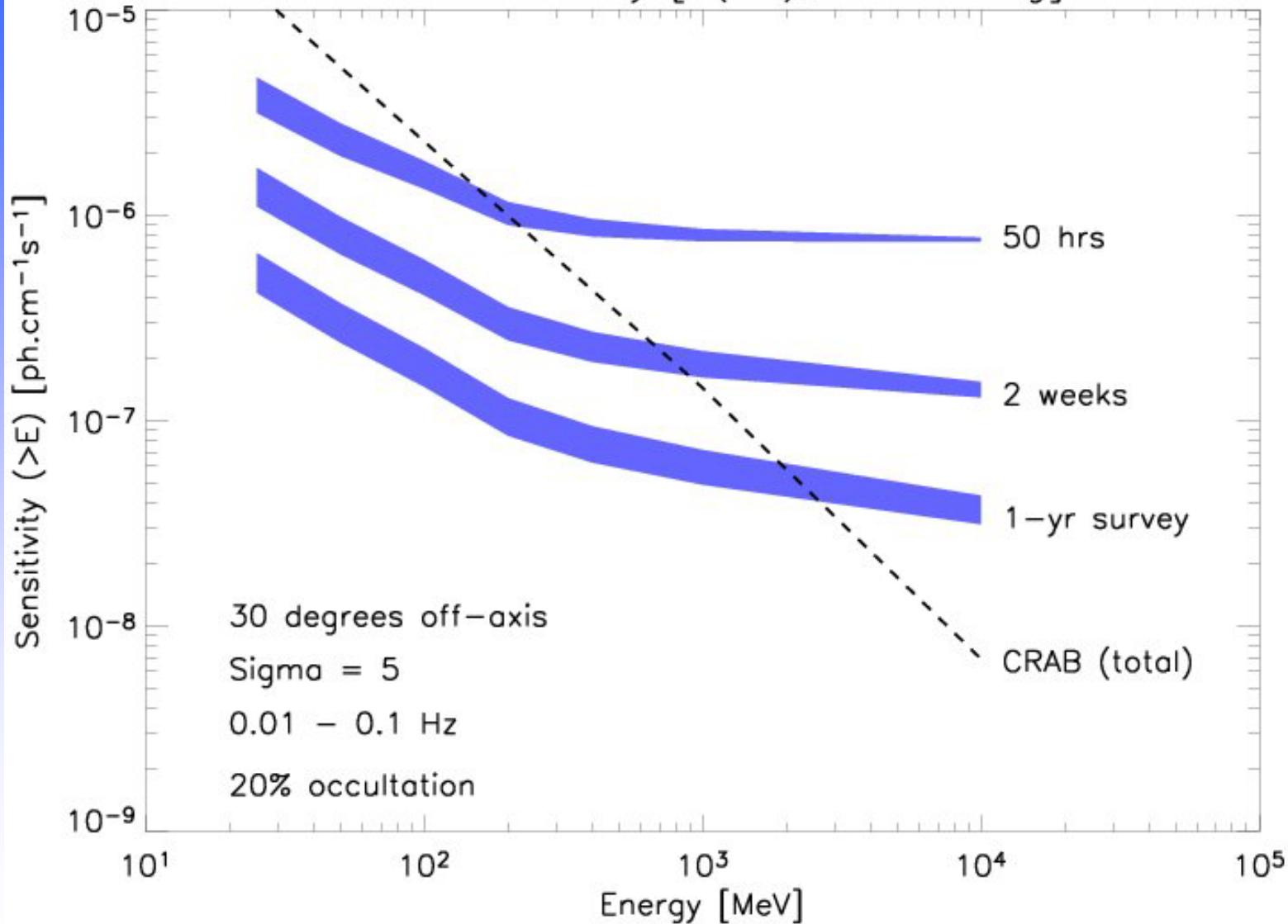


AGILE $a, b = 22.8, 20.9$ arcmin EGRET $a, b = 41.5, 36.4$ arcmin SuperAGILE $a = 6.0$ arcmin

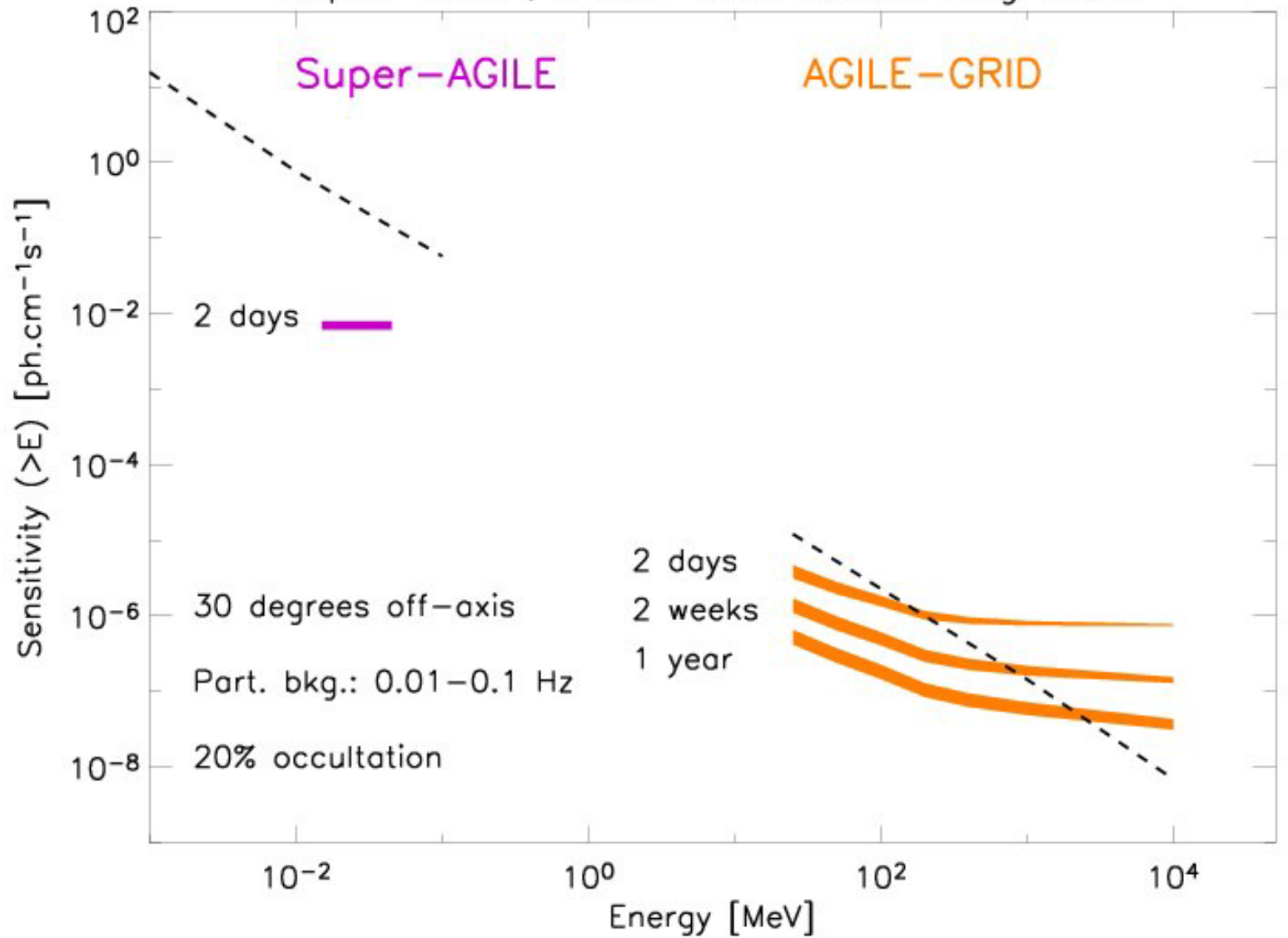
GRID Effective Area



AGILE Sensitivity [$S(>E)$, $|b| < 10$ deg]

