

Proposal Abstract:

We propose to use FAST for the timing and searching of pulsars in Globular Cluster (GC) NGC 6517. We processed all 19 archival data (except for 5 baseband datasets) of FAST but failed to obtain phase-connected timing solutions for NGC 6517I to L and discovered six new pulsars, namely NGC 6517 M, N, O, P, Q, and R. Our discoveries make NGC 6517 the cluster with the most pulsars in the FAST sky, hosting 18 pulsars. These new findings are due to the high sensitivity of FAST. These extremely faint pulsars can not always be detected even in the current longest observations due to slight scintillation. We may find new pulsars with more observations of longer duration to account for both scintillation and intrinsic sensitivity. Further observations will allow us to gain phase-connected timing solutions giving important insights into cluster dynamics. Any more new discoveries in NGC 6517 are also important to test GC pulsar population models.