

KOREAN VLBI NETWORK OBSERVING APPLICATION

VLBI

Proposal ID: V2018B-00
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TERM: 2018B

1. Title of proposal:
 What is the turnover frequency and fractional polarization of the 3C48 core during flaring stage?

2. Authors: (PI on the 1st line)

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Leonid Petrov	Leonid.Petrov@lpetrov.net	NASA GSFC, USA	No
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			No
			No

*If any student is involved, please give the following information.

M.S. Ph.D For thesis? Yes No

3. Contact author:
 Name: Leonid Petrov E-mail: Leonid.Petrov@lpetrov.net Phone: +1-703-556-8757 FAX: n/a

4. Staff support:
 – Observing setup: None Consultation Extensive help
 – Post processing: None Consultation Extensive help

5. Proposal type: Large project(≥100hrs) Normal proposal(<100hrs) Director discretion time
 Joint proposal If joint, network name:
 Resubmission Related previous/current proposal ID:

6. Scientific categories:
 Galactic Extragalactic Astrometry Geodesy Radio transient and pulsars
 AGN Maser Galactic center Star Formation Evolved star

7. Observing type:
 Continuum Spectral line Phase referencing Polarimetry
 Survey Multi-frequency Target of opportunity

8. Observing frequency and polarization:
 22GHz 43GHz 86GHz 129GHz
 Single polarization Dual polarization

9. Observing sessions: single epoch multiple epochs
 – Total time requested: 3 hrs
 – Number of sessions: 1; Number of hour each: 1 hrs; Separation: any days
 – Min/Max LST (HH:MM:SS): hh1:mm1:ss1 – hh2:mm2:ss2
 – Preferred range of dates or dates which are NOT acceptable:

10. Abstract (200 words max, 10 point)
 We request the director discretion time for observing 3C48 for measuring its spectrum at 22,43,86,129 and fractional polarization. An extraordinary flare happen in 2018 that transform the spectrum of the core from falling to inverted. VLBA observations on 2018.07.20 showed rising spectrum of the core from 2.3 to 24.6 GHz with spectral index +0.89 without any signs of flattening. VLA observations on 2018.08.31 show fractional polarization at 43 GHz 7%. The goal of these observations 1) to measure spectrum of the core in a ranger of 22-129 GHz and find the turnover frequency or set its upper limit; 2) to measure polarization fraction at these frequencies. Since we do not know for how long 3C48 will be in the the flaring state, we request the target of opportunity 3 hour long KVN observing session.

Title of Proposal: *over frequency and fractional polarization of the 3C48 core during flaring stage?*

11. Disk usage (recording time/total time): 0.8

12. Recording bandwidth: 16MHz 32MHz 64MHz 128MHz 256MHz 512MHz
Recording rate: 512Mbps 1Gbps 2Gbps 4Gbps 8Gbps

13. Spectroscopy only (if you observe more than 4 lines, please attach the additional line information in a separate sheet.)

Items	Line 1	Line 2	Line 3	Line 4
transitions to be observed				
velocity range in LSR (km s ⁻¹)				
channel bandwidth (kHz)				
rest frequency (MHz)				

14. Number of sources: [If more than 8 sources, please attach separate list.]

15. Name [order of priority]	Coordinates (J2000)		Freq. (GHz)	Band width (MHz)	Flux density		Time requested (hr)	Cal? (Y/N)
	RA (hh:mm:ss.ss)	DEC (±dd:mm:ss.ss)			total (Jy)	peak (mJy)		
J1330–2142	13:30:07.127636	–21:42:01.80437	22/43/86/129		0.284	0.199	60 ^m	No
J2253+1608	22:53:57.747942	+16:08:53.56088	22/43/86/129		10.9	7.8	8 ^m	No
J2232+1143	22:32:36.408905	+11:43:50.90411	22/43/86/129		4.7	2.9	8 ^m	No
Source name 8								

16. Correlation setup:

– Correlator integration time: 0.2016 (default 0.8096 sec)

– Spectral channels per 16 MHz: 256 (default 128 channel for continuum, 512 for spectral line)

Full Stokes correlation Pulsar gating P-cal extraction Multiple phase center

If you need a special correlation setup, please briefly specify here.

17. Special requirements:

- Sites :
- Dates :
- Frequencies :
- etc :

18. Please attach the following items written in English using TeX. The maximum number of pages is 2+1 if you requested less than 100 hours, otherwise it is 4+1. The minimum font size is 10.

- Scientific and technical justifications
- List of publications made by previous KVN observations
- If you requested ToO (Target of Opportunity) observation, please include well-defined trigger criteria.