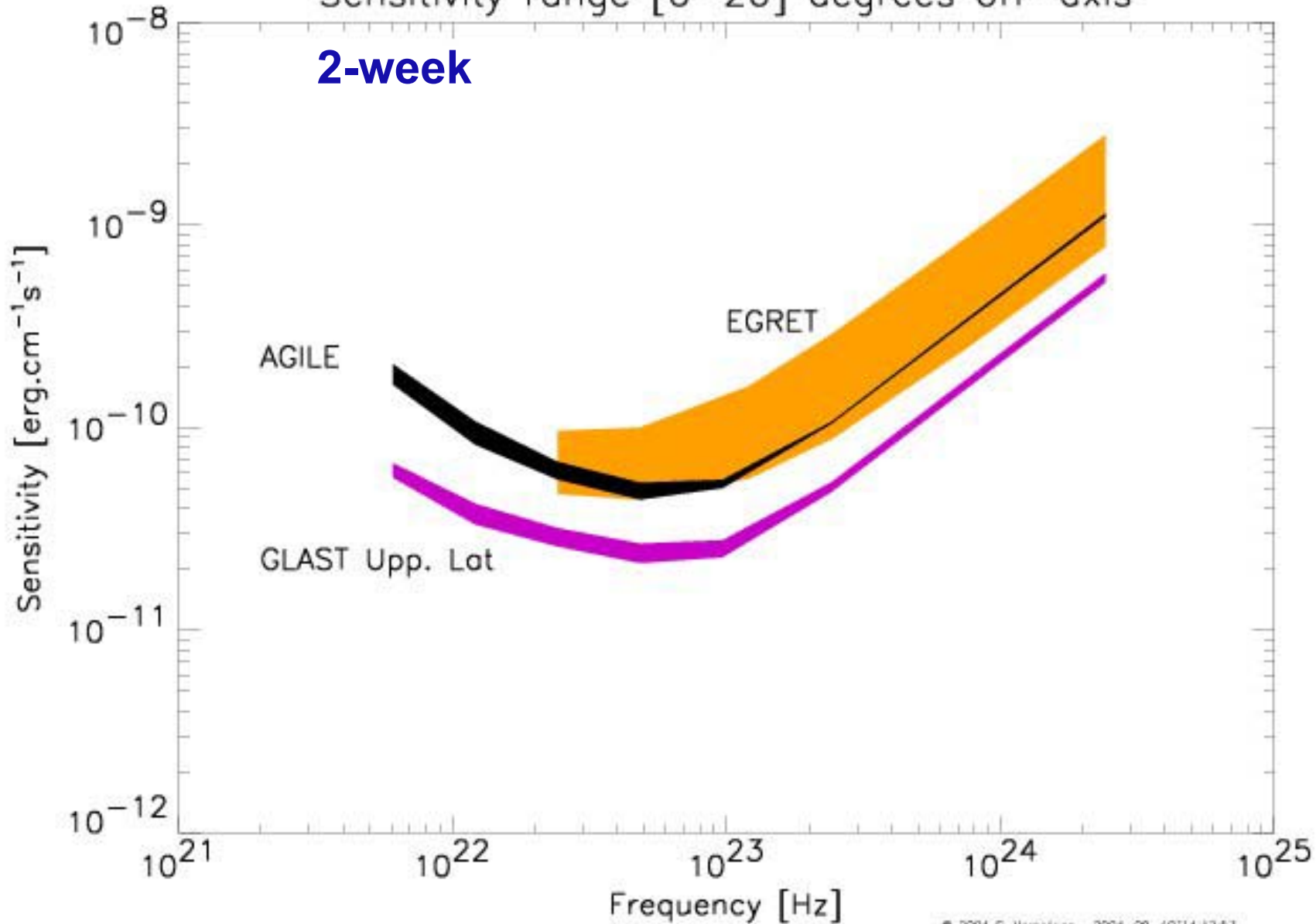


Super-AGILE, AGILE-GRID $|b| < 10$ deg Sens.



Sensitivity range [0–20] degrees off-axis

2-week



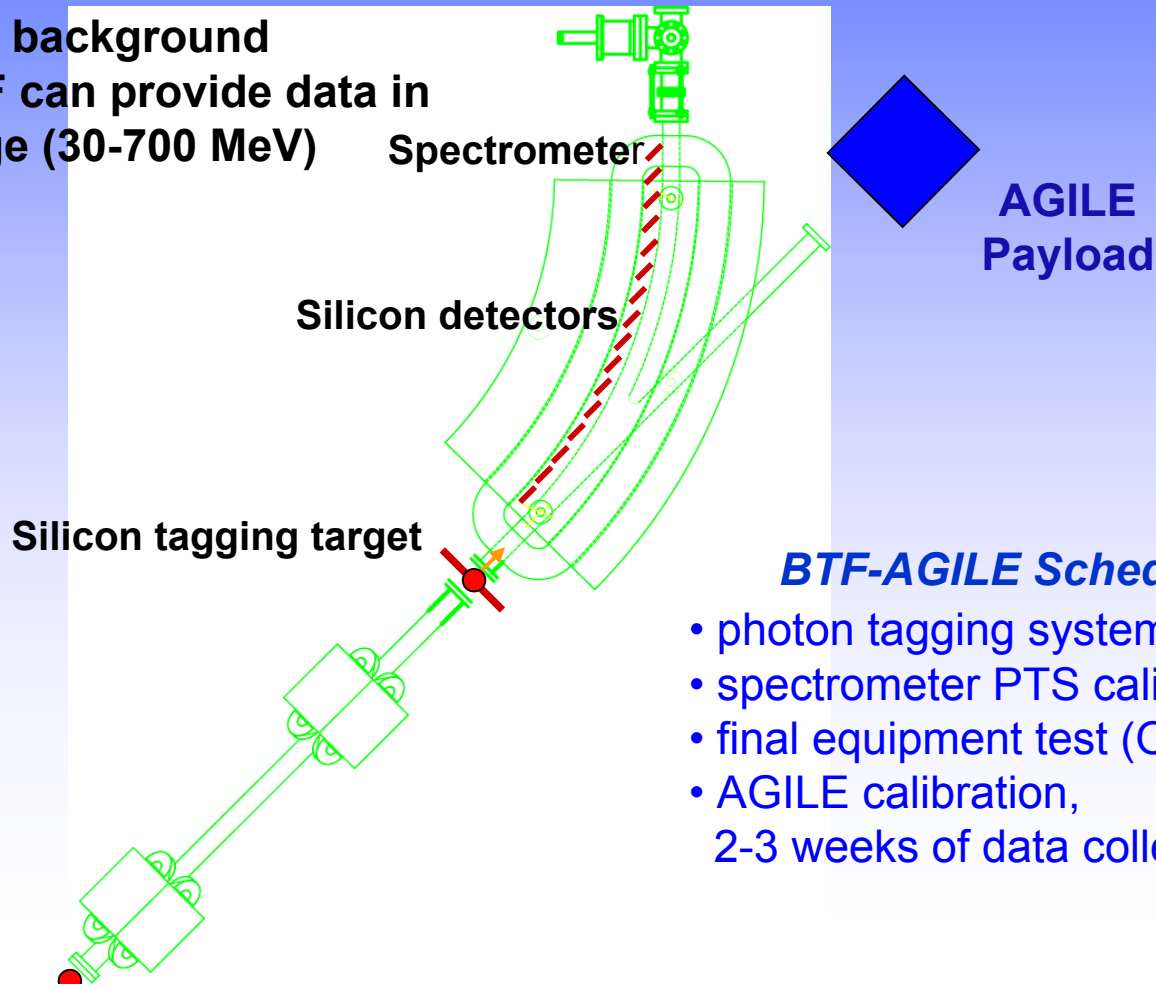
AGILE Scientific Calibration

- **AGILE gamma-ray calibration: Laboratori Nazionali Frascati, BTF, 2-20 November, 2005**
- **Super-AGILE and MCAL calibration, December 2005.**

