

Observation of 3C279 in Fermi and KANATA Telescope

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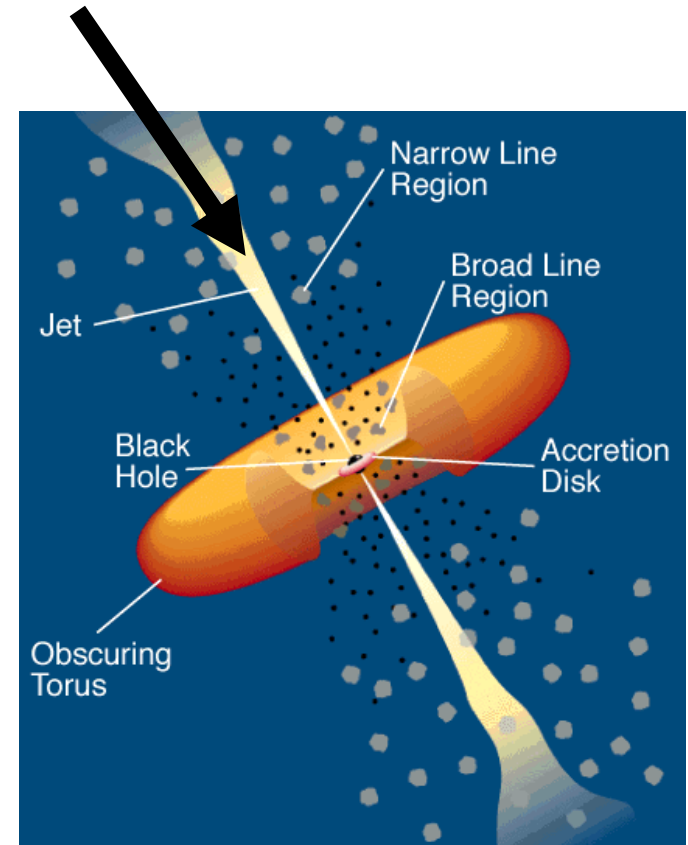
About Blazar

活動銀河核の一種

- 電波～ガンマ線の幅広い帯域での放射
- 短期変動 (~数日)

