

KOREAN VLBI NETWORK OBSERVING APPLICATION

VLBI

TERM: 2018B

Proposal ID: V2018B-00

Received Date: 2018/ /

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:
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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: *rest frequency and fractional polarization of the 3C48 core during flaring stage?*

11. Disk usage (recording time/total time): 0.8								
12. Recording bandwidth: <input type="checkbox"/> 16MHz <input type="checkbox"/> 32MHz <input type="checkbox"/> 64MHz <input type="checkbox"/> 128MHz <input type="checkbox"/> 256MHz <input type="checkbox"/> 512MHz								
Recording rate: <input type="checkbox"/> 512Mbps <input type="checkbox"/> 1Gbps <input type="checkbox"/> 2Gbps <input type="checkbox"/> 4Gbps <input checked="" type="checkbox"/> 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: <input style="width: 50px; text-align: center;" type="text" value="1"/> [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 (\pm 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: <u>0.2016</u> (default 0.8096 sec)								
– Spectral channels per 16 MHz: <u>256</u> (default 128 channel for continuum, 512 for spectral line)								
<input checked="" type="checkbox"/> Full Stokes correlation <input type="checkbox"/> Pulsar gating <input checked="" type="checkbox"/> P-cal extraction <input type="checkbox"/> Multiple phase center								
<i>If you need a special correlation setup, please briefly specify here.</i>								
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.								