INFN-LNF-BTF Photon-Tagged Source

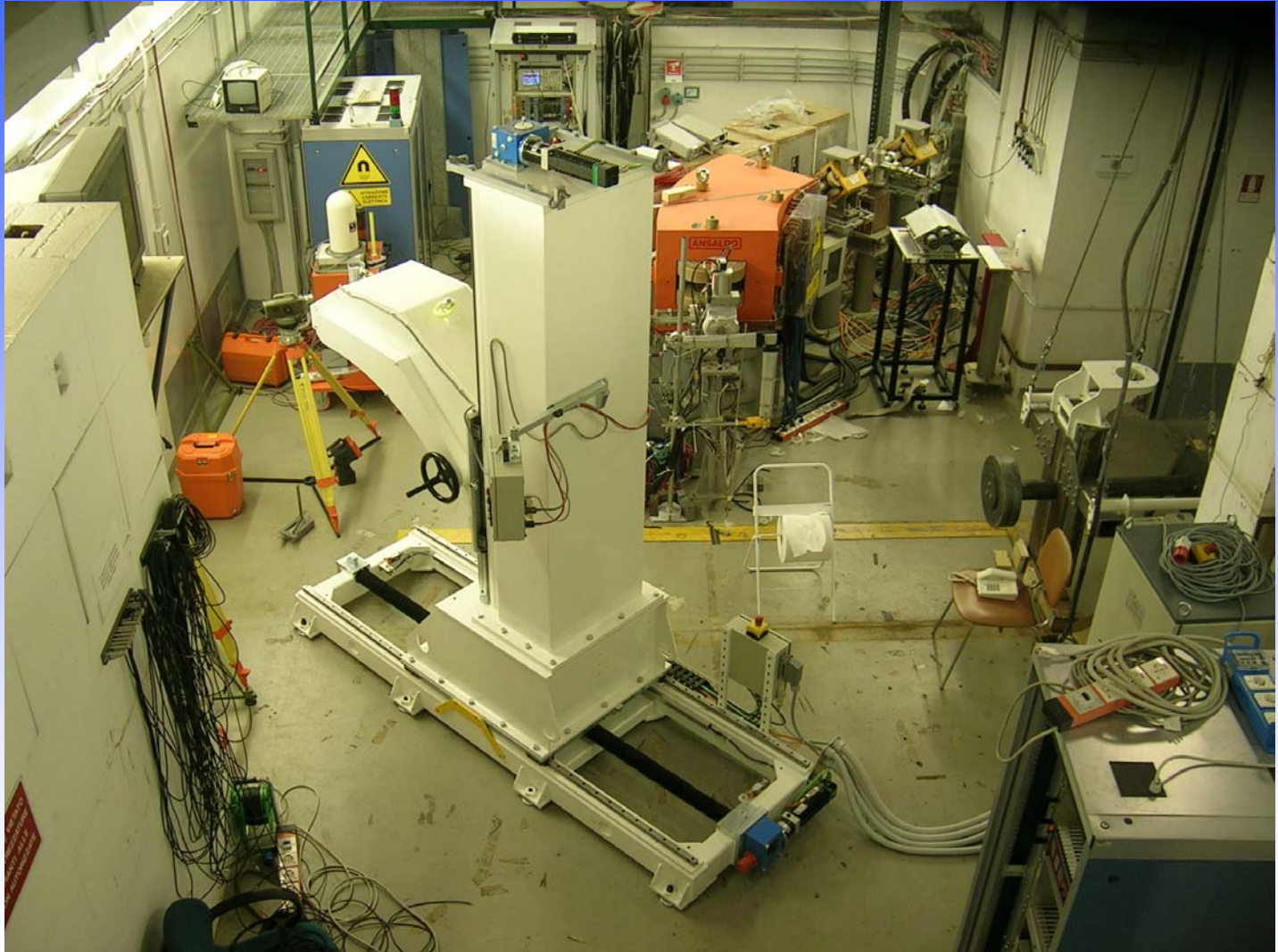
AGILE GRID Photon Calibration

The AGILE Gamma Ray Imaging Detector calibration at BTF is aimed at obtaining data for all relevant geometries and background conditions. BTF can provide data in the energy range (30-700 MeV)



BTF-AGILE Schedule

- photon tagging system (PTS)
- spectrometer PTS calibration
- final equipment test (Oct.)
- AGILE calibration,
2-3 weeks of data collection



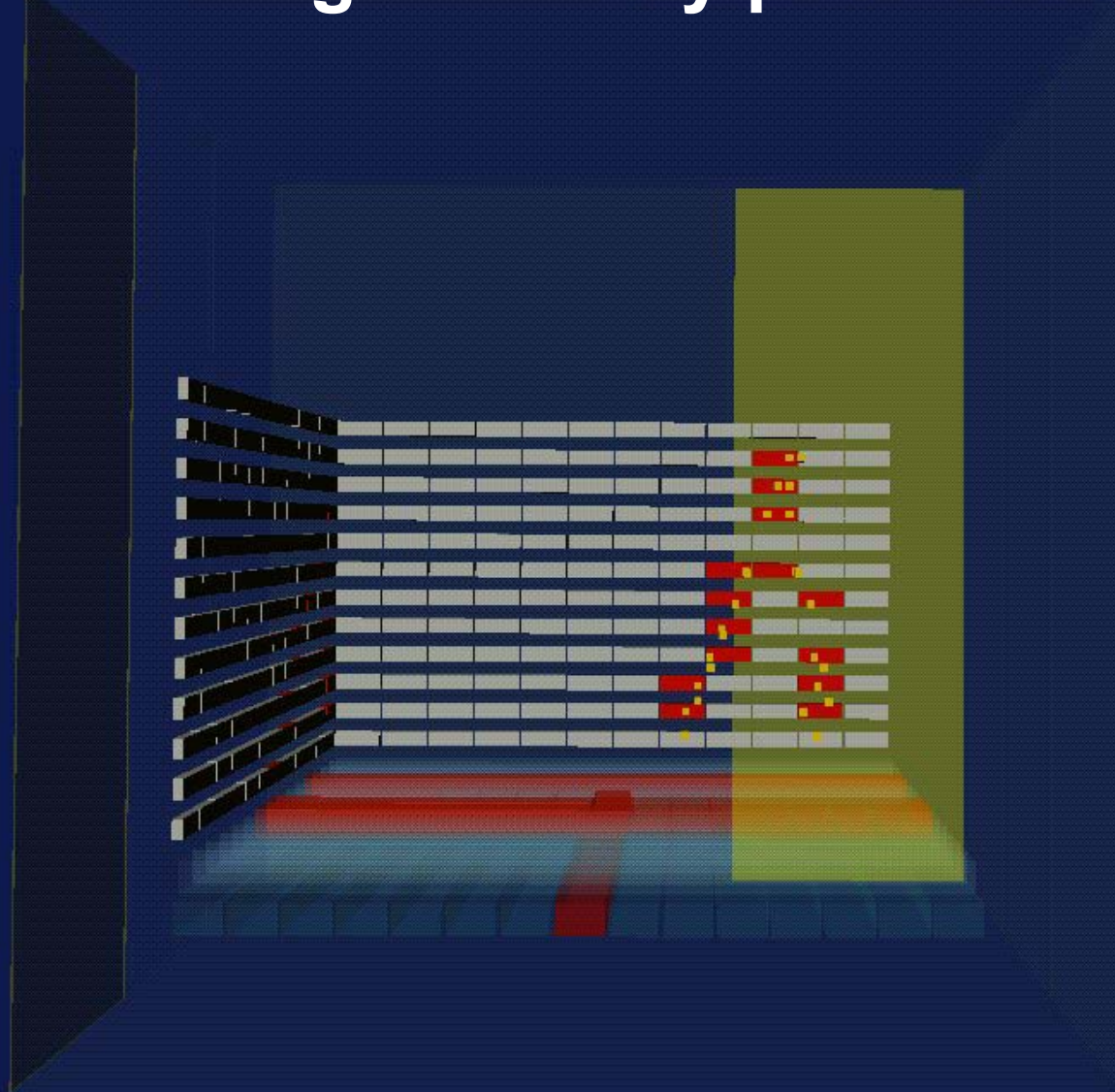




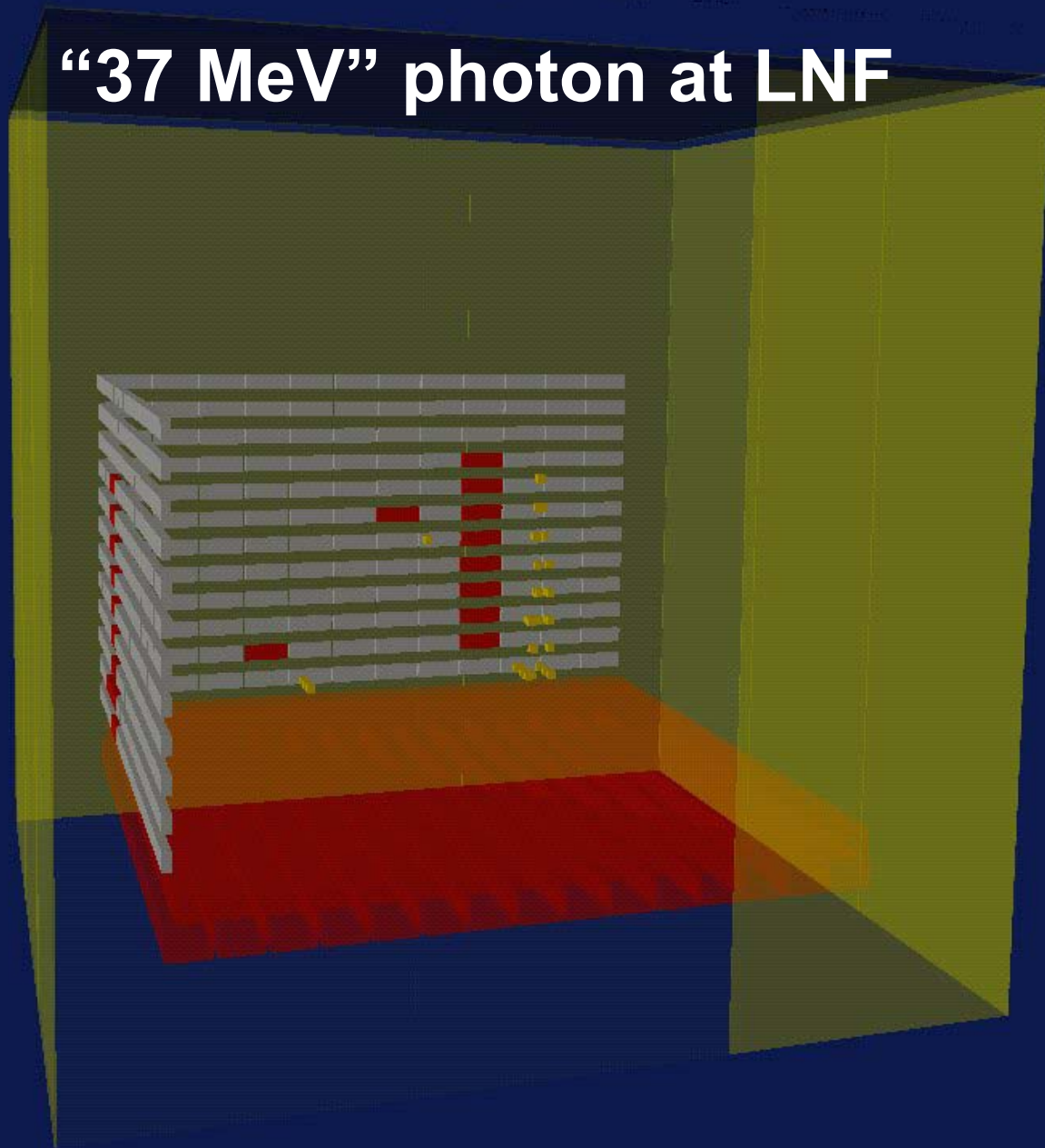
- **Arrival in BTF on Wednesday,
Nov. 2, 2005 (4.30 pm)**
- **48 hours later....**

