

Proposal Abstract:

Pulsar scintillation dynamic spectra contain unique information about the interstellar "scattering screen" structures whose astrophysical origin is still under debate. Simultaneous wide-band two-station observation is a novel observing mode that has only been performed for the first time in recent years. Observing pulsar dynamic spectra in this mode can yield valuable phase information that will enable 2D modeling of the scattering screens. We propose to perform multiple simultaneous, long-duration tracking observations of FAST and Effelsberg telescopes of pulsar B1508+55 to measure the phase information at differently oriented baselines, constrain the 2D structure of its scattering screen, and monitor the change of the scattering screen structure before and after the echo crossing event expected in spring 2024. The results will provide a valuable case study of the puzzling nature of interstellar scattering screens.