



Observing Application

Date : Jun, 21 2013
 Proposal ID : VLBA/13A-534
 Legacy ID : BB337
 PI : Geoffrey Bower
 Type : Director's Discretionary
 Time - Target of Opportunity
 Category : Energetic Transients and Pulsars
 Total Time : 24.0

Proper Motion of the Galactic Center Soft Gamma-Ray Repeater 1745-29

Abstract:

The discovery of a magnetar within 3 arcseconds of the Galactic Center black hole Sagittarius A* provides an unprecedented opportunity to probe kinematics, supernova history, Galactic Center scattering and ISM propagation, and the detectability of future pulsars. We propose continued astrometric observations of SGR 1745-29 using the VLBA+Y27. The proposed observations will achieve a velocity accuracy between 15 and 70 km/s and clearly point to the supernova remnant origin (possibly Sgr A East) for the SGR. Clear measurement of the scattering properties will provide the full ensemble of ISM propagation measurements (scattering measure plus the existing DM and RM) that will provide the most accurate constraint on the Galactic Center hyperstrong scattering screen and insight into the detection of pulsars in close orbit around Sgr A*.

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Related proposals:

VLBA/13A-513

Joint:

Not a Joint Proposal

Observing type(s):

Continuum, Pulsar, Astrometry

VLBA Resources

Resource Name: Uband

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 type="checkbox"/> NI <input checked="" type="checkbox"/> Ov <input checked="" type="checkbox"/> Pt <input checked="" type="checkbox"/> Sc <input type="checkbox"/> <hr/> HSA <input type="checkbox"/> Ar <input type="checkbox"/> Ef <input type="checkbox"/> GBT <input type="checkbox"/> VLA-Y27 <input checked="" type="checkbox"/> <hr/> VLA-Y1 <input type="checkbox"/> <hr/> Geodetic	Observing System: DDC System Bandwidth: 128 MHz Baseband Channels: 4 Polarization: Dual Agg. Bit Rate (Mbits/sec): 2048	Correlator Passes: 2 Integration Period (sec): 2.0 Spectral Points /BBC: 256 No of Fields: 2	Full Polarization <input type="checkbox"/> Pulsar Gate <input checked="" type="checkbox"/> Convert to Mark4 <input type="checkbox"/>

Resource Name: Xband

Details	Stations	Observing Parameters	Correlation Parameters	Special Features
Wavelength: 3.6 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 type="checkbox"/> NI <input checked="" type="checkbox"/> Ov <input checked="" type="checkbox"/> Pt <input checked="" type="checkbox"/> Sc <input type="checkbox"/> <hr/> HSA <input type="checkbox"/> Ar <input type="checkbox"/> Ef <input type="checkbox"/> GBT <input type="checkbox"/> VLA-Y27 <input checked="" type="checkbox"/> <hr/> VLA-Y1 <input type="checkbox"/> <hr/> Geodetic	Observing System: DDC System Bandwidth: 128 MHz Baseband Channels: 4 Polarization: Dual Agg. Bit Rate (Mbits/sec): 2048	Correlator Passes: 2 Integration Period (sec): 2.0 Spectral Points /BBC: 256 No of Fields: 2	Full Polarization <input type="checkbox"/> Pulsar Gate <input checked="" type="checkbox"/> Convert to Mark4 <input type="checkbox"/>

Sources:

Name	Position	Velocity	Group
SGR1745-29	Coordinate System	Equatorial	GCMagnetar
	Equinox	J2000	
	Right Ascension	17:45:40.0 00:00:00.0	
	Declination	-29:00:29.0 00:00:00.0	
	Calibrator	No	
SgrA	Coordinate System	Equatorial	GCMagnetar
	Equinox	J2000	
	Right Ascension	17:45:40.0 00:00:00.0	
	Declination	-29:00:28.0 00:00:00.0	
	Calibrator	No	

Sessions:

Name	Session Time (hours)	Repeat	Separation	GST minimum	GST maximum	Elevation Minimum
Epoch3U	6.00	1	0 day	21:00:00	04:30:00	0
Epoch3X	6.00	1	0 day	21:00:00	04:30:00	0
Epochs45	6.00	2	60 day	21:00:00	04:30:00	0