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Abstract:

Mode changing is the phenomenon that the pulse profile switches between two or more stable emission modes, which is important for understanding the pulsar radiation mechanism. The highly sensitive polarization observations is the key to understand the physical origin