

Title

A Reconnaissance for Magnetically Active Ultracool Dwarfs in the Southern Sky

Abstract

The study of magnetism at the bottom of the main sequence and beyond in ultracool dwarfs (UCDs) remains a frontier of stellar and exoplanetary astronomy. It has become clear in the last decade that UCDs can possess strong kilogauss-level magnetic fields, whose presence is manifested most clearly in radio emission, and whose profiles resemble more those of Earth and Jupiter's magnetic fields than those of sun-like stars. UCDs in the southern sky remain particularly unexplored due to the historic lack of sufficient sensitivity at GHz frequencies. At the same time, the sample of UCDs has grown rapidly over the past decade, creating an opportunity to expand our knowledge of magnetic activity in these sources. Here we propose to take advantage of the exquisite sensitivity of MeerKAT to conduct a southern sky search for radio emission from UCDs, requesting 47 hours with the primary objective of discovering new radio-emitting targets.