

Proposal Abstract:

The birth of a pulsar is a mysterious process that has been theorized and debated for a long time. Intriguing observations, such as high kick velocities and the general alignment between spin and kick, have been challenging to explain through existing theories or to simulate accurately. Understanding this process is crucial for many other studies, including neutron star populations and the birth and evolution of pulsar binaries. Building on our previous A-ranking proposal (2020-PT0070) and B-ranking proposal (2022-PT0141), we propose to conduct a quick polarization census on a sample of 14 young pulsars. By studying the spin and magnetic field geometry of these pulsars, we aim to possibly link our results to their movements and other geometric constraints. We have already drafted a paper and require additional observations to complement our statistical analysis. With only a total of 5.7 hours of FAST observations, we believe we can obtain unprecedentedly precise polarization profiles for these pulsars.