**FIRST GAMMA-RAY PHOTON IN
BTF DETECTED BY AGILE !**

AGILE first gamma-ray photon at LNF

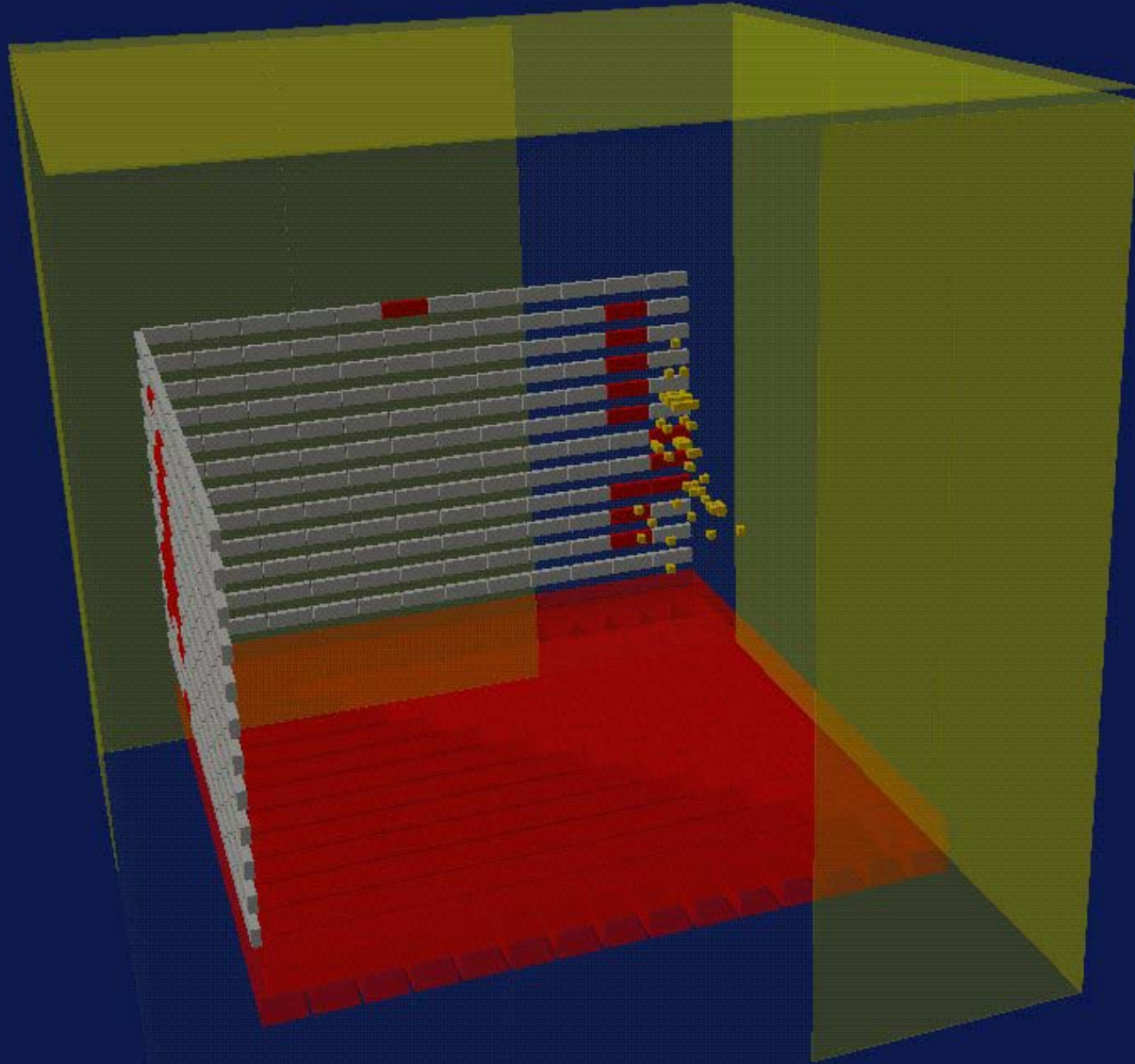


“37 MeV” photon at LNF

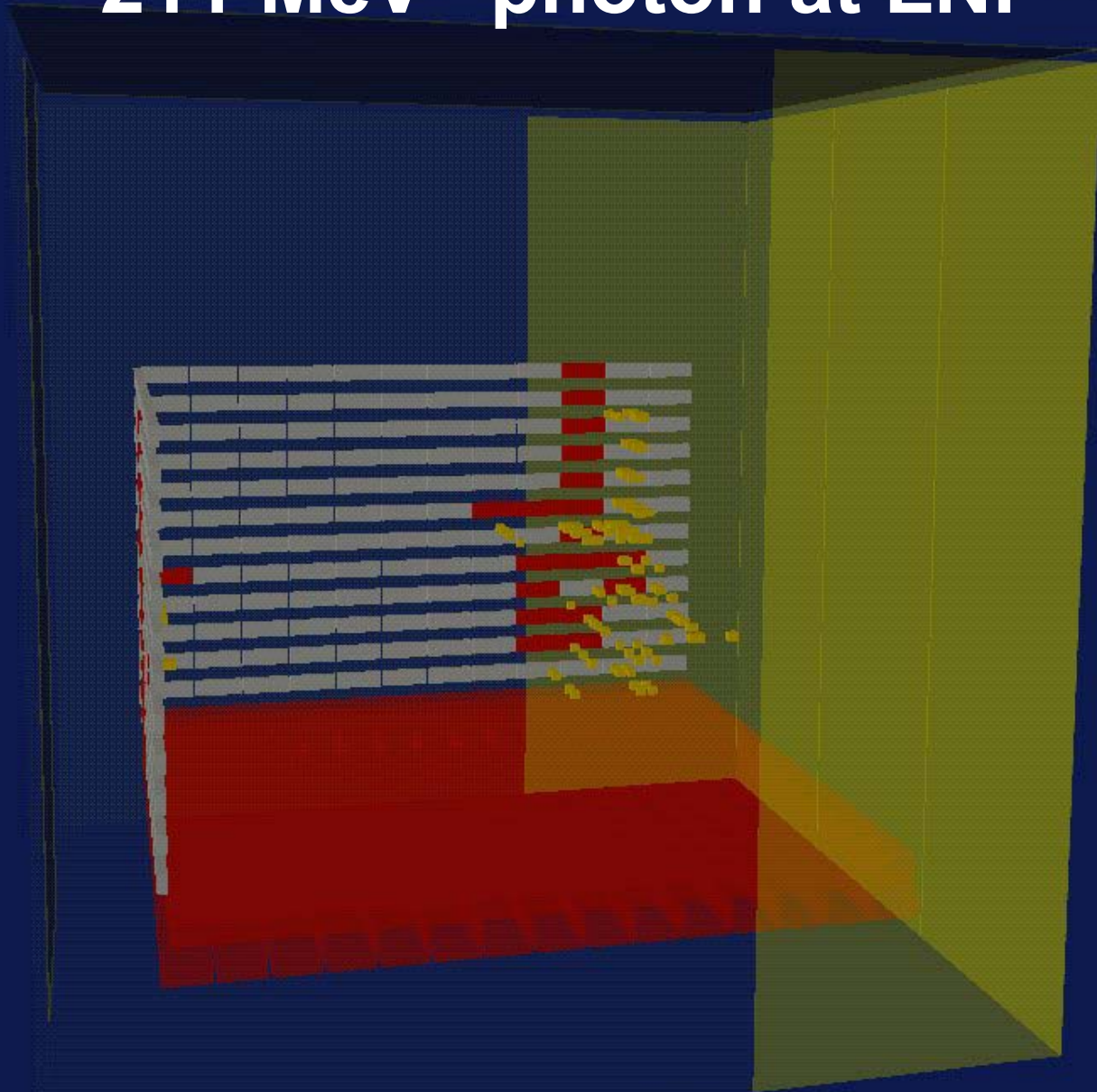


: 2244
: 1416

“124 MeV” photon at LNF

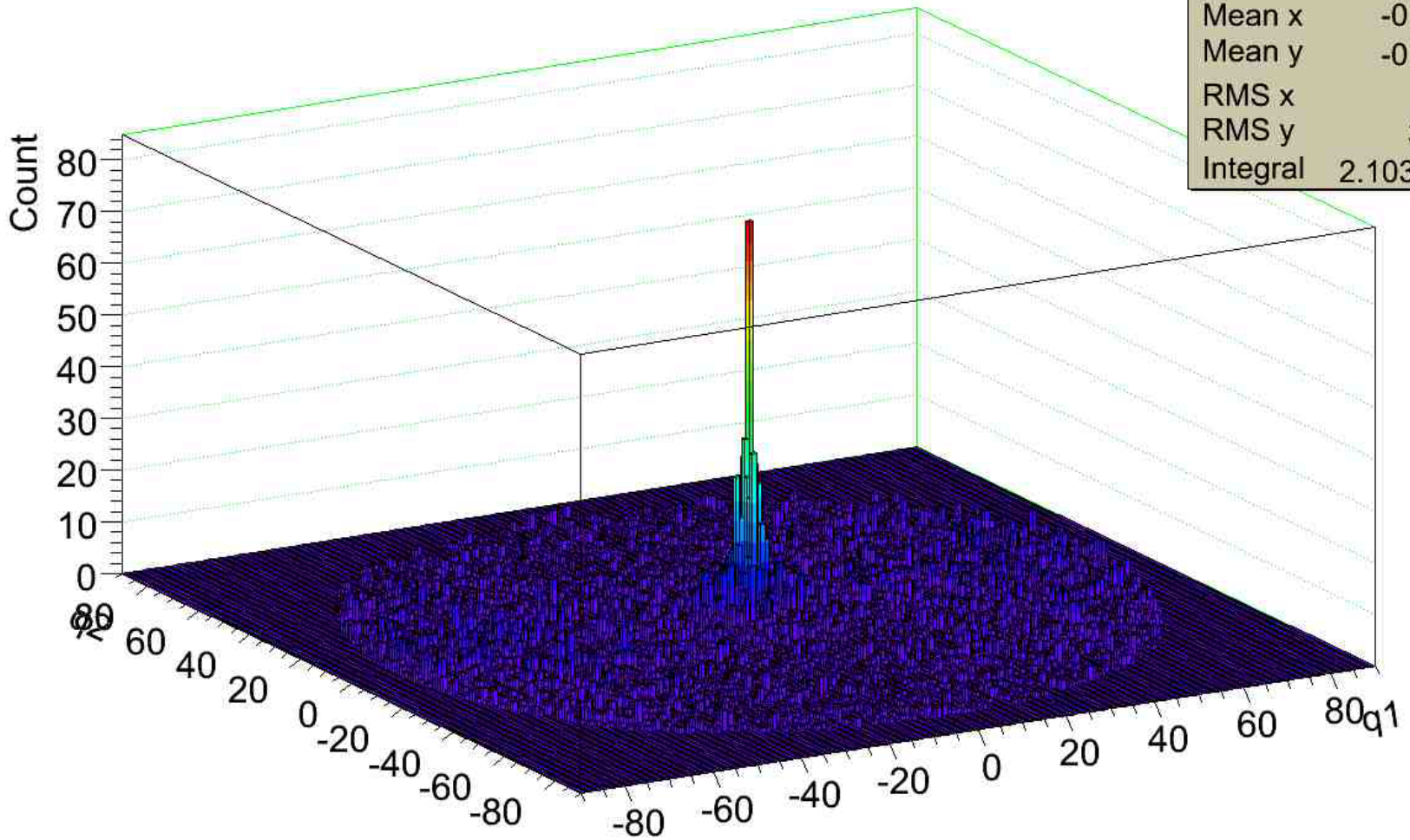


