

FAST Proposal Coverpage

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Project Name:

Low Frequency FAST Pilot Observations of the Coolest Brown Dwarfs

Project Summary:

Studying magnetic fields in fully convective brown dwarfs is critical for understanding convection-driven dynamo mechanism, which has been proposed to also work in exoplanets. Observations of auroral radio emission from brown dwarfs provide crucial measurements of field strengths at emitting regions within the magnetosphere. Radio studies of brown dwarfs have mostly been conducted at high frequency (≥ 4 GHz), while low frequency (≤ 1.4 GHz) domain is rarely explored. This proposal aims to investigate the presence and nature of auroral radio emission at low frequencies from the coolest brown dwarfs, which may also form a bridge for studying exoplanets.