

Proposal Abstract:

FRB 20240114A is a hyperactive repeating FRB. We have been monitoring the source through FRB-KSP and near 10000 bursts were detected during the episodes from January to May 2024. With the large sample of bursts, We measured the structure-optimized DM of the observed data before mid-March and didn't find a significant temporal evolution. We also conducted polarization measurements on some of bright bursts and obtained the RM evolution with time. The temporal evolution of the RM suggests the presence of an increasing trend. In addition to the RM evolution, many bursts of FRB 20240114A also exhibit high levels of circular polarization, which can facilitate a deeper exploration of the origin of circular polarization in FRBs. In this proposal, we propose to monitor the long-term evolution of RM and DM, study the circular polarization and try to measure the RM scattering by a joint observation of FAST and Parkes UWL receiver. We believe that these observations will further our understanding of the origin and physical mechanisms of FRBs.