“211 MeV” photon at LNF



A gamma-ray pulsar or black hole in Frascati ???

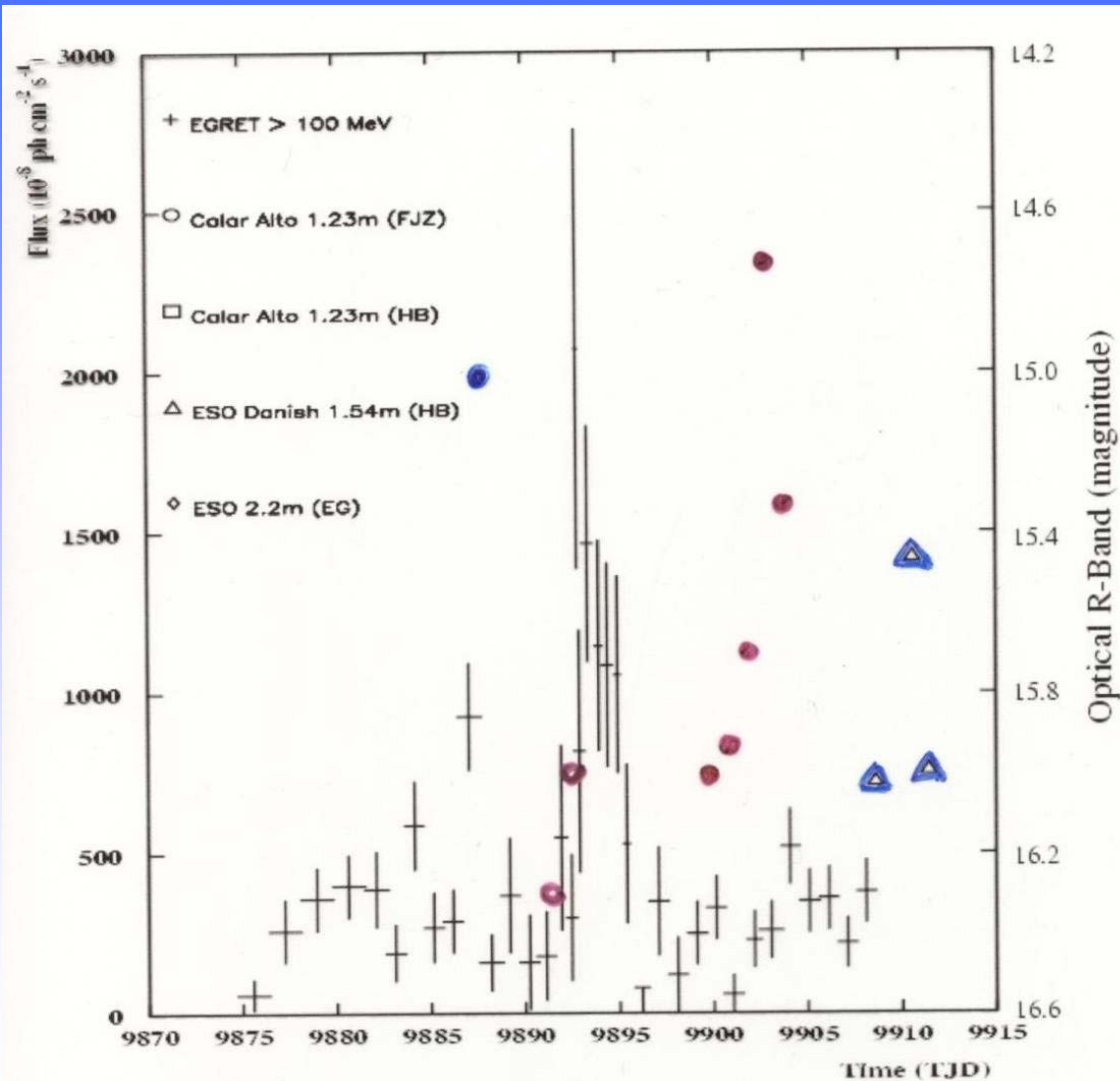
3902 Theta and Phi



3902 Theta and Phi (5)

Entries	23240
Mean x	-0.3058
Mean y	-0.3745
RMS x	45.5
RMS y	30.16
Integral	2.103e+04

