Proposal Abstract:

Spider pulsars are millisecond pulsars (MSPs) orbiting low-mass companions in tight orbital periods. The stellar wind from the companion star forms a strongly magnetized plasma environment from mG-scale with over Gauss, resulting in the eclipse in the radio band. Spider pulsars are ideal systems for measuring propagation effects, as these effects can be isolated from the intrinsic polarization behavior, which is known from the pulse profile away from the eclipse phase. We propose a repeat observation for the eclipse phase of 5 spider pulsars using FAST, aiming to verify the effects of highly magnetized plasma and constrain the physical parameters of the source region. If no detection, we can still constrain the physical parameters of the source region and infer the magnetic field structure through the variation in DM and magnetic field.