⇒相対論的ジェットを視線方向から観測
していると考えられている

ジェットの物理的解明に最適



Credit :C.M. Urry and P. Padovani

About 3C279

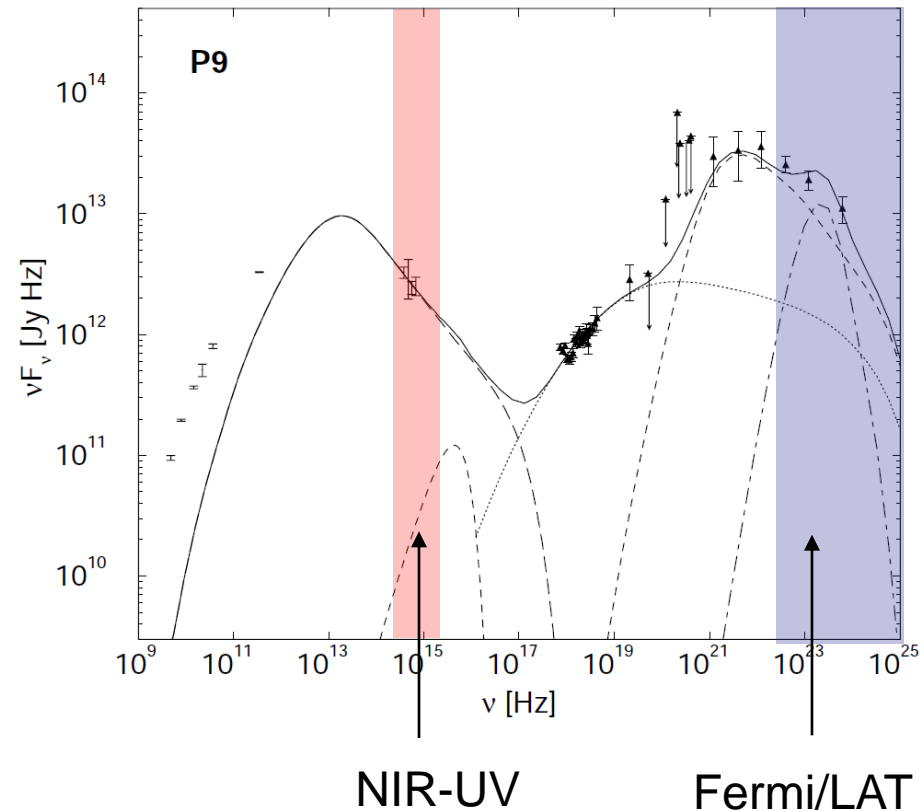


SED

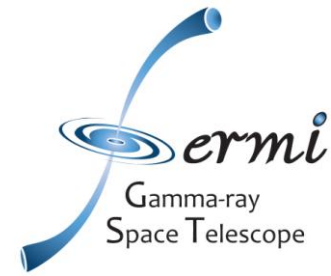
Hartman et al. 2001

FSRQ (Blazar)
 $z = 0.536$
EGRET Brightest AGN

“External” seed photons
are needed for gamma-ray
emission



Fermi / LAT

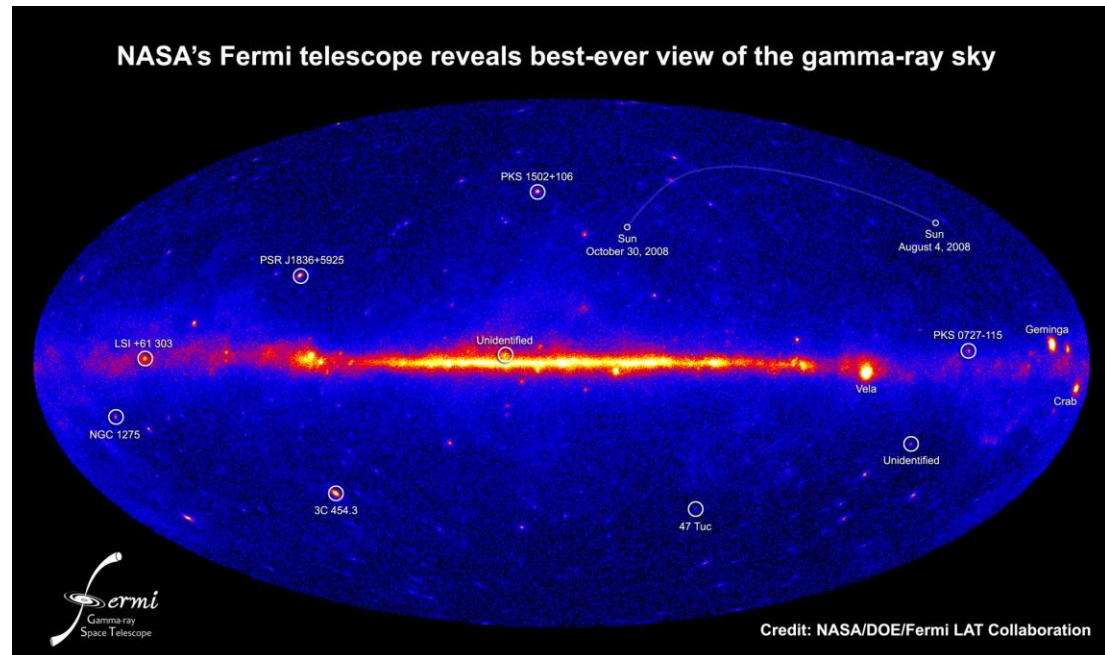


Launched on 11 June 2008

Broad Energy Band 20MeV to >300GeV
FoV 2.4 str
Effective area 8000 cm²(@1GeV)



3 month Count map



2009/09/14

KANATA / TRISPEC



KANATA Telescope

@ Higashi-Hiroshima Observatory
D : 1.5m Ritchey-Chretien System
Designed for NIR to OPT



TRISPEC

@ Cassegrain focus
It has 3Detectors(NIRx2,OPTx1) and can
obtain 3 channel images simultaneously.