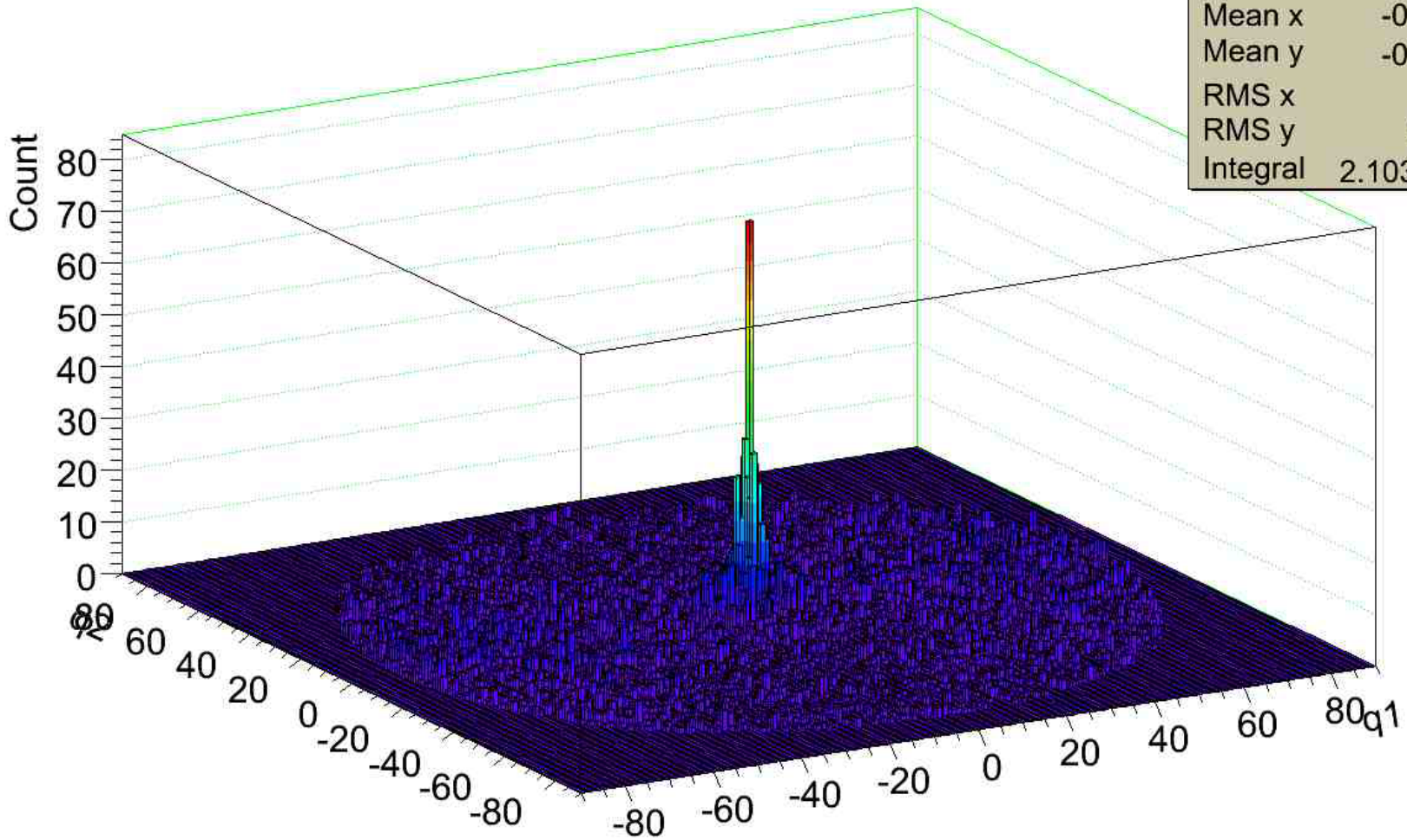
Strongest AGN γ -ray AGN flare detected by EGRET



