

**Proposal Abstract:**

The origin of the initial spin and velocity of pulsars remains largely a mystery. The detections of two-dimensional (2D) spin-velocity alignment in young pulsars have shed some light on the origin of the fast rotation and high velocity of pulsars. Studying the spin-velocity relation of the hyper-velocity pulsar PSR J0002+6216 will put severe constraints on the neutron star kick mechanism. In previous observations of PSR J0002+6216, we found interstellar rotation measure (RM) variations, measured the direction of the 3D spin axis, detected a small glitch-like structure and derived pulsar positions at three different epochs. When combined with position measurements from Fermi, the derived positions gave two new estimates of the pulsar proper motion. These two new estimates are inconsistent with each other, and neither of them is consistent with the proper motion determined by Fermi. We propose to check these detections and to further improve the pulsar proper motion measurement and the RM determination by using  $12 \times 4 = 48$  hours of FAST time. This project will confirm the association between PSR J0002+6212 and SNR CTB1. In addition, the determination of the relationship between the pulsar spin axis and the proper motion will provide severe constraints on neutron-star kick models.