It has 4 modes

Imaging , Spectroscopy , **Imaging Polarimetry** , Spectropolarimetry

今回(測光データのみ使用)



Swift / UVOT



UVOT (Ultra Violet/Optical Telescope)

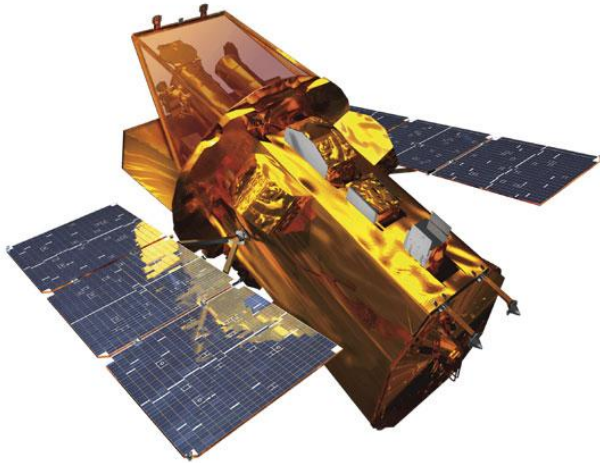
Optical to Ultra Violet

D : 30cm

Filter : V,B,U,UVW1,UVM2,UVW2

Data Archives at:

<http://heasarc.gsfc.nasa.gov/docs/swift/archive/>

A screenshot of the Swift Archive website. The page features a header with the NASA logo and "GODDARD SPACE FLIGHT CENTER", a search bar, and navigation links. The main content area is titled "Swift Archive" and includes a section for "Swift Archive Access" with a table of interfaces and a "Swift Archive documentation" section with a list of links and descriptions.

Swift Archive Access	Swift Archive documentation	
Special Swift Interface	Query Swift observation logs using GRB names and/or specific Swift parameters. searches and data retrieval are powered by the HEASARC Browse. For a given GRB name or position, query the GCN and NVO .	<ul style="list-style-type: none">• Overview of the Swift Data Archive (PDF HTML)• Getting started, Data caveats & Processing version• The Swift "As-Flown Timeline". It is a time-ordered table that records the time of specific events such as SAA passages, slews, automatic and pre-planned target observations. It is updated weekly and is generated by the Mission Operation Center (MOC).
HEASARC Interface	Make searches across multiple missions, including Swift	
Anonymous FTP or wget	Do direct data retrieval via FTP or wget protocol without browsing the observation logs (for expert users).	

Data set



Fermi/LAT observations ($>200\text{MeV}$)
August 4, 2008 – March 7, 2009 (~7month)

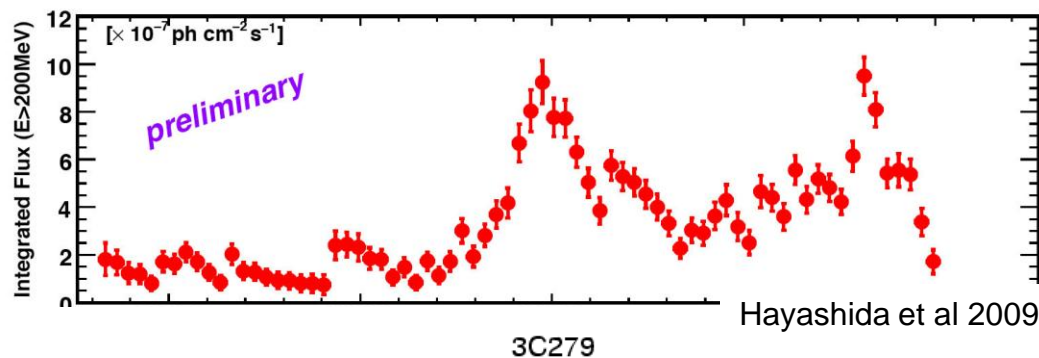
2008年11月 Fermi/LAT で gamma-ray flare を検出
(#ATel 1864)

