Proposal Abstract:

This project is a follow-up search on a newly discovered Galactic narrow-banded single pulse by the Commensal Radio Astronomy FAST Survey (CRAFTS), led by an undergraduate student. Fast Radio bursts (FRBs) are energetic millisecond transient phenomena whose origin is still under debate. Only one Galactic FRB-like event was reported during the past decade, associated with a magnetar SGR 1935+2154. Recently, a single pulse search on the CRAFTS archive data discovered a peculiar narrow-band pulse with an unexpectedly low dispersion measure, which implies a close distance of ~1 kpc. No periodicity was found owing to the short integration time. This case will help us reveal the origin of this peculiar source, or discover a new type of compact object. We propose a pulsar search, localization and long-term monitoring campaign. Now we propose a multidimensional analysis of the burst rate, energy distribution, periodic and temporal properties, spectral morphology and high-energy counterparts to reveal the nature of this particular radio burst phenomenon.