PKS 1622-287

The gamma-ray Frascati source is ~400 Crab

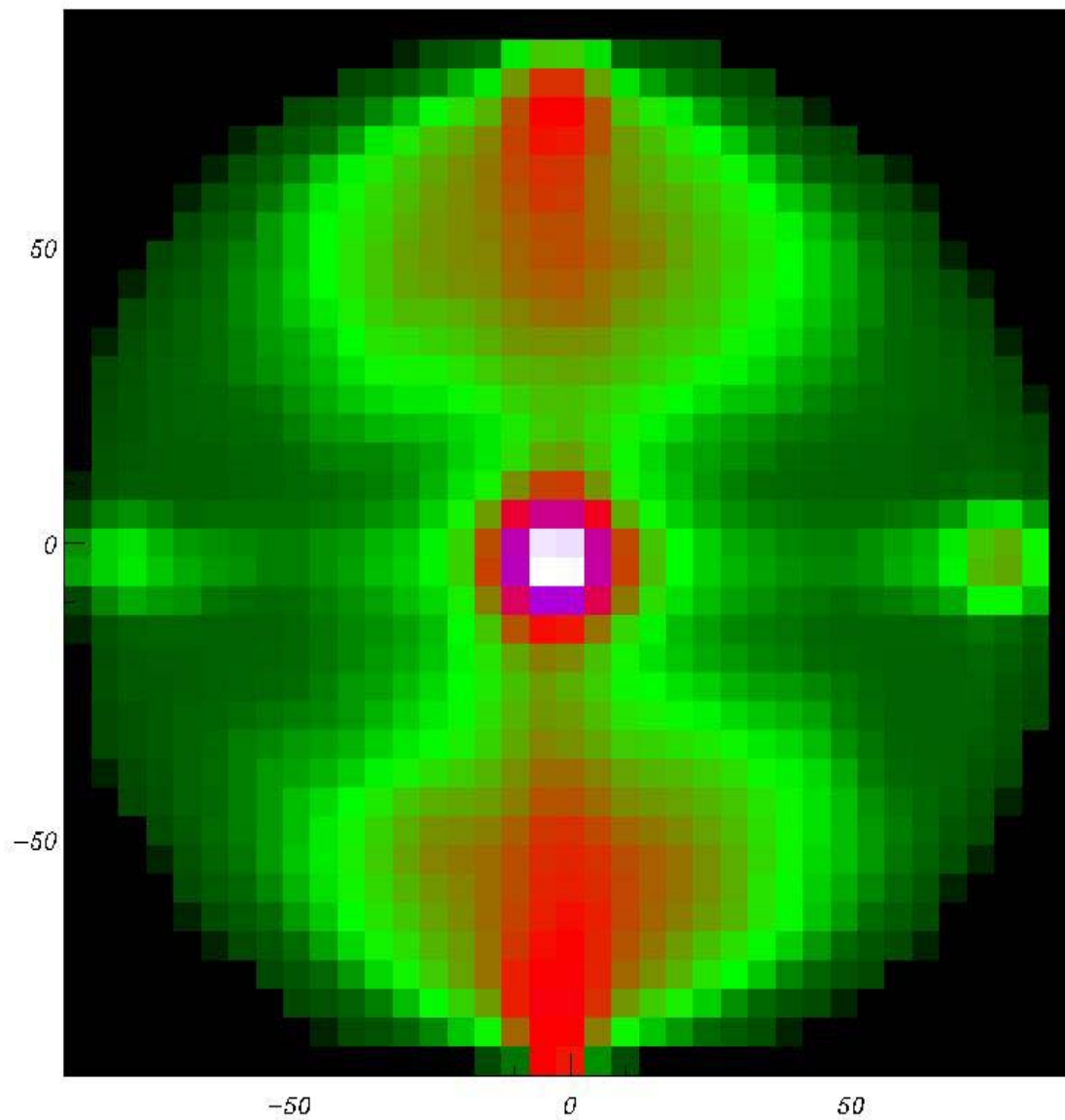
3902 Theta and Phi



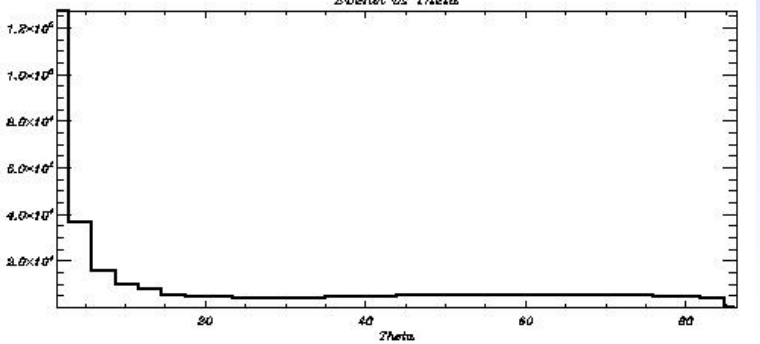
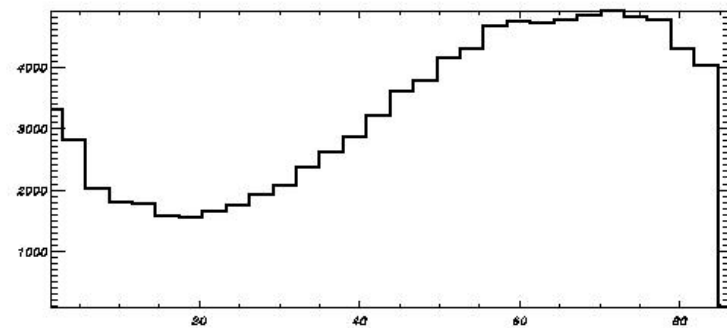
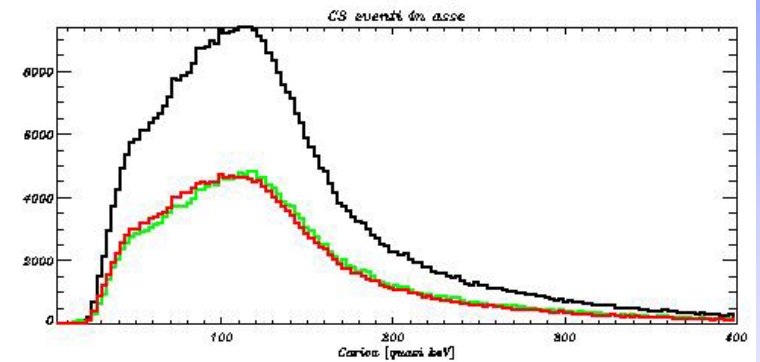
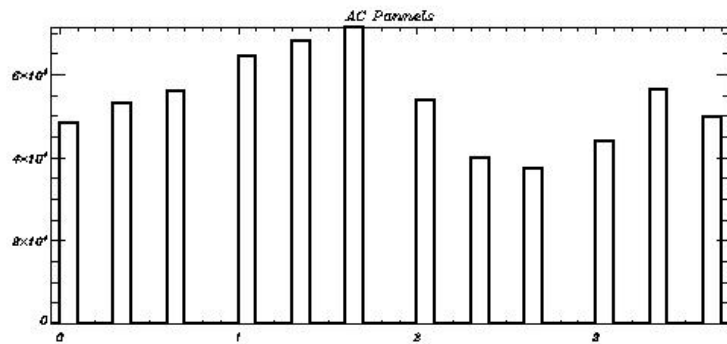
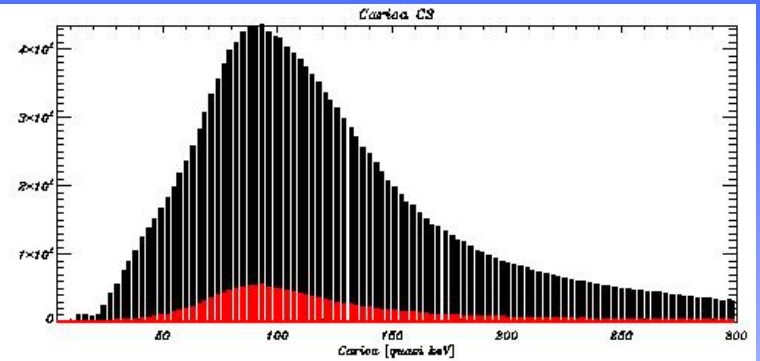
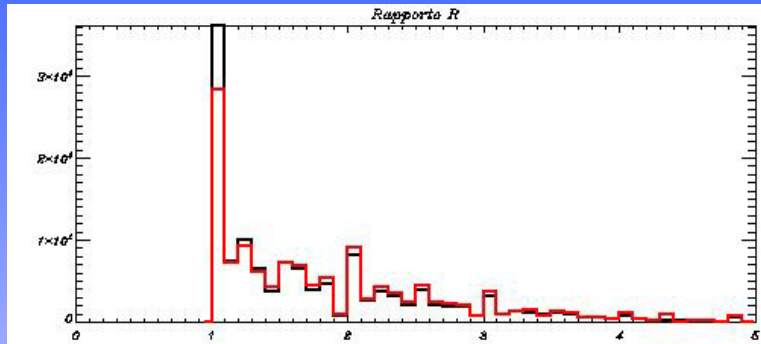
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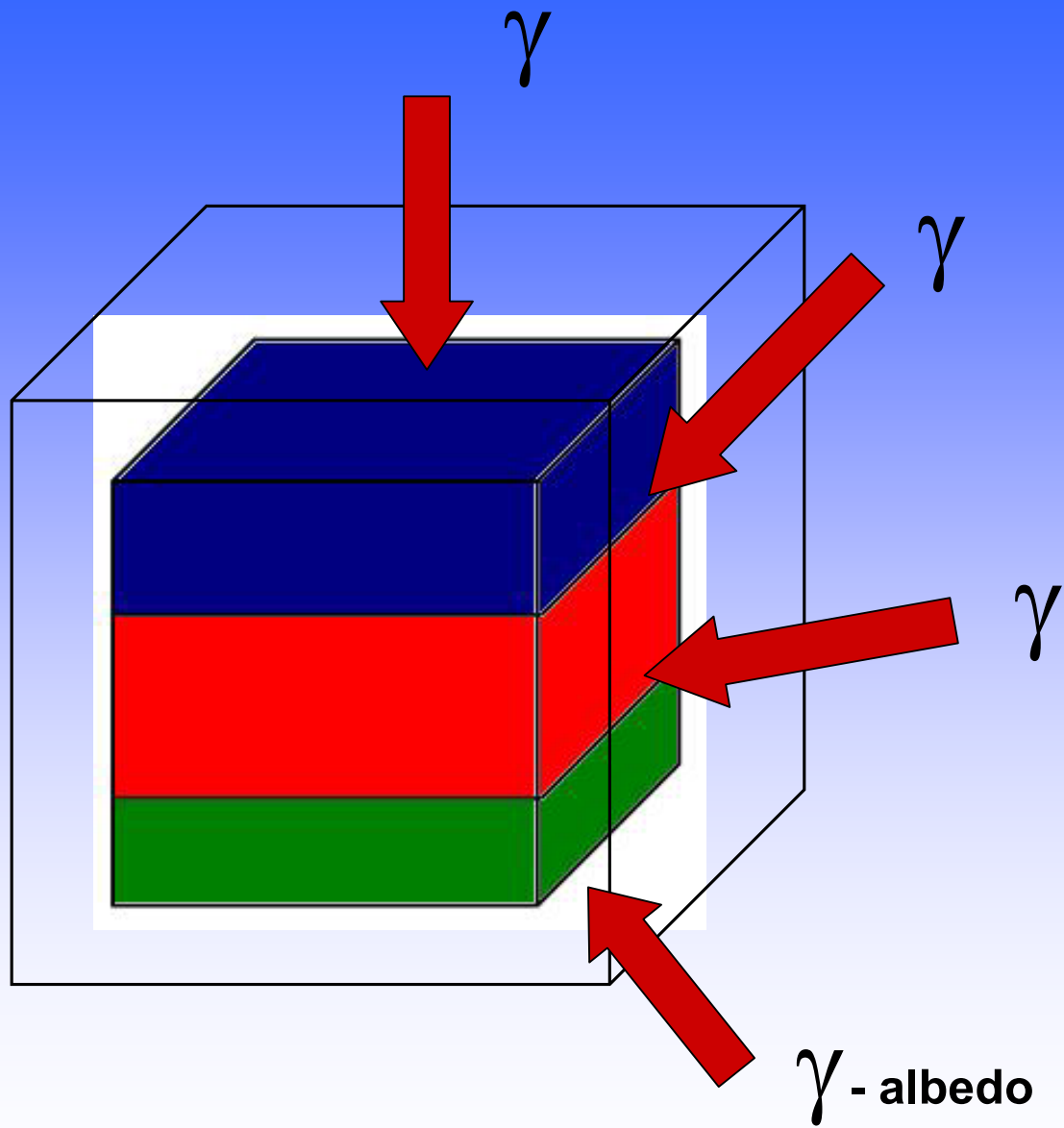
Gamma-ray reconstruction by Kalman filtering



Gamma-ray event run diagnostic



- **Expect ~500-2000 detected gamma-rays above 100 MeV per day in the FOV**
- **Detected in BTF about 80.000 gamma-rays above 30 MeV (preliminary)**
- **Detected about 40.000 gamma-rays above 100 MeV (preliminary)**



