



Observing Application

Date : Sep, 16 2012
 Proposal ID : VLA/12B-380
 Legacy ID : AD670
 PI : Gloria Dubner
 Type : Director's Discretionary
 Time - Target of Opportunity
 Category : Interstellar Medium
 Total Time : 4.5

Contemporaneous multispectral observations of the Crab Nebula

Abstract:

We propose to complete our ongoing campaign of Chandra and HST observations of the Crab Nebula with contemporaneous centimetric radio observations carried out with the JVLA at 3 GHz in the A-array configuration. Our immediate goal is to investigate the multiwavelength spectra of the individual pulsar wind nebula (PWN) features, a research never done before and that demands almost simultaneous observations across the electromagnetic spectrum. The ultimate science goal of our campaign is to understand the physical processes responsible for the formation of the PWN features and the mechanisms responsible for accelerating the wind particles. To achieve our science goals, it is imperative that all the multispectral observations are made within a narrow temporal window (2 weeks at most). This proposal was not submitted under the regular call for A-array because at the deadline time we did not know whether (and when) our HST and Chandra observations were going to be scheduled. Within the same program, we have also submitted a proposal to observe the Crab PWN with ALMA, filling in the observational gap at 100 GHz.

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Related proposals:

Joint:

Not a Joint Proposal

Observing type(s):

Continuum

VLA Resources

Name	Conf.	Frontend & Backend	Setup
Crab	A	S Band 10 cm 2000 - 4000 MHz WIDAR OSRO, Full Polarization	Rest frequencies: 2500.0,3500.0 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

Testing Resource Images

Sources:

Name	Position		Velocity		Group
Crab-Nebula	Coordinate System	Equatorial	Convention	Radio	Crab
	Equinox	J2000	Ref. Frame	LSRK	
	Right Ascension	05:34:31.9 00:00:00.0	Velocity	0.00	
	Declination	+22:00:52.0 00:00:00.0			

Sessions:

Name	Session Time (hours)	Repeat	Separation	LST minimum	LST maximum	Elevation Minimum
Crab-nebula	4.50	1	0 day	00:00:00	24:00:00	0

Session Constraints:

Name	Constraints	Comments

Session Source/Resource Pairs:

Session Name	Source	Resource	Time	Figure of Merit	Subarray
Crab-nebula	Crab-Nebula	Crab	4.5 hour	0.1 mJy/bm	

Present for observation: no

Staff support: Friend

Plan of Dissertation: no