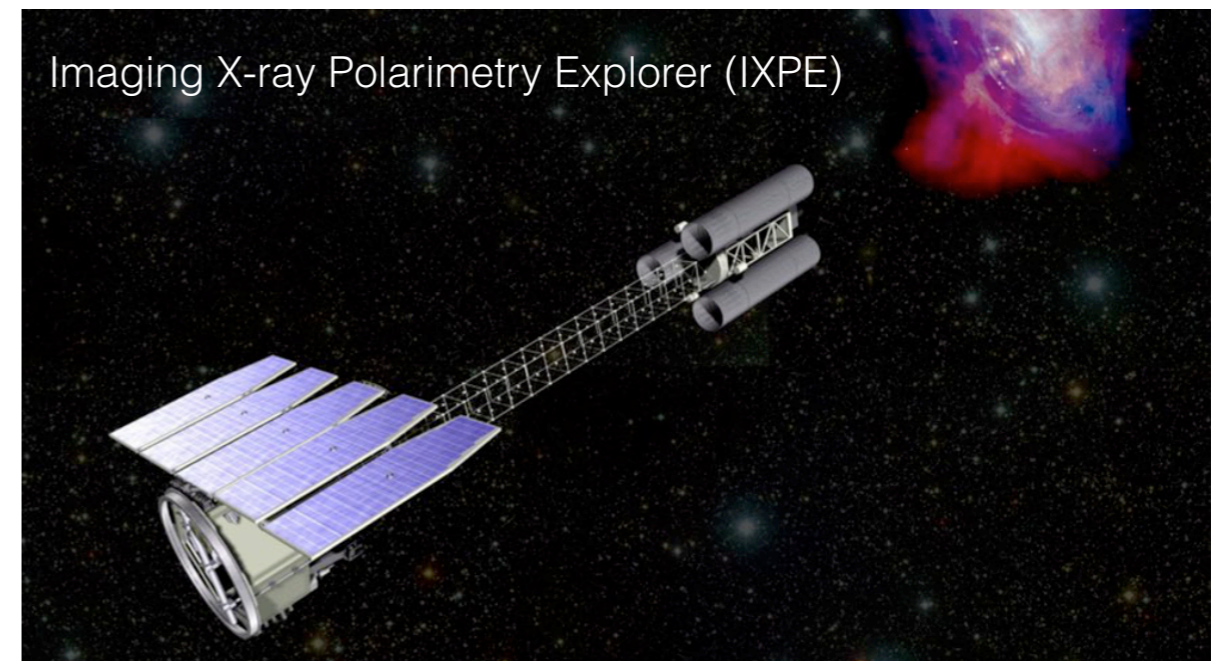
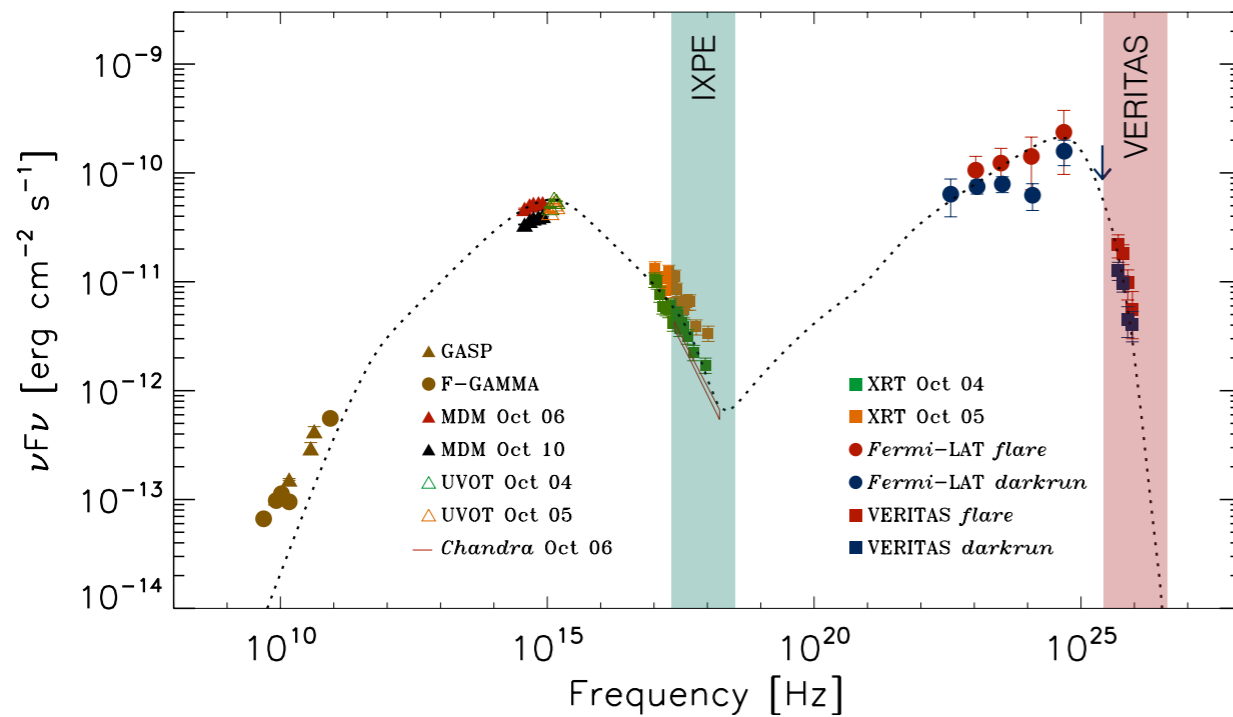


