Proposal Identification No.: A2199 Date Received: 2006-Feb-02_04:01:56

Technical Page

Proposal Type:	Regular
General Category:	Astronomy
Sub-Category:	Spectroscopy
Observation Category:	
Total Time Requested:	24 Hours

Proposal Title: A Search For Narrow-band Drifting Stellar Radio Bursts Associated with CMI-Enhanced Emission

ABSTRACT:

Recent advances in cyclotron maser instability (CMI) theory, driven by observations of auroral kilometric radiation, have led to a renewed interest in whether this mechanism can also explain some radio bursts from magnetically active stars. The key idea is that the CMI mechanism is much more robust than previously thought, and that the requisite conditions for CMI-enhanced radiation in enhanced stellar magnetospheres should be common. A critical test of this hypothesis is the detection of narrowband, highly polarized drifting bursts at the local electron cyclotron frequency, which for magnetically active stars lie in 1-5 GHz range. The new multi-beam ALFA system, along with the improved sensitivity of the Gregorian system, for the first time allows adequate sensitivity and RFI immunity to pursue a search for such bursts. We propose a spectroscopic radio survey of a variety of M-dwarf and magnetically active close binaries to test this hypothesis.

Name	Institution	E-mail	Phone	Student
Robert L Mutel	University of Iowa	robert-mutel@uiowa.edu	319-335-1950	no

Service Observing Request		Remot e Observing Request	
[X]	None	[ ]	No
[ ]	All of the observing run.	[X]	Maybe
[ ]	Part of the observing run.	[ ]	Yes
[ ]	Queue Observing		

Instrument Setup

L-wide ALFA

Atmospheric Observation Instruments:

Special Equipment or setup: Prefer ALFA for RFI immunity - but could probably use Gregorian L-band system if ALFA unavailable

RFI Considerations

Frequency Ranges Planned