かなたでも速報を受け、可視近赤外領域での観測を開始
以降オフシーズン(~5月)まで継続的に観測

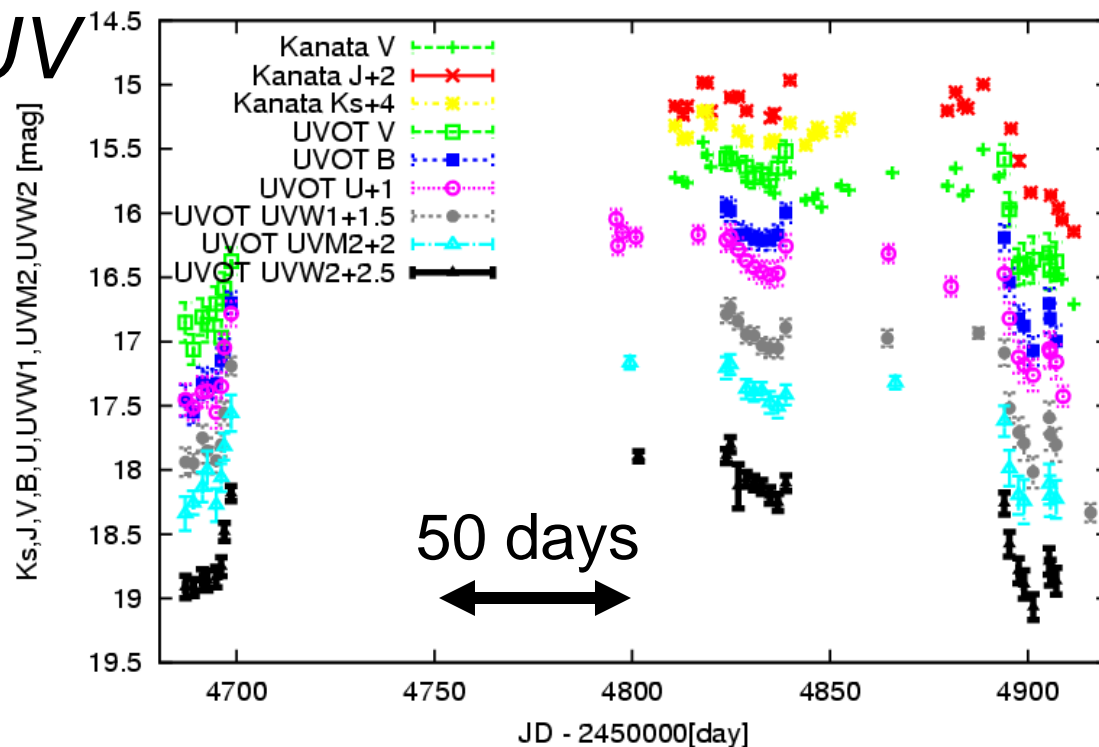
Swift/UVOTでも可視-紫外6バンドでの観測が行われた

MWL Light Curves

Gamma

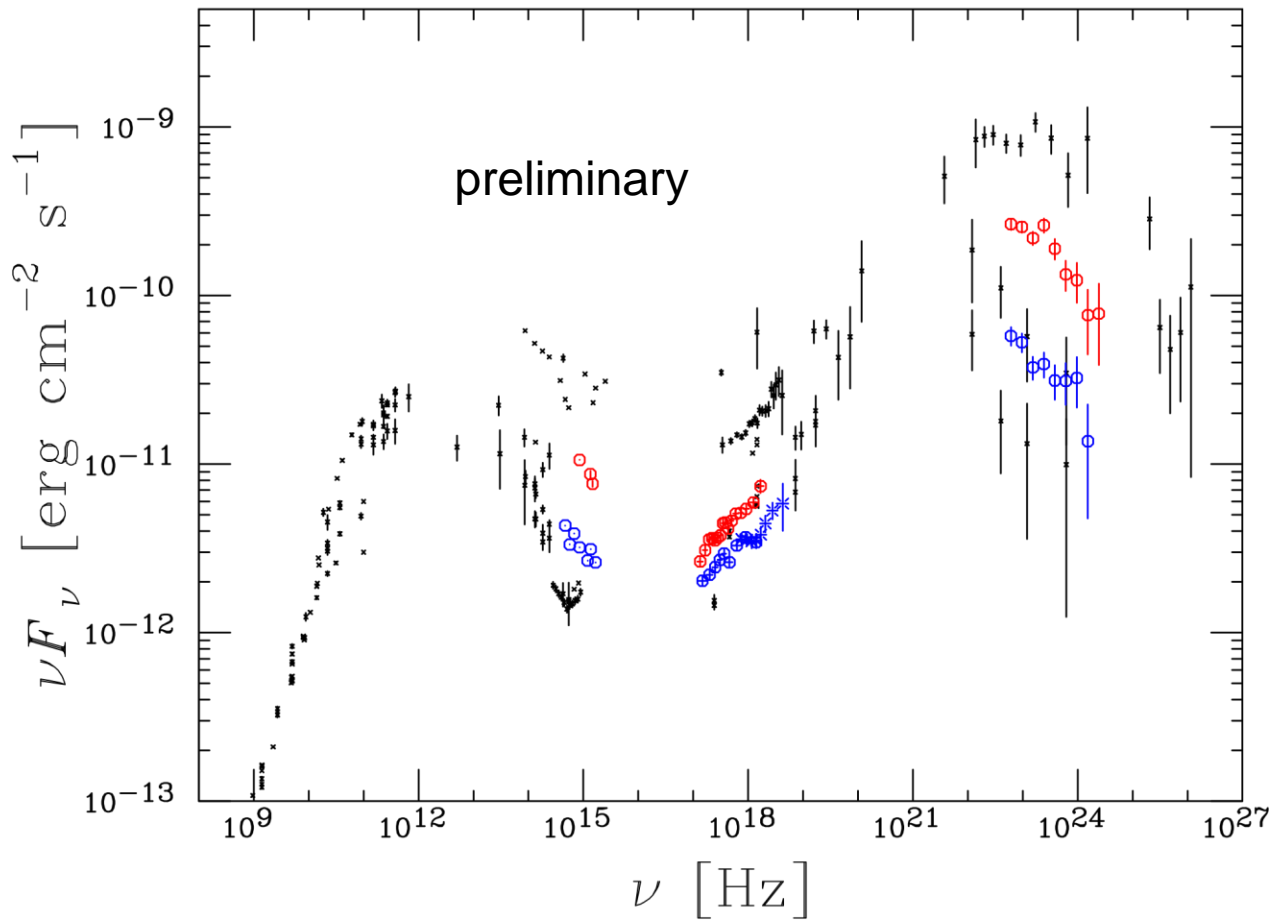