VERITAS observations of IXPE blazar targets

Manel Errando (Washington University in St Louis) on behalf of the VERITAS collaboration



SED of 3C 66A (Abdo et al. 2013). The energy coverage of IXPE and VERITAS probes the same part of the emitting particle spectrum.

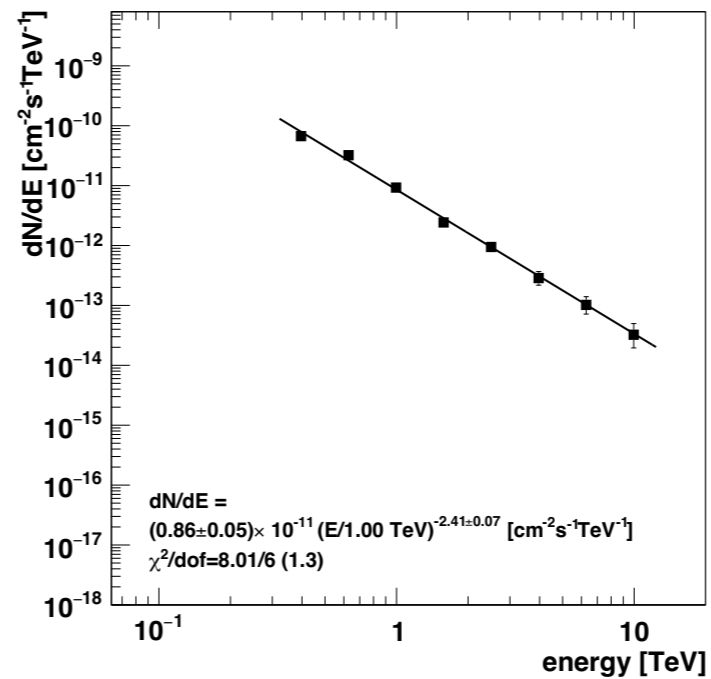
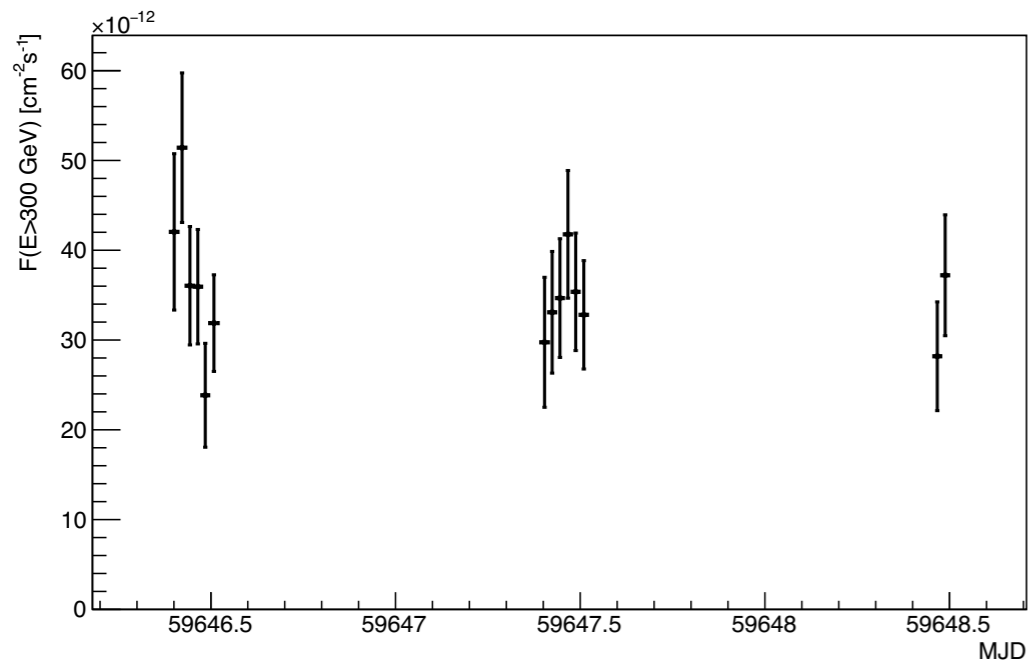
The Imaging X-Ray Polarimetry Explorer (IXPE) is an X-ray telescope capable of extracting information on the X-ray polarization of astrophysical sources in the 2-8 keV band. After a successful launch, IXPE started science operations in January 11 2022.

