Proposal Abstract:

Several extremely long-period radio transients (LPRT) have been discovered recently, posing a serious challenge to our understanding of compact radio sources. The host object for LPRTs remains undetermined and may represent a new population of radio transients. We detected a new LPRT using the DAocheng Radio Telescope (DART), with a pulse period of 44.2 minutes. As a newly completed synthetic aperture array at the P-band, the DART observation mode uses interferometric imaging. By capturing a time series of continuous frames of images, we were able to observe the individual pulses of this LPRT. We measured the flux to be approximately several hundred mJy and the dispersion to be around 150 pc cm-3. We propose using FAST to monitor this newly discovered LPRT in order to record detailed spectra at the L-band. This will help us obtain accurate measurements of significant parameters such as DM and period derivation. This work might lead us to uncover the nature of the host object of LPRTs and understand the radio emission behaviours of the magnetic field associated with this type of transient.