Observing Application

Date :	Nov, 11 2010
Proposal ID :	VLBA/10C-136
Legacy ID :	BH172
PI :	Gregg Hallinan
Type :	Rapid Response - Exploratory Time
Category :	Stellar, Astrometry/Geodesy
Total Time :	8.0

Simultaneous VLBI and Zeeman Doppler Imaging of Algol's Coronal Loop

Abstract:

We have been awarded spectropolarimetric Zeeman Doppler Imaging (ZDI) observations of the active binary Algol in late November. These observations, motivated by the detection of a giant coronal loop in recent VLBI observations, will investigate the possible presence of a large-scale stable magnetic field that somehow confines this coronal loop. The science produced by these observations would be greatly enhanced by the inclusion of contemporaneous VLBI observations to investigate the continuing presence of the coronal loop, and its location relative to the star's magnetic field. We request 2 x 4 observing blocks of Exploratory time with the VLBA at 15 GHz. to be scheduled any time in 2010, to fulfil this possibility. The inclusion of Green Bank for any part of these observations, although not required, would benefit this experiment enormously.

Authors:

Name	Institution	Email	Status
Gregg Hallinan	National Radio Astronomy Observatory	gregg@astro.berkeley.edu	Graduating: N/A Thesis: false
Walter Brisken	National Radio Astronomy Observatory	wbrisken@nrao.edu	
Stephen Bourke	Joint Institute for VLBI in Europe	bourke@jive.nl	
Julien Morin	Laboratiore Astrophysique de Toulouse	jmorin@ast.obs-mip.fr	Graduating: 2009 Thesis: false
Jean-Francois Donati	Laboratiore Astrophysique de Toulouse	donati@ast.obs-mip.fr	
Moira Jardine	St. Andrews, University of	mmj@st-andrews.ac.uk	
Aaron Golden	Galway, National University of Ireland	aaron.golden@nuigalway.ie	

Principal Investigator: Gregg Hallinan
Contact: Gregg Hallinan
Telephone: 5104092840
Email: gregg@astro.berkeley.edu

Related proposals:

VLBA/10C-126

Joint:

Not a Joint Proposal

Observing type(s):

Continuum, Monitoring

VLBA Resources

Name	Wavelength	Processor	Stations	Observing Parameters	Correlation Parameters
TightBinary	2 cm	Socorro-DiFX	VLBA ☑ Br ☑Fd ☑Hn ☑Kp ☑ La ☑Mk ☑Kp ☑Ov ☑ Pt ☑Sc ☑ HSA Ar Ef GBT VLA-Y27 VLA-Y1 Geodetic	Bandwidth: 16 MHz Baseband Channels 8 Sample Rate (Msample/s) 32 Bits/Sample 2 Polarization RCP & Agg. Bit Rate (Mbits/sec) 512	Full Polarization ☑ Pulsar Gate Correlator Passes 1 Integration Period (sec) 2.0 Spectral Points /BBC 8 No of Fields 0

Sources:

Name	Position		Velocity		Group
algol	**Coordinate System**	Equatorial	**Convention**	Radio	Algol
	Equinox	J2000			
	Right Ascension	03:08:10.13	**Ref. Frame**	LSRK	
		00:00:00.0			
	Declination	+40:57:20	**Velocity**	0	
		00:00:00			

Sessions:

Name	Session Time (hours)	Repeat	Separation	GST minimum	GST maximum	Elevation Minimum
TB	4.00	2	0 day	12:30:00	17:30:00	0

Session Constraints:

Name	Constraints	Comments

Session Source/Resource Pairs:

Session Name	Source	Resource	Time	Figure of Merit
TB	algol	TightBinary	4.0 hour	0.1 mJy/bm

Staff support: None Plan of Dissertation: no