

Proposal Abstract:

We propose to use the extreme sensitivity of FAST telescope to observe five millisecond pulsars selected from Chinese Pulsar Timing Array and make improved measurements of the pulsar mass via Shapiro delay. With simulated observations near superior conjunctions, we show that the uncertainties of Shapiro delay parameters and pulsar masses can be deduced significantly with proposed observations. This might benefit us with detections of massive or light pulsars, which will intensively constrain the equation-of-state of dense matter at zero-temperature. If no extreme mass pulsar is detected, these pulsar mass measurements could also increase our understanding of the neutron star mass distribution and offer us a wealth of information on the evolution of binaries.