

Proposal Abstract:

Pulsar scintillation is a unique tool for probing both the ionized interstellar medium and the pulsar radio emission region. While most pulsar scintillation studies have been conducted with single-dish telescopes, simultaneous tracking observations at two single-dish telescopes can yield valuable phase information that can enable novel analyses not possible when observing separately. We propose simultaneous observations of pulsar B1133+16 with the FAST and Effelsberg telescopes. This bright pulsar is known to have multiple thin parabolic arcs corresponding to several well-measurable scattering screens on its line of sight. Phase information obtained with simultaneous two-station observations will enable detailed studies of these scattering screens whose astrophysical nature is still unknown, and allow a constraint of the apparent motion of the pulsar emission region.