

Proposal Abstract:

Globular clusters are ancient and dense stellar systems known to host a large population of pulsars. A large number of millisecond pulsars have been detected in globular clusters. However, long-period pulsars with periods greater than 100 milliseconds are exceptionally rare in globular clusters. Motivated by this, we conducted a search for long-period pulsars in publicly available observation data of multiple globular clusters with the Five-hundred-meter Aperture Spherical Telescope (FAST). Ultimately, we discovered 15 long-period pulsars in the globular cluster M15, with periods ranging from hundreds of milliseconds to several thousand milliseconds. Among them, two pulsars, M15K and M15L have recently been published by us. The other 13 newly discovered pulsars have not been published yet because we found them only once in the publicly available FAST observation data. we would like to request FAST to observe the globular cluster M15 multiple times in order to achieve the following objectives: 1. Confirm the existence of these 13 long-period pulsars. 2. Perform timing analysis on these pulsars. 3. Provide information on the formation mechanism of these pulsars based on the results of timing analysis, and study the evolutionary path of the stellar population in globular clusters.