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Abstract:

FAST Globular Cluster (GC) pulsar survey has been carried on for almost 5 years with 36 pulsars discovered. Among the 36 pulsars, 28 are binaries including 10 without known orbit parameters till now. Binaries are special type of pulsars. Including orbital parameters (e.g., very short or ultra-long orbit periods) and the companions (e.g., brown dwarfs, neutron stars), these are keys to understand the star evolution, probe the GC dynamics, and test physics under extreme conditions. All these works are based on solving the orbit parameters and timings. In this proposal, we propose to observe three GCs (M10, M12, and M14) with in total six binaries with unknown orbital parameters. They are all millisecond pulsars and have low to medium companion masses ( $< 0.5 M_{\odot}$ ). As these GCs were firstly confirmed to host pulsars by FAST, we wish to obtain their orbit parameters and start studies on these GCs.