

Proposal Abstract:

Pulsar timing arrays (PTAs) monitor pulse times of arrival of an ensemble of the most stable millisecond pulsar (MSP) with the primary goal of detecting nanohertz gravitational waves (GWs). The success of GW detection with PTA requires the highest timing precision possible. However, there are only a few MSPs with very high timing precisions. The FAST pulsar survey provide a unique opportunity to find more stable pulsars for PTA. Based on our analysis of ZD2022_6 data, we find some MSPs that were discovered by FAST-CRAFTS maybe potential PTA sources. We propose to observe these potential stable MSPs using FAST, and aim to provide more stable pulsars to PTA. We also study the relativistic effects of them and expect to measure some post-Keplerian parameters which could be used to measure the mass of neutron star. Our observation will play an important role in the detection of nanohertz-frequency GW with PTA.