



Observing Application

Date : Apr, 28 2013
 Proposal ID : VLBA/13A-512
 Legacy ID : BN48
 PI : KOTARO NIINUMA
 Type : Director's Discretionary
 Time - Target of Opportunity
 Category : Active Galactic Nuclei
 Total Time : 36.0

Dense follow-up of giant GeV flare from Mrk 421 with multi-frequency astrometry

Abstract:

During our ongoing astrometric observation of the radio core of Mrk 421 (obs ID: BN045), significant GeV gamma-ray flare happens in beginning of March 2013 (Fig. 1). Additionally, on early April, exceptional flare at ranging from optical to TeV gamma-ray were also detected (ATel#4974, 4976, 4977, 4978, 4982, and 4983). In relatively early-phase after the large high-energy flare, it is expected that the radio core shows the change of its position significantly at multi frequency. Therefore, this is best occasions for identifying the "High-Energy flare zone", and its frequency dependence (opacity structure) in a TeV blazar by conducting densely monitor of the radio core of Mrk 421 with multi-frequency phase-referencing technique. In order to complete this purpose, we request 8 Target of Opportunity observations of 4.5 hours each for a total of 36 hours.

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Related proposals:

13A-151

Joint:

Not a Joint Proposal

Observing type(s):

Continuum, High Time Resolution, Astrometry

VLBA Resources

Resource Name: 1.3cm

Details	Stations	Observing Parameters	Correlation Parameters	Special Features
Wavelength: 1.3 cm Processor: Socorro-DiFX Observing Mode: Standard	VLBA <input checked="" type="checkbox"/> Br <input checked="" type="checkbox"/> Fd <input checked="" type="checkbox"/> Hn <input checked="" type="checkbox"/> Kp <input checked="" type="checkbox"/> La <input checked="" type="checkbox"/> Mk <input checked="" type="checkbox"/> NI <input checked="" type="checkbox"/> Ov <input checked="" type="checkbox"/> Pt <input checked="" type="checkbox"/> Sc <input checked="" type="checkbox"/> <hr/> HSA <input type="checkbox"/> Ar <input type="checkbox"/> Ef <input type="checkbox"/> GBT <input type="checkbox"/> VLA-Y27 <input type="checkbox"/> <hr/> VLA-Y1 <input type="checkbox"/> <hr/> Geodetic	Observing System: DDC System Bandwidth: 128 MHz Baseband Channels: 4 Polarization: LCP Agg. Bit Rate (Mbits/sec): 2048	Correlator Passes: 1 Integration Period (sec): 2.0 Spectral Points /BBC: 128 No of Fields: 1	Full Polarization <input type="checkbox"/> Pulsar Gate <input type="checkbox"/> Convert to Mark4 <input type="checkbox"/>

Resource Name: 2cm

Details	Stations	Observing Parameters	Correlation Parameters	Special Features
Wavelength: 2 cm Processor: Socorro-DiFX Observing Mode: Standard	VLBA <input checked="" type="checkbox"/> Br <input checked="" type="checkbox"/> Fd <input checked="" type="checkbox"/> Hn <input checked="" type="checkbox"/> Kp <input checked="" type="checkbox"/> La <input checked="" type="checkbox"/> Mk <input checked="" type="checkbox"/> NI <input checked="" type="checkbox"/> Ov <input checked="" type="checkbox"/> Pt <input checked="" type="checkbox"/> Sc <input checked="" type="checkbox"/> <hr/> HSA <input type="checkbox"/> Ar <input type="checkbox"/> Ef <input type="checkbox"/> GBT <input type="checkbox"/> VLA-Y27 <input type="checkbox"/> <hr/> VLA-Y1 <input type="checkbox"/> <hr/> Geodetic	Observing System: DDC System Bandwidth: 128 MHz Baseband Channels: 4 Polarization: LCP Agg. Bit Rate (Mbits/sec): 2048	Correlator Passes: 1 Integration Period (sec): 2.0 Spectral Points /BBC: 128 No of Fields: 1	Full Polarization <input type="checkbox"/> Pulsar Gate <input type="checkbox"/> Convert to Mark4 <input type="checkbox"/>

Resource Name: 4/13cm

Details	Stations	Observing Parameters	Correlation Parameters	Special Features
Wavelength: 3.6/13 cm Processor: Socorro-DiFX Observing Mode: Standard	VLBA <input checked="" type="checkbox"/> Br <input checked="" type="checkbox"/> Fd <input checked="" type="checkbox"/> Hn <input checked="" type="checkbox"/> Kp <input checked="" type="checkbox"/> La <input checked="" type="checkbox"/> Mk <input checked="" type="checkbox"/> NI <input checked="" type="checkbox"/> Ov <input checked="" type="checkbox"/> Pt <input checked="" type="checkbox"/> Sc <input checked="" type="checkbox"/> <hr/> HSA <input type="checkbox"/> Ar <input type="checkbox"/> Ef <input type="checkbox"/> GBT <input type="checkbox"/> VLA-Y27 <input type="checkbox"/> <hr/> VLA-Y1 <input type="checkbox"/> <hr/> Geodetic	Observing System: DDC System Bandwidth: 128 MHz Baseband Channels: 4 Polarization: LCP Agg. Bit Rate (Mbits/sec): 2048	Correlator Passes: 1 Integration Period (sec): 2.0 Spectral Points /BBC: 128 No of Fields: 1	Full Polarization <input type="checkbox"/> Pulsar Gate <input type="checkbox"/> Convert to Mark4 <input type="checkbox"/>

Resource Name: 7mm

Details	Stations	Observing Parameters	Correlation Parameters	Special Features
Wavelength: 7 mm Processor: Socorro-DiFX Observing Mode: Standard	VLBA <input checked="" type="checkbox"/> Br <input checked="" type="checkbox"/> Fd <input checked="" type="checkbox"/> Hn <input checked="" type="checkbox"/> Kp <input checked="" type="checkbox"/> La <input checked="" type="checkbox"/> Mk <input checked="" type="checkbox"/> NI <input checked="" type="checkbox"/> Ov <input checked="" type="checkbox"/> Pt <input checked="" type="checkbox"/> Sc <input checked="" type="checkbox"/> <hr/> HSA <input type="checkbox"/> Ar <input type="checkbox"/> Ef <input type="checkbox"/> GBT <input type="checkbox"/> VLA-Y27 <input type="checkbox"/> <hr/> VLA-Y1 <input type="checkbox"/> <hr/> Geodetic	Observing System: DDC System Bandwidth: 128 MHz Baseband Channels: 4 Polarization: LCP Agg. Bit Rate (Mbits/sec): 2048	Correlator Passes: 1 Integration Period (sec): 2.0 Spectral Points /BBC: 128 No of Fields: 1	Full Polarization <input type="checkbox"/> Pulsar Gate <input type="checkbox"/> Convert to Mark4 <input type="checkbox"/>