

## Technical Page

Proposal Type: Regular  
 General Category: Astronomy  
 Sub-Category: Spectroscopy  
 Observation Category: Galactic  
 Total Time Requested: 14.25 Hours  
 Minimum Useful Time:

**Proposal Title:** A new Class of Pulsar at the Substellar Boundary: Diagnosing the Structure and Broadband Nature of the Pulsed Signal

*ABSTRACT:*

We have recently shown that ultracool dwarfs constitute an entirely new class of transient radio source capable of producing persistent levels of broadband, coherent, electron cyclotron maser emission. This was confirmed through the detection of periodic bursts of 100% circularly polarized radio emission from the M9 dwarf TVLM 513-46546. We propose to observe TVLM 513-46546 and a recently detected second pulsating ultracool dwarf, LSR J1835+3259, to characterize the substructure of the pulse in the frequency and time domain and to place constraints on the total bandwidth of the pulse. This should enable us to place strong constraints on the location, extent, and morphology of the source regions of the bursts which in turn will allow us to derive vital information on the means by which the stable, field aligned, electric fields responsible for the emission are generated and maintained in the magnetospheres of ultracool dwarfs.

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### Remote Observing Request

- Observer will travel to AO
- Remote Observing
- In Absentia (instructions to operator)

### Instrument Setup

X-high

### Atmospheric Observation Instruments:

**Special Equipment or setup:** We request use of the WAPP processor.

**RFI Considerations**

**Frequency Ranges Planned**