



Observing Application

Date: Jan 24, 2007
 Proposal ID: VLA/06C-274
Legacy ID: AZ172
 PI: Ben Zuckerman
 Type: Rapid Response
 Exploratory Time
 Category: Stellar
 Total time: 1.0 hour

Radio emission from BP Psc?

Abstract:

BP Psc is a bright, isolated, stellar IRAS source located at high Galactic latitude. It has many characteristics of a classical K-type T Tauri star, but also some remarkable properties including, for example, its isolation from any interstellar molecular cloud and other young stars and, also, a low lithium abundance. The latter characteristic is perhaps unprecedented for a star with as much surrounding gas and dust and, thus, as youthful as BP Psc. Specifically, evolutionary models of young K-type stars imply a characteristic lithium depletion time of 100 Myr or more. To determine the age of BP Psc it is necessary to measure its distance from Earth. Because of its isolation and the fact that the star is not seen directly at visual and near-IR wavelengths (but only light scattered off the surrounding dust disk), a standard optical parallax measurement is apt to be very difficult and, thus, perhaps not very accurate. Hence, should the star have radio continuum flux detectable with the VLBA, we would propose to measure its parallax with the VLBA. The present VLA request is an exploratory proposal to determine if there is appreciable cm flux.

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Joint:

Not a Joint Proposal

Observing type(s):

Continuum, *

Resources:

Resource name	Tele. Conf.	Frontend & Backend	Set up
BP Psc	VLA Any	X Band 3.6 cm 8080 - 8750 MHz VLA Correlator - Single Channel Continuum	Bandwidth: 50 MHz Rest frequencies: 8435.1,8485.1 MHz
l_band	VLA Any	L Band 20 cm 1200 - 2000 MHz VLA Correlator - Single Channel Continuum	Bandwidth: 50 MHz Rest frequencies: 1464.9,1385.1 MHz

Sources:

Source name	RA / RA Range	DEC / DEC Range	System	Velocity/z	Group name
BP Psc	23:22:24.7 00:00:00.0	-2:13:41 00:00:00	J2000	0 km/s	

Sessions:

Session Name	Session Time	Repeat	Separation	LST Minimum	LST Maximum	Elevation Minimum
search	1.0 hour	1	0 day	20:30:00	03:30:00	0

Session Constraints:

Session Name	Constraint	Comments
search	none	This is a request for 1 hour to search for a signal at two bands.

Session Source/Resource Pairs:

Session Name	Source	Resource	Time	Figure of Merit
search	BP Psc/	BP Psc	0.5 hour	0.039mJy/bm
search	BP Psc/	l_band	0.5 hour	0.048mJy/bm

Total Time per Configuration:

Configuration	Total Time
Any	1.0

Present for observation: no Staff support: None