Simultaneous observations of X-ray polarization and TeV emission have the potential to determine the intensity and geometry of magnetic fields in relativistic jets.

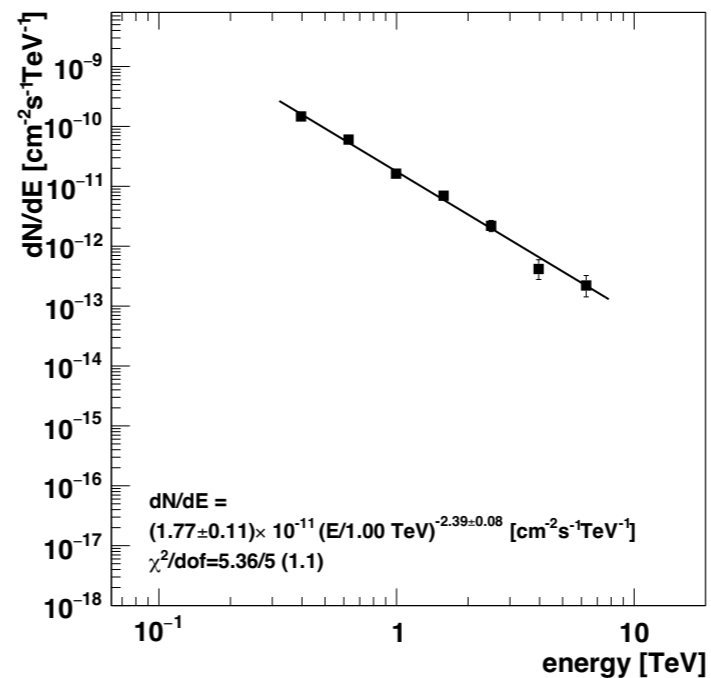
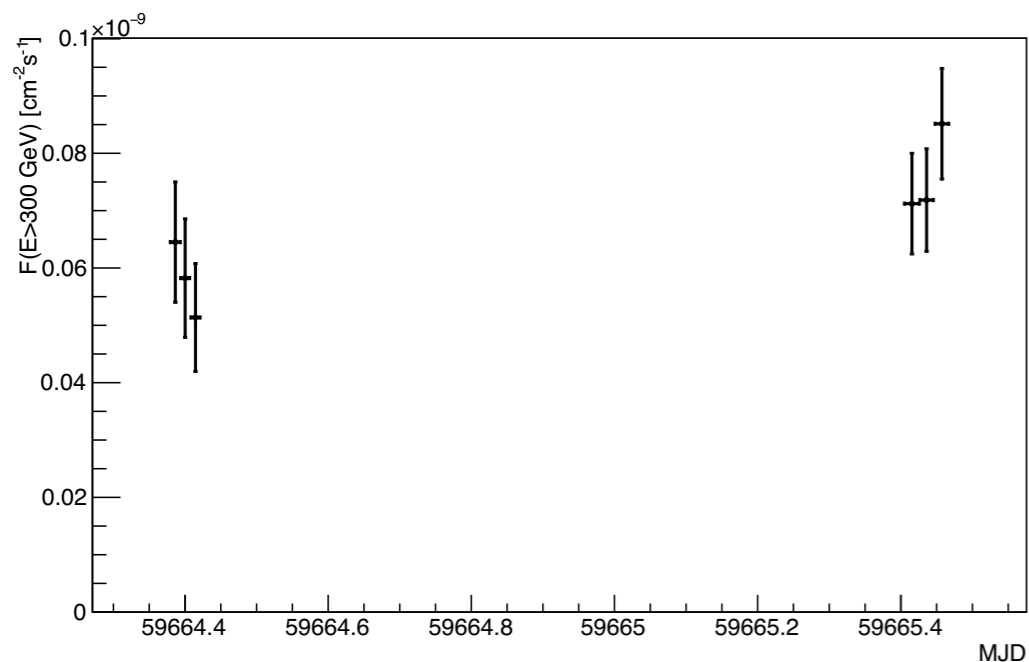
During the first months of operations, IXPE obtained exposures of five TeV-emitting BL Lac-type blazars: Mrk 501, Mrk 421, S5 0716+714, BL Lac, and 1ES 1959+650. In this contribution, we present the TeV light curves and spectra obtained with VERITAS.

