Observing Application

Date:Aug 29, 2006
Proposal ID:VLA/06C-263
Legacy ID:AC850
PI: Salvador Curiel
Type:Rapid Response
Target of Opportunity
Category: Galactic
Total time: 2.5 hour

A new outburst by the classical TTauri binary system XZ Tau?

Abstract:

XZTau is a classical TTauri binary system with a separation of ~0.3 arcsec and a position angle of ~140 deg, located in the Taurus complex. This system has a bipolar optical flow about 20" long, with a position angle of 15 deg. Multy-epoch HST/WFPC2 images have revealed that the suspected outflow source, XZ~Tau North, has flared in EXor-type fashion and that its recently discovered bubble-like shock (about 5" in size), driven by the XZ~Tau outflow, is slowing down, having an expansion velocity of about 120 km/s. We have recently found that this binary is moving to the SE with proper motions of about 22 mas/yr. In addition, we found that the northern components has recently ejected material to the north, with a velocity similar to that measured from HST observations, suggesting that this binary system is going through a new outburst episode. We request observing time to confirm and study the new ejection of material before it fades away.

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Related proposals:
AC763, AC816

Joint:
Not a Joint Proposal

Observing type(s):
Continuum, *

Resources:

Resource name	Tele. Conf.	Frontend & Backend	Set up
XZtauQ	VLA B	Q Band 0.7 cm 40500 - 44500 MHz VLA Correlator - Single Channel Continuum	Bandwidth: 50 MHz Rest frequencies: 43314.9,43364.9 MHz
XZTauX	VLA B	X Band 3.6 cm 8080 - 8750 MHz VLA Correlator - Single Channel Continuum	Bandwidth: 50 MHz Rest frequencies: 8435.1,8485.1 MHz

Sources:

Source name	RA / RA Range	DEC / DEC Range	System	Velocity/z	Group name
XZTauQ	04:31:40.0 00:00:00.0	+18:13:57 00:00:00	J2000	0 km/s	XZTau-Q
XZTau	04:31:40.0 00:00:00.0	+18:13:57 00:00:00	J2000	0 km/s	XZTau-X

Sessions:

Session Name	Session Time	Repeat	Separation	LST Minimum	LST Maximum	Elevation Minimum
XZTau-B	2.5 hours	1	0 day	00:00:00	00:00:00	0

Session Constraints:

Session Name	Constraint	Comments
XZTau-B	It is important to observe using the current B configuration, but early CnB could also work fine. The expected separation between the two sources is about 0.5 arcsec and the north component may fade away during the next few months.	It is important to observe both frequencies to measure the proper motions of both the binary system and the ejected material, as well as to find out the time of the ejection.

Session Source/Resource Pairs:

Session Name	Source	Resource	Time	Figure of Merit
XZTau-B	XZTauQ/XZTau-Q	XZtauQ	1.7 hour	0.13mJy/bm
XZTau-B	XZTau/XZTau-X	XZTauX	0.8 hour	0.04mJy/bm