

Proposal Abstract:

The FAST Galactic Plane Pulsar Snapshot (GPPS) survey program has currently discovered 667 pulsars, most of which are faint pulsars. Long-term timing observations of these faint pulsars are necessary to get ephemeris for pulsar property and distribution researches. However, the preliminary position accuracy given by discovery and verification observations of GPPS is only 1.5 arcmin, resulting in insufficient signal-to-noise ratio for subsequent timing observations. Here we propose a method to improve the pulsar position accuracy, by tracking the preliminary position of each pulsar and around symmetrical six points spaced 1.5 arcmin apart from each other. Pulsar signals will be detected in a few trackings with different signal-to-noise ratios, which can be used to constrain its position and improve the accuracy to 0.5 arcmin. Using improved precise position for future timing observations can increase the signal-to-noise ratio by up to a factor of 2. We propose to position 100 faint GPPS pulsars using new developed MultiPos observation mode within 80 hours.