Mrk 501

The TeV flux measured did not show significant variability during the individual periods of IXPE observations, although the flux doubled between the first and second IXPE campaign.

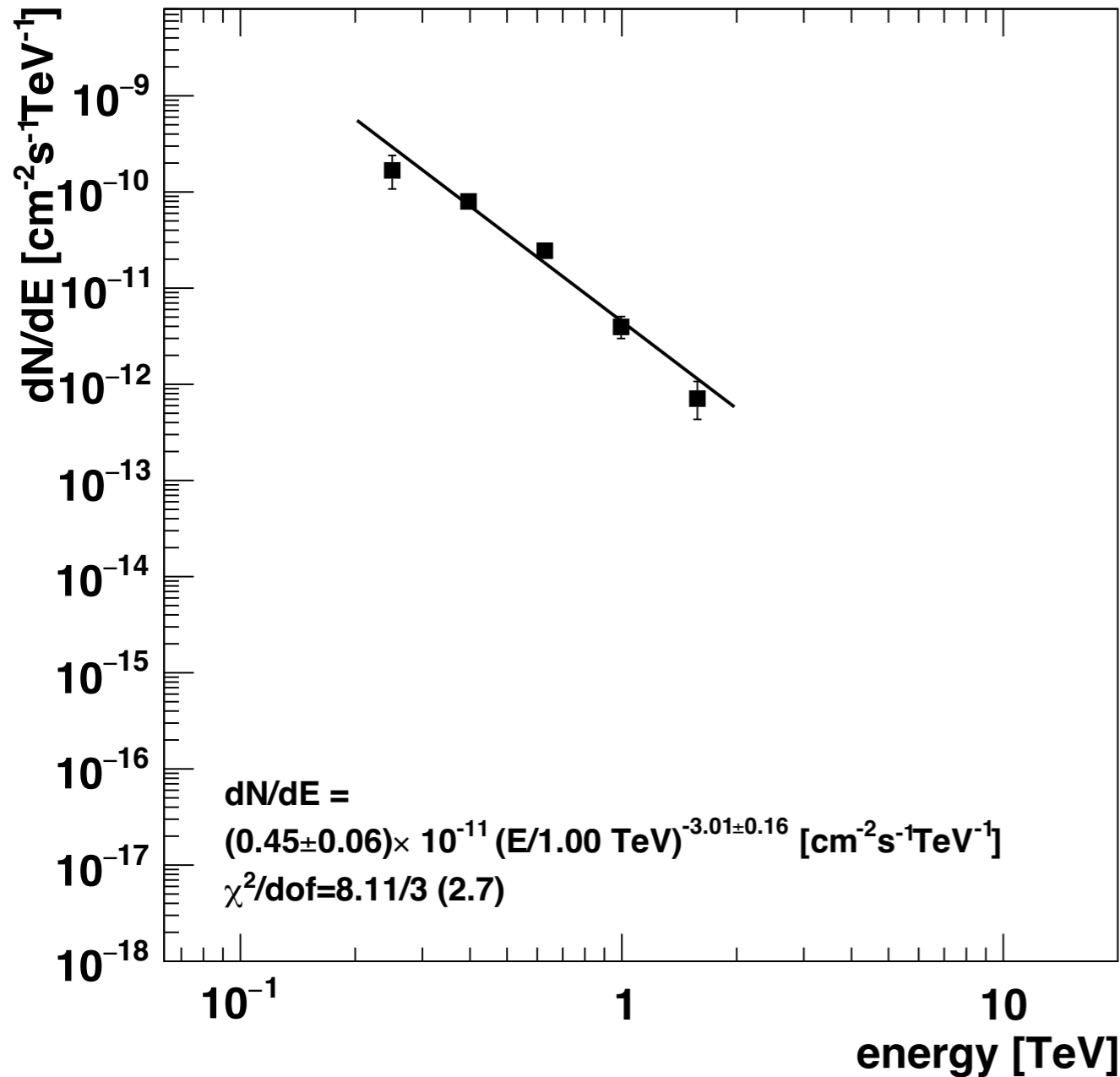


March 08-10 2022
No detected TeV flux
variability
 $F = 0.27 \pm 0.01$ Crab



March 26-28 2022
No detected TeV flux
variability
 $F = 0.54 \pm 0.03$ Crab

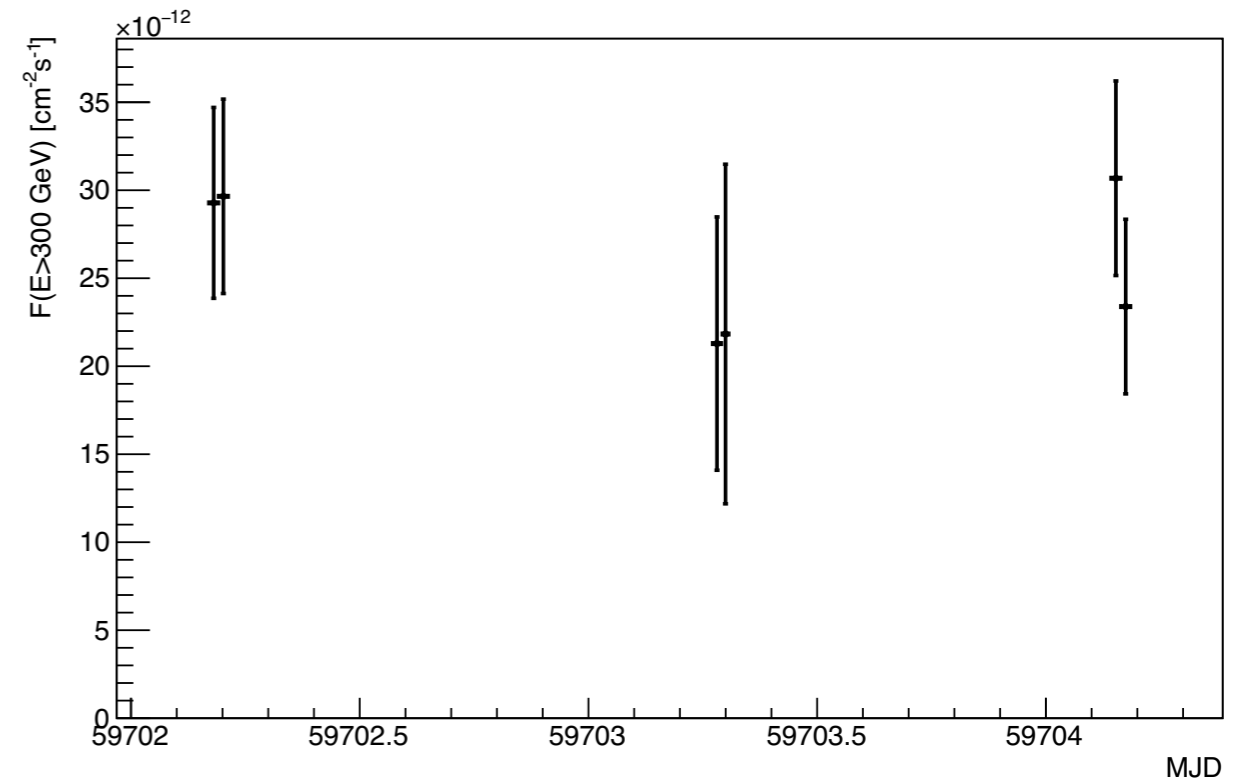
