

Technical Page

This proposal has not been submitted before.

Proposal Type: Regular
 General Category: Astronomy
 Sub-Category: Spectroscopy
 Observation Category: Stellar
 Total Time Requested: 35 Hours
 Minimum Useful Time: 50 min

Proposal Title: The Search for Radio-Flaring Late T and Y Dwarfs

ABSTRACT:

At the bottom of the main sequence and beyond, lie ultracool dwarfs (UCDs), which span spectral types M7 to Y. While these objects may have different atmospheric chemical compositions, they exhibit similar trends in magnetic activity indicators such as X-rays, H-alpha, and radio emission and are linked internally by their fully convective interiors. The recent detections of the coolest radio flaring brown dwarf, the T6.5 J1047+21 (Route+Wolszczan 2012) and the most rapidly rotating brown dwarf, the T6 J1122+25 (Route+Wolszczan 2016) place strong constraints on dynamo theory. This proposal would examine 15 never-before observed UCDs cooler than the 900K J1047+21, in an effort to detect and characterize magnetic activity at ever cooler temperatures. The detection of magnetically active brown dwarfs provides case studies to test the hypotheses generated from the alpha-squared and turbulent dynamo models of the fully convective interiors of these objects.

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Remote Observing Request

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

Instrument Setup

C

Atmospheric Observation Instruments:

Special Equipment or setup: Mock spectrometer

RFI Considerations

Frequency Ranges Planned

4250 - 5250