PID:PT2022_0141

Abstract:

The birth of a pulsar is an enigmatic process that has long been theorized and debated. Intriguing observations about high kick velocity and general alignment between spin and kick have been difficult to explain by theories or to reproduce by simulations. Understanding this process is the foundation of many other studies, including neutron star populations and the birth and evolution channels of pulsar binaries. Following our previous A-ranking proposal (2020-PT0070), we propose to conduct a quick polarization census on a sample of 20 young pulsars to study their spin and magnetic field geometry of them and possibly link these results to their movements and other geometry constraints. We already have a draft of our paper and need additional observations to complement the statistical analysis. We could achieve unprecedentedly precise polarization profiles for these pulsars using only a total of 6.7 hours of FAST observations.