

Proposal Abstract:

Fast Radio Bursts (FRBs) are an enigmatic class of radio transients and have become one of most popular astronomical research field in the past years. The discovery of the Galactic FRB 200428 implies that a least a fraction of FRBs can originate from magnetars, however, the nature of cosmological FRBs is still mysterious. Observationally, repeating FRBs exhibit plenty of complex but intriguing characteristics, it is economic and direct to obtain the FRB sample by tracking active repeaters with sensitive radio telescopes. In a long-term monitoring program for the active repeater FRB 20180301A, the Parkes ultrawideband receiver revealed its secular evolution of dispersion measure (DM) and rotation measure (RM), shedding light on the environment of FRB progenitor. Using the FAST radio telescope, we detected a few bursts from 2023 to 2024 and confirm the decreasing trends of both DM and RM. Here we propose to continue monitoring FRB 20180301A with the FAST telescope by accomplishing science cases like completing the DM/RM evolution, deciphering the spectro-polarimetric properties. The extended observations for this source are key to distinguishing the local environment of FRB progenitor.