Observing Application

Date :	Jul, 11 2007
Proposal ID :	VLA/07C-233
Legacy ID :	AR660
PI :	Kazi Rygl
Type :	Rapid Response - Target of Opportunity
Category :	Stellar
Total Time :	1.00

Synchrotron emission from Theta 1 Ori C during periastron passage?

Abstract:

Very recently, Kraus et al 2007. determined the orbital parameters of the binary Theta 1 Orionis C for the first time. Fortunately, the ~11 yearly periastron is about to occur now (epoch 2007.5).
The binary system is unique, since it consists of a magnetic rotator (O5.5V) and an other massive star (O9.5V). Hence during the periastron passage, wind-wind interactions in the presence of a (known!) magnetic field will occur and are expected to produce non-thermal radio emission. We propose to search for such emission, which will, for the first time, allow spatially resolved imaging of such an interaction (with potential VLBA follow-up observations). This will give new insight into the nature of wind-wind collisions, which, in the radio regime, up to now have only been deteced in very few cases.

Authors:

Name	Institution	Email
Kazi Rygl	Max-Planck-Institut für Radioastronomie	kazi@mpifr-bonn.mpg.de
Stefan Kraus	Max-Planck-Institute fuer Radioastronomie	skraus@mpifr-bonn.mpg.de
Karl Menten	Max-Planck-Institut für Radioastronomie	kmenten@mpifr-bonn.mpg.de
Gerd Weigelt	Max-Planck-Institute fuer Radioastronomie	weigelt@mpifr-bonn.mpg.de
Andreas Brunthaler	Max-Planck-Institut für Radioastronomie	brunthal@mpifr-bonn.mpg.de
Mark Reid	Harvard-Smithsonian Center for Astrophysics	reid@cfa.harvard.edu

Principal Investigator: Kazi Rygl
Contact: Kazi Rygl
Telephone: 0049228525468
Email: kazi@mpifr-bonn.mpg.de

Related proposals:

Joint:

Not a Joint Proposal

Observing type(s):

Continuum

GBT Resources

Sources:

Name	RA / RA Range	Dec / Dec Range	Epoch	Velocity / z	Group
Theta 1 Orionis C	05:35:16.5 00:00:00.0	-5:23:23 00:00:00	J2000	Velocity : 28	Unspecified Group

Sessions:

Name	Session Time (hours)	Repeat	Separation	LST minimum	LST maximum	Elevation Minimum
Session1	1.00	1	0 day	04:00:00	07:00:00	0

Session Constraints:

Name	Constraints	Comments
Session1	Addional, similar, observation contingent on result of this session.	Addional, similar, observation contingent on result of this session. Should be observed as soon as possible.

Session Source/Resource Pairs:

Present for observation: no Staff support: None