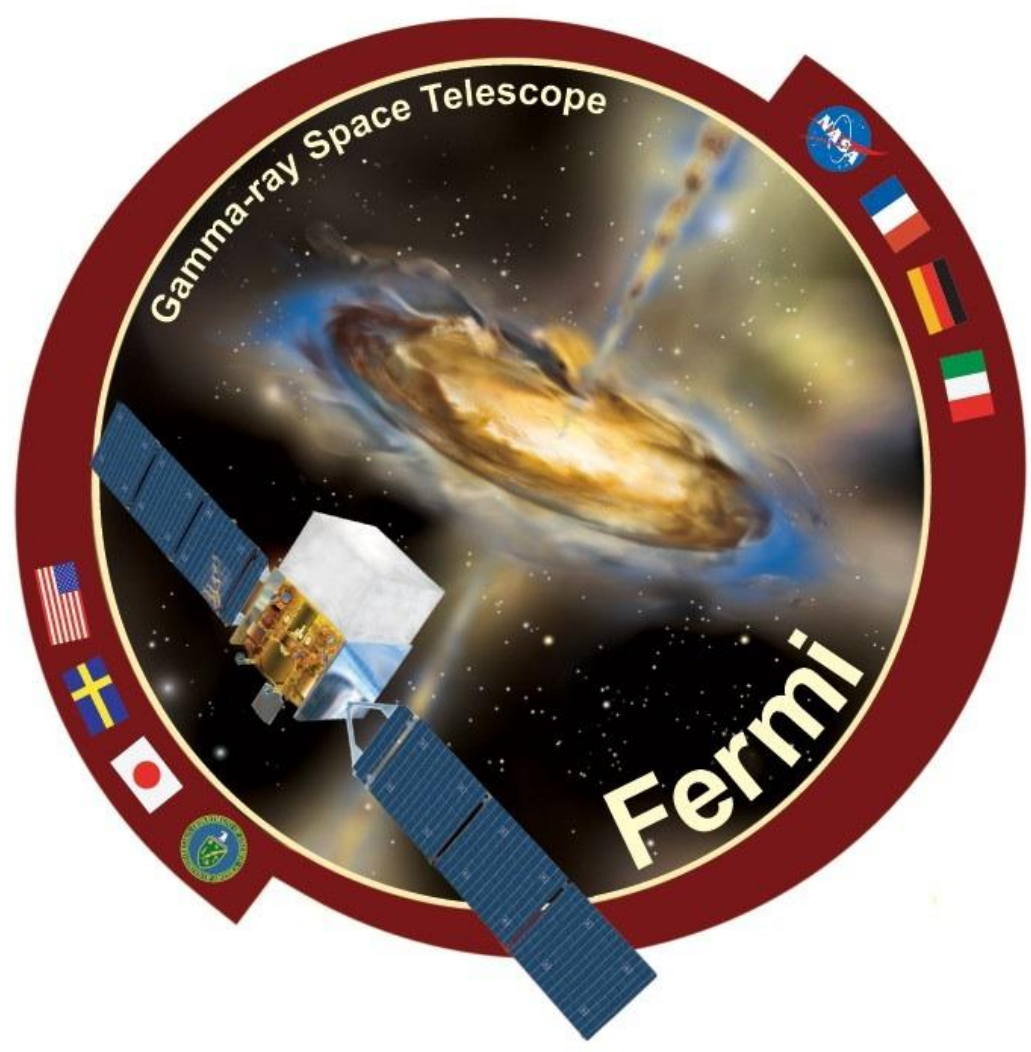




# Multi-Wavelength Observation of Blazar 3C 279

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on behalf of the Fermi Large Area Telescope Collaboration  
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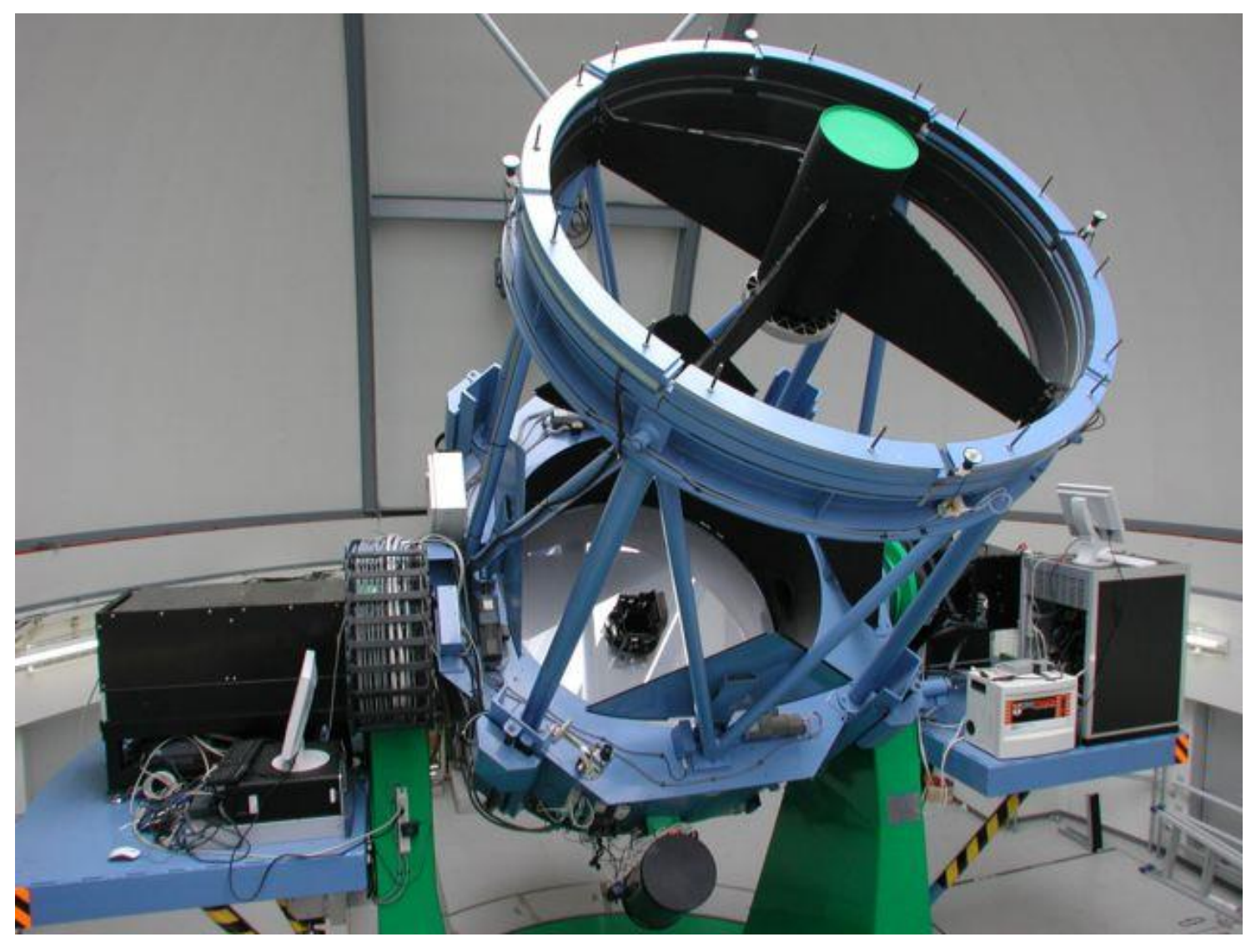


## Introduction

3C 279 is a Flat Spectrum Radio Quasar (FSRQ) and known as EGRET brightest AGN. It is widely accepted that strong and variable radiation detected over all accessible energy bands in a number of active galaxies arises from a relativistic, Doppler-boosted jet pointing close to our line of sight<sup>1</sup>. However, the size of the emitting zone and the location of this region relative to central supermassive back hole are poorly known, with estimates ranging from light-hours to a light-year or more. Knowing those quantities is crucial for testing the theories of the jet production in active galaxies involving a strong, rotating magnetic field anchored by an accretion disk orbiting the black hole.

