

Proposal Abstract:

Pulsars exhibit peculiar emission properties on different time scales. Prior research has examined the width, quasi-periodicity, and polarization of micro-structures within pulsar emissions, thereby establishing a correlation between the period of these micro-structures and the rotation period of the pulsar. Our last year's observation result indicates that the quasi-period of a pulsar's micro-structure within a single pulse exhibits significant variation, which poses a challenge to existing theories, such as those involving starquakes. We intend to further investigate the quasi-periodic variations of these micro-structures through more extensive statistical analysis of pulsar single pulses. This proposal is designed to fulfill two primary scientific objectives. The first is to conduct observations and research on the micro-structure of long-period, bright pulsars, with a focus on their quasi-periodicity, frequency, and polarization traits. This study aims to discern any differences and potential links between pulsar micro-structures and Fast Radio Bursts (FRBs). To achieve this, a total of four sources will be observed for 9.4 hours using high-time-resolution polarization observations.