

Proposal Abstract:

This study focuses on the search for radio transients from wide-field circularly-polarised radio surveys. The V-LoTSS survey aims to produce circularly-polarised maps and has identified three sources with high circularly-polarised fractions that lack counterparts in existing catalogues. The sources are likely to belong to three distinct classes: stellar systems, pulsars, and active galactic nuclei. Based on the analysis of the distribution of circularly-polarised fractions, the first two sources are potential brown dwarfs, while the remaining source could be pulsars, ultra-long period radio transients, or magnetars that produce radio emissions. To further investigate these sources, we propose conducting observations using the FAST telescope. Two one-hour observations will be conducted for each candidate. The goal is to search for pulsars, ultra-long period radio transients, or magnetars that produce radio emissions. And potentially make the first discovery of a brown dwarf in the L-band. In total, three sources will be observed for a total duration of 7 hours, using the SwiftCalibration observation mode.