

Proposal Abstract:

Studying the polarization emission characteristics of "flared" emission regions and single pulse of radio pulsars provides an opportunity to better understand the radio emission beam and magnetospheric geometry. In this proposal, we aim to conduct single pulse and polarization analyses on four known pulsars exhibiting "flared" emissions: PSRs B1915+13, B1917+00, B1930+22, and B2043-04. The polarization position angle of these four pulsars exhibit S-shaped curves. The aims of the project are: a) to analyze individual pulses to identify "flared" emissions and measure their properties, such as intensity, duration, periodicity and frequency of occurrence; b) to compare the polarization characteristics of the "flared" pulses and normal pulses; c) to compare and contrast the "flared" emissions across the four pulsars to identify common patterns and unique features.