Mrk 421



May 04-06 2022

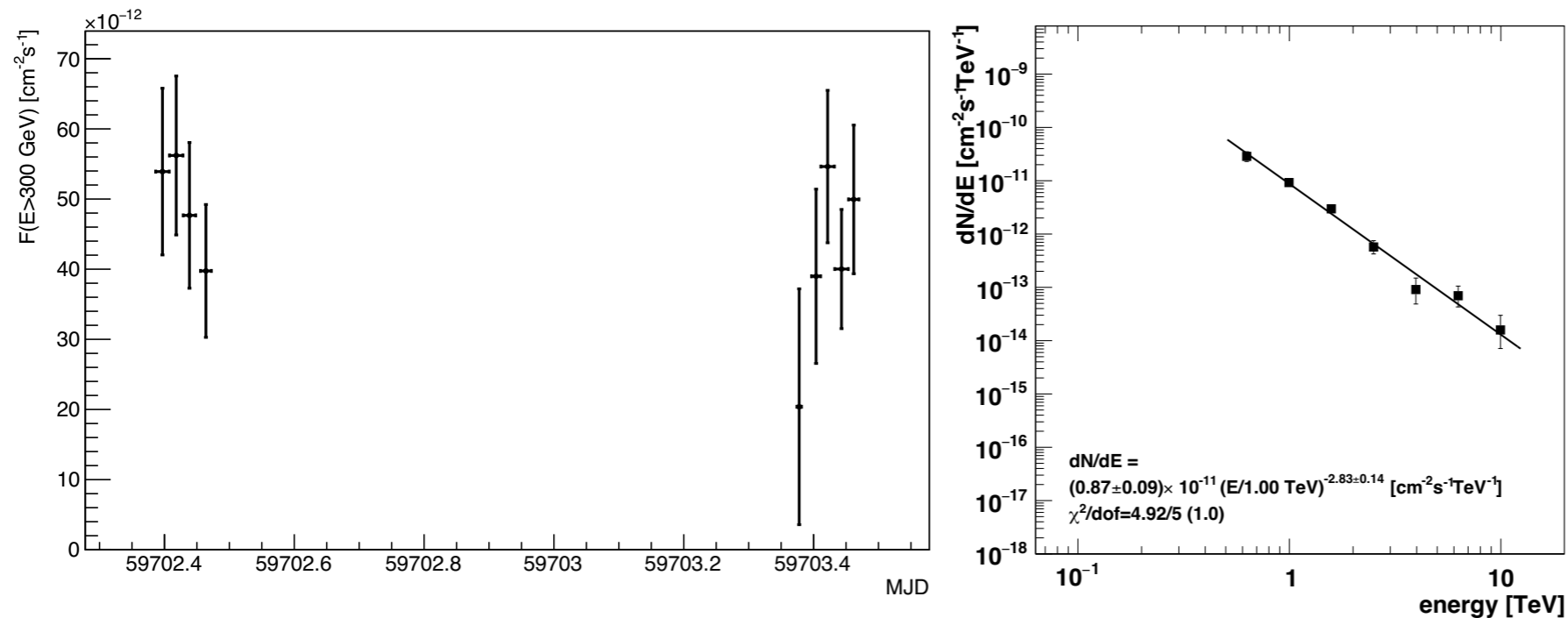
No detected TeV flux variability

$$F = 0.27 \pm 0.01 \text{ Crab}$$



The TeV flux measured did not show significant variability during the time of IXPE observations. The measured TeV spectral is steeper than historical values for Mrk 421.

1ES 1959+650



May 03-04 2022
 No detected TeV flux
 variability
 $F = 0.27 \pm 0.01 \text{ Crab}$

The TeV flux measured did not show significant variability during the IXPE observation. Significant TeV emission up to 10 TeV was detected during the campaign.

Summary of results

	VERITAS exp.	Significance	Flux (CU)	Sp. Index
Mrk 501, obs1	6.7h	30.6	0.27 ± 0.01	2.41 ± 0.07
Mrk 501, obs 2	2.4h	31.7	0.54 ± 0.03	2.29 ± 0.08
Mrk 421	2.8h	19.5	0.25 ± 0.02	3.05 ± 0.14
BL Lac	2.0h	-1.2		
S5 0716+714	4.1h	0.8		
1ES 1959+650	3.7h	19.7	0.31 ± 0.03	2.83 ± 0.08