



Observing Application

Date : Jan, 27 2012
Proposal ID : VLA/11B-247
Legacy ID : AC1085
PI : Alessandra Corsi
Type : Director's Discretionary
Time - Target of
Opportunity
Category : Energetic Transients and
Pulsars
Total Time : 15.0

PTF11qcj: First discovery of a radio luminous Ibn SN

Abstract:

In October 2011, PTF discovered PTF11qcj, a SN of the very rare type "Ibn". Before then, only 4 Ibn SNe were known, the prototype case being the famous SN2006jc. The presence of He emission lines in the optical spectra of SN 2006jc, and the associated thermal X-ray emission, supported the idea that Ibn SNe are SN interacting with a shell of He-rich circum-stellar material (CSM). PTF11qcj shows He emission lines, and an X-ray luminosity 3x that of SN 2006jc. More importantly, using the EVLA we discovered that PTF11qcj radio luminosity is 100x that of SN 2006jc. PTF11qcj is the only one case known of radio loud Ibn SN. Currently, we are carrying out an approved X-ray follow-up campaign with Swift. Having near simultaneous X-ray and radio observations would be of crucial importance, and motivates this proposal: the fact that the He-rich CSM interaction can be probed (at the same time) by radio, X-ray and optical (via He emission lines), promises an exciting return on this investment (Corsi et al. 2012, in prep.). Our program VLA/11B-034 has run out of time. We ask here for 15 hrs of EVLA time.

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Related proposals:

VLA/11A-227 and VLA/11B-034

Joint:

Not a Joint Proposal

Observing type(s):

Continuum

VLA Resources

Name	Conf.	Frontend & Backend	Setup
Cwide	Any	C Band 6 cm 4000-8000 MHz WIDAR OSRO, Full Polarization	Rest frequencies: 5000.0,7400.0 MHz Subband Bandwidth: 128.0 MHz No. of Channels: 64 Poln. products: 4.0 Channel Width: 2000.0 kHz Total Bandwidth: 2,048.00 MHz
Swide	Any	S Band 10 cm 2000 - 4000 MHz WIDAR OSRO, Full Polarization	Rest frequencies: 2520.0,3480.0 MHz Subband Bandwidth: 128.0 MHz No. of Channels: 64 Poln. products: 4.0 Channel Width: 2000.0 kHz Total Bandwidth: 2,048.00 MHz
Kuwide	Any	Ku Band 2 cm 12000 - 18000 MHz WIDAR OSRO, Full Polarization	Rest frequencies: 13500.0,16000.0 MHz Subband Bandwidth: 128.0 MHz No. of Channels: 64 Poln. products: 4.0 Channel Width: 2000.0 kHz Total Bandwidth: 2,048.00 MHz
X ref pointing	Any	X Band 3.6 cm 8000 - 12000 MHz WIDAR OSRO, Full Polarization	Rest frequencies: 8500.0,9500.0 MHz Subband Bandwidth: 128.0 MHz No. of Channels: 64 Poln. products: 4.0 Channel Width: 2000.0 kHz Total Bandwidth: 2,048.00 MHz

Sources:

Name	Position		Velocity		Group
PTF11QCJ	Coordinate System	Equatorial	Convention	Radio	PTF11QCJ_S-C-Ku
	Equinox	J2000			
	Right Ascension	13:13:41.51 00:00:00.0	Ref. Frame	LSRK	
	Declination	+47:17:57.0 00:00:00.0	Velocity	0.00	
1331+305=3C286	Coordinate System	Equatorial	Convention	Radio	PTF11QCJ_S-C-Ku
	Equinox	J2000			
	Right Ascension	13:31:08.287984 00:00:00.0	Ref. Frame	LSRK	
	Declination	+30:30:32.95885 00:00:00.0	Velocity	0.00	
J1327+4326	Coordinate System	Equatorial	Convention	Radio	PTF11QCJ_S-C-Ku
	Equinox	J2000			
	Right Ascension	13:27:20.978998 00:00:00.0	Ref. Frame	LSRK	
	Declination	+43:26:27.9893 00:00:00.0	Velocity	0.00	

Sessions:

Name	Session Time (hours)	Repeat	Separation	LST minimum	LST maximum	Elevation Minimum
PTF11QCJ_multiband	1.50	10	10 day	09:00:00	17:00:00	0