## Collaboration with Kanata

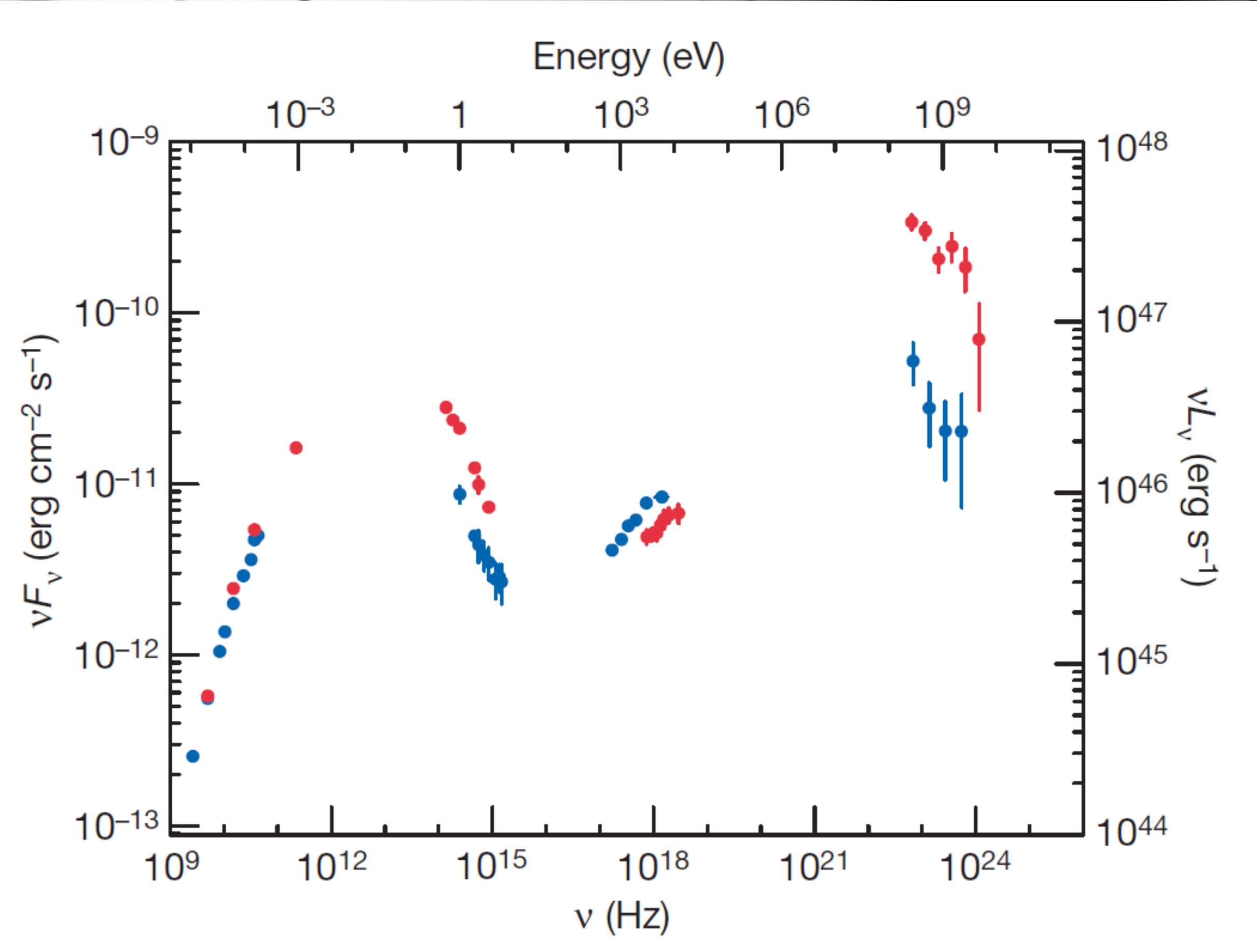
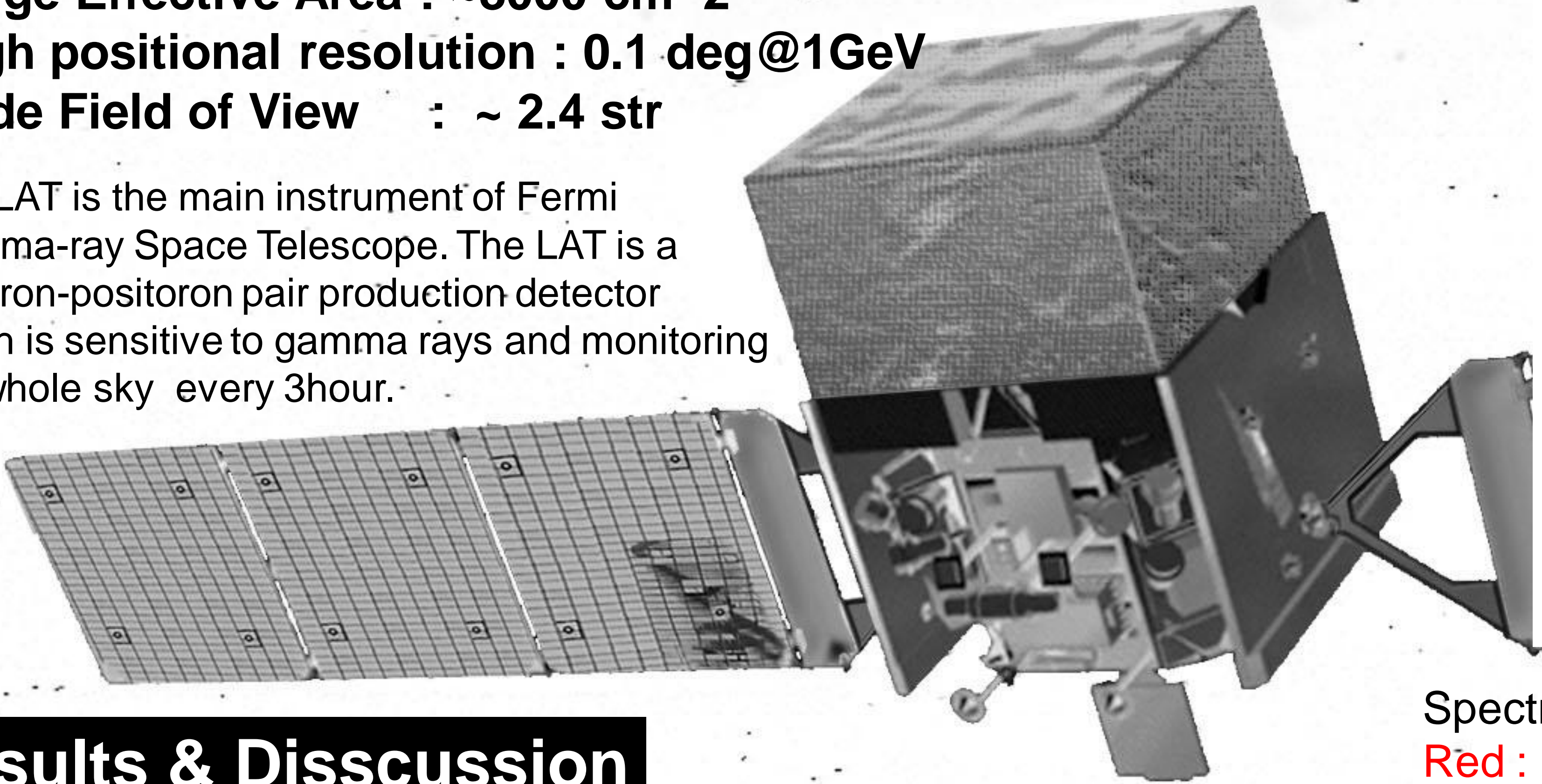
Kanata monitoring >40 blazars for 2 years and several blazars are also monitored with Fermi in simultaneous. 3C 279 is one of the source which are observed in Multi wavelength campaign from radio to TeV range. We performed observations in Optical and NIR band photpolarimetry.