NIR - UV



SED

Mutiwavelength spectra of 3C279



Red : MJD : 54789-54809

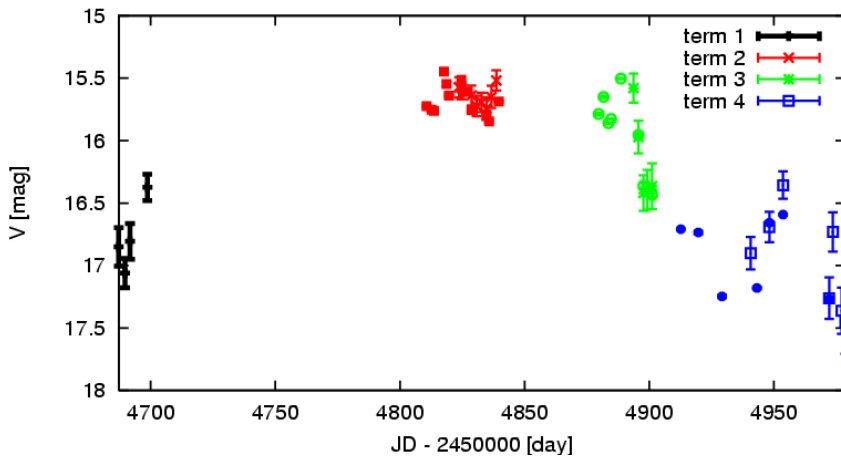
Blue MJD: 54678-54723

Black Historical Data

