

Proposal Abstract:

With the observation of FAST, we found that the jumping phase of PPA changes systematically with observing frequency. This phenomenon may be direct observational evidence that the radiation of different frequencies comes from different magnetospheric heights, or the result of the propagation effects of radio waves in a pulsar magnetosphere. We can make use of the polarization features to study the emission mechanism, map the magnetosphere structure and explore magnetospheric physics. For relativistic binary pulsars, different section of the emission beam could be observed because of the relativistic precession of the spin axes. Theoretically, taking advantages of the dependency of the polarization features on frequencies, we can further explore the three-dimension structure of the magnetosphere. The aims of the project are: a) to detect the dependency of polarization features on frequency (especially the PPA jumping phase); b) to limit the emission height of radio emission and build the structure of pulsar magnetosphere; c) to evaluate the propagation effect on pulsar polarization and radiation.