## Fermi LAT (Large Area Telescope)

Energy range : 20 MeV to >300 GeV  
Large Effective Area :  $\sim 8000 \text{ cm}^2$   
High positional resolution : 0.1 deg@1GeV  
Wide Field of View :  $\sim 2.4 \text{ str}$

The LAT is the main instrument of Fermi Gamma-ray Space Telescope. The LAT is an electron-positron pair production detector which is sensitive to gamma rays and monitoring the whole sky every 3hour.



Spectrum energy distribution (SED) from Radio to Gamma-ray band .  
Red : 54880 to 54885 MJD. Blue : 54950 to 54960 MJD.

Light curves for each energy band. The instruments are

- Fermi/LAT : gamma-ray band
- RXTE/PCA , Swift/XRT : X-ray band
- Swift/UVOT : UV band
- GASP/WEBT , OVRO : Optical and NIR flux.Radio
- **Kanata/TRISPEC : Optical and NIR flux/Polarization**

- Gamma-ray flux state is associated with the optical flux and the polarization degree.
- X-ray and radio bands show less variable than flux of other bands.
- Gamma-ray flux state coincident with a dramatic change of the polarization angle.

In this source, our observation suggests that the P.A. was got as opposite direction to that measured previously. The results support “bent jet” model which could explain the rotation of P.A.

“Gamma-ray flare with a dramatic change of optical polarization angle. This provides evince for co-spatiality of optical and gamma-ray emission regions and indicates a highly ordered jet magnetic field. The results also require a non-axisymmetric structure of the emission zone, implying a curved trajectory for the emitting material within the jet”