Preliminary results

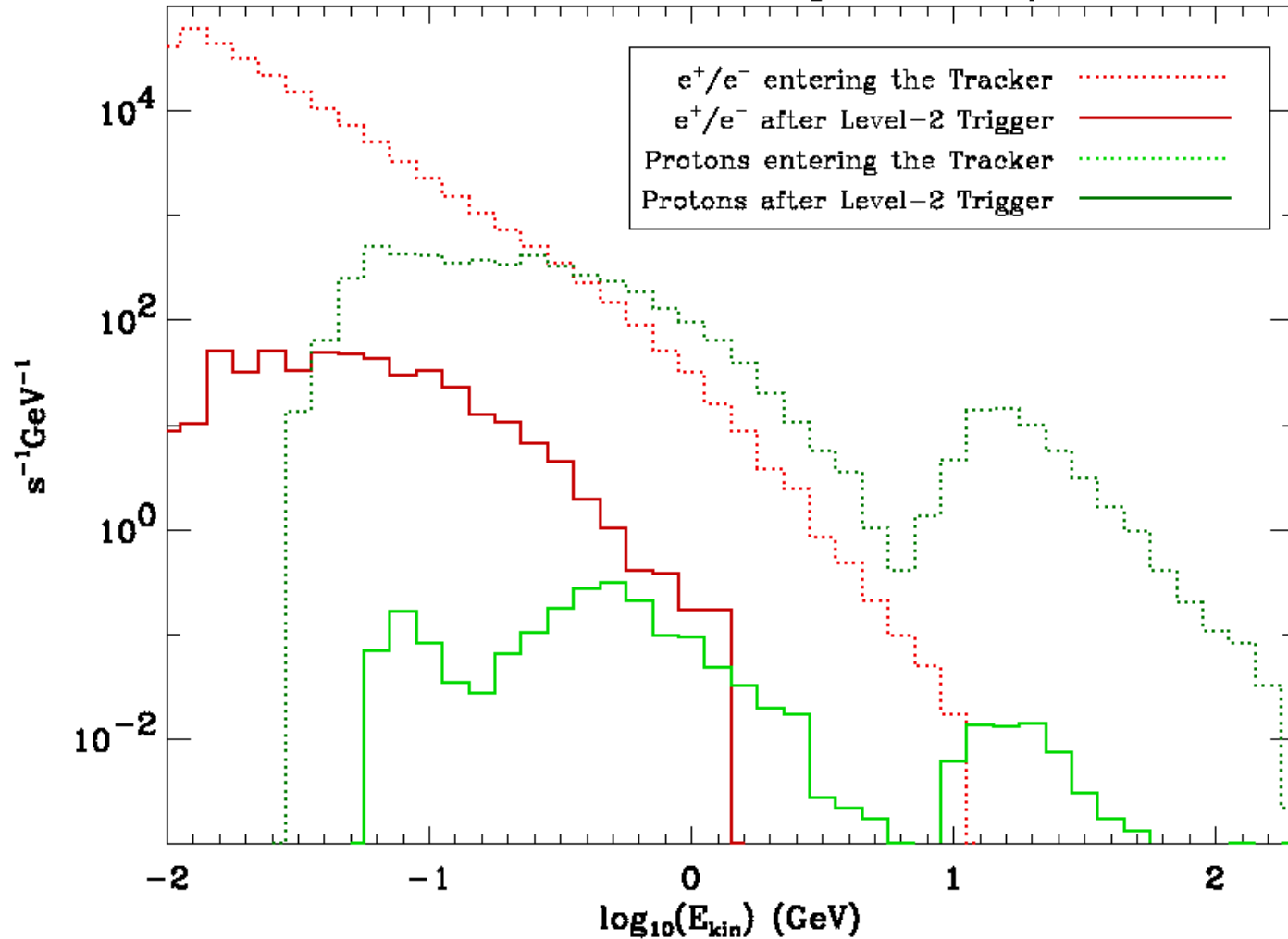
theta	phi	N.fotoni tag.	N.fotoni-trig	eff.
0	0	27.717	11.877	0,429
30	45	14.329	6.437	0,449
30	135	13.508	5.410	0,401
30	225	11.088	4.484	0,404
30	315	15.763	6.617	0,420
30	0	14.728	6.385	0,434
50	315	15.666	6.985	0,446
50	0	18.040	8.333	0,462
130	315	7181	3106	0,433
30	45	19.500	7.050	0,362

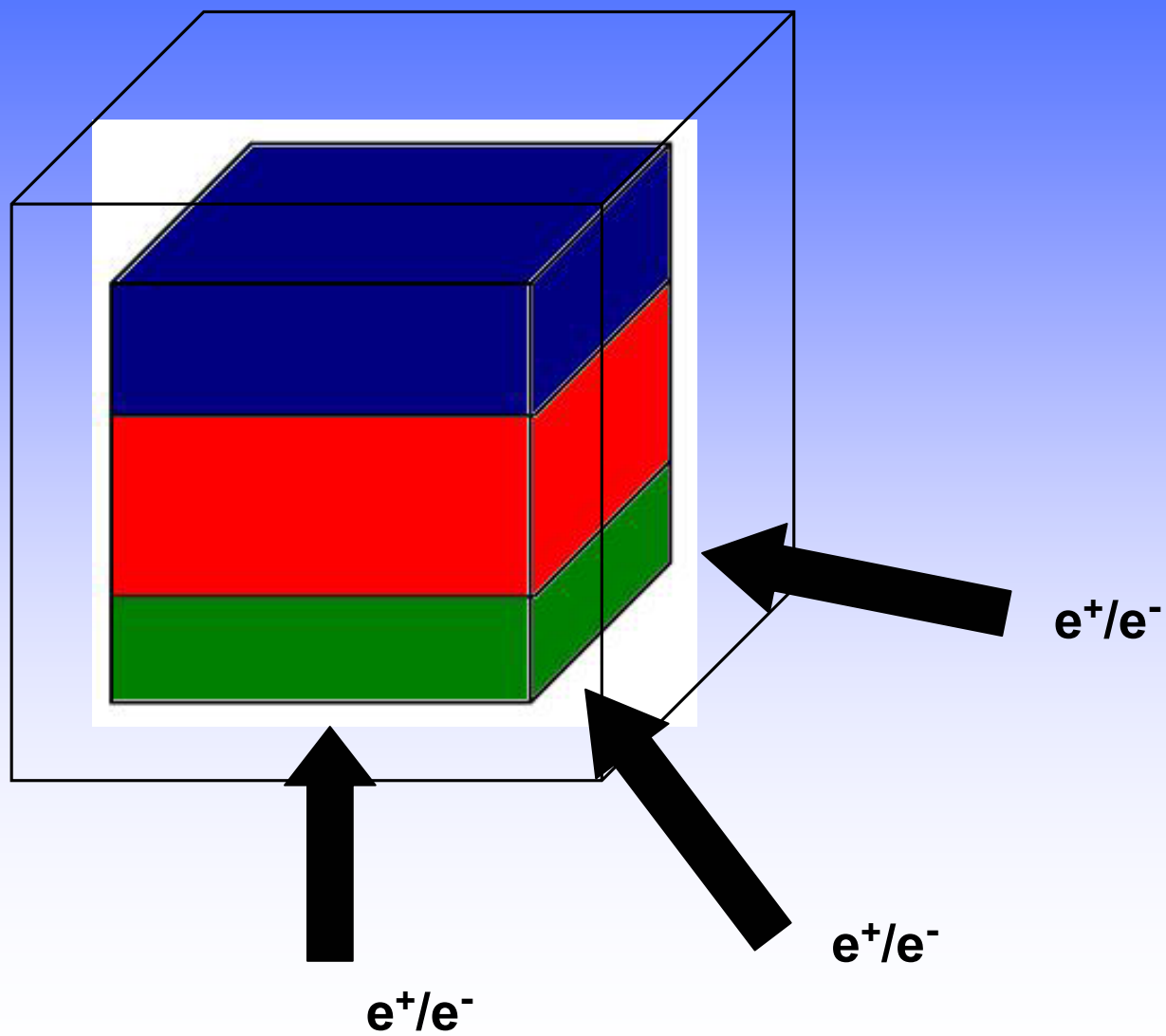
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50	315	15.666	6.985	0,446
50	0	18.040	8.333	0,462

130	315	7181	3106	0,433
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Particle background in space (550 km, 0-5 degrees)

On-board Particle Background Rejection





Conclusions

- The AGILE Gamma-ray calibration campaign at LNF reached the main objectives
- Both gamma-ray and electron/positron events were produced with satisfactory statistics
- Optimal scientific collaboration between the AGILE Team and the LNF
- AT is open to future collaborations on AGILE data and future ideas...