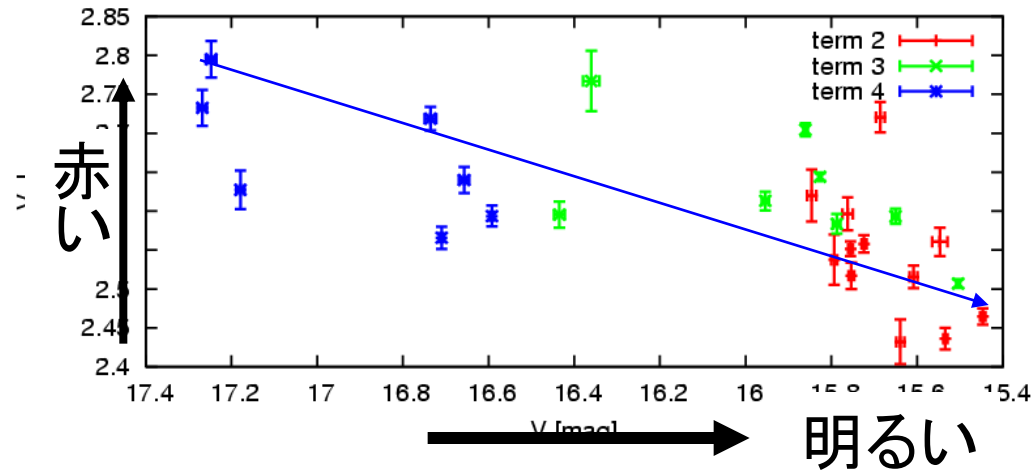
Hayashida et al 2009

V vs Color Plot

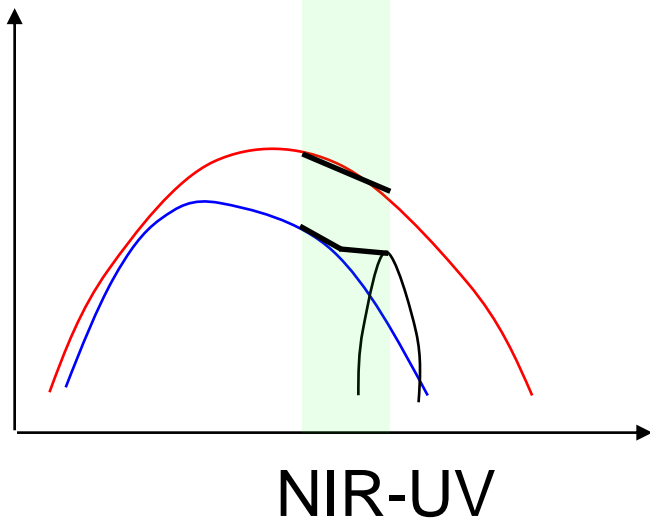
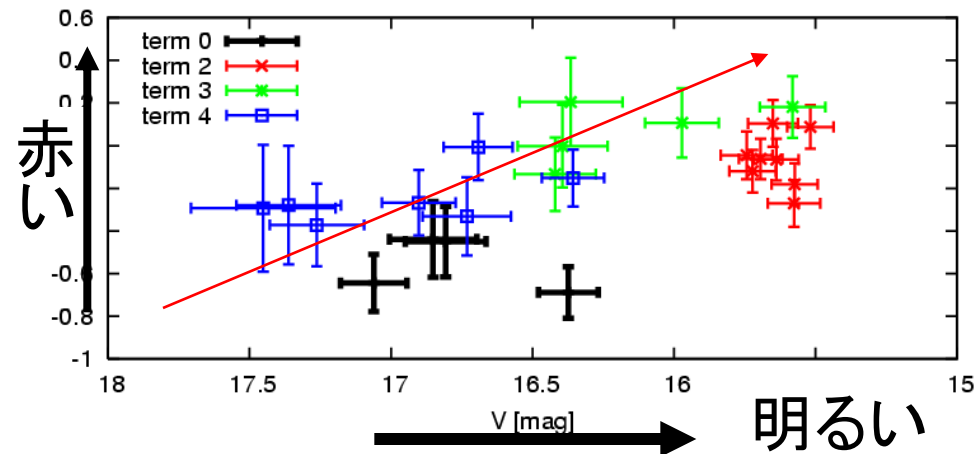
V band Light Curve



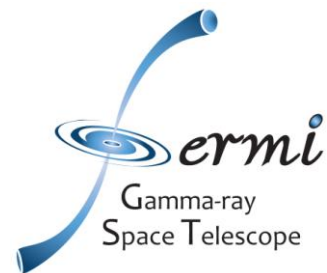
V vs V-J



V vs UVW2 - V



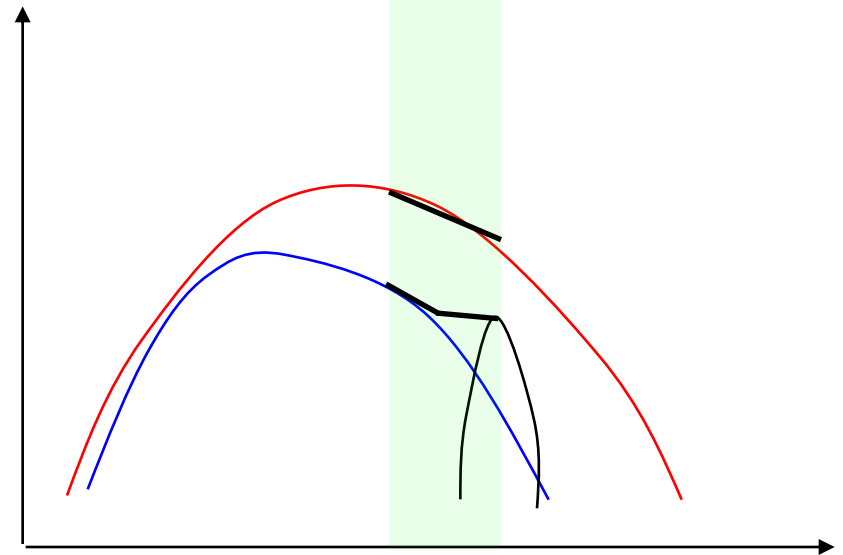
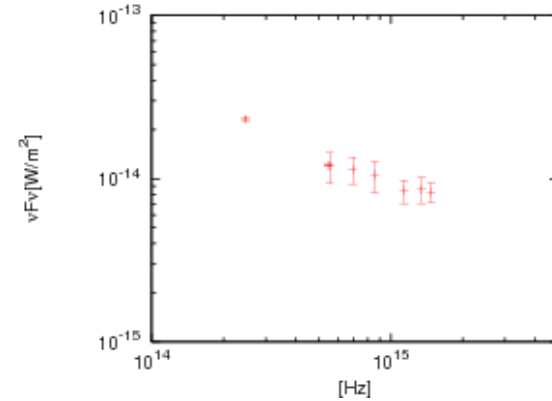
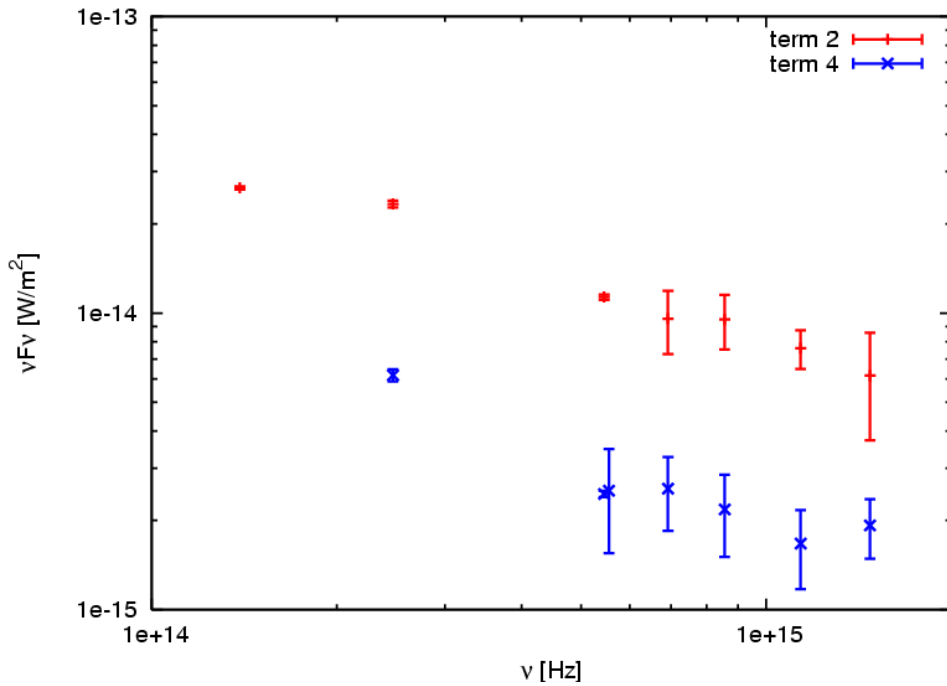
Summary



- Fermiによるガンマ線Flareの検出と同時多波長観測に成功
- ガンマ線で数日スケールの変動を得ることができた
- 可視-ガンマ線の変動は長期的にみると相関
- 近赤外～紫外の色変化から、disk成分の変動はほとんどないと考えられフレアはシンクロトロン放射によるものと示唆される

Back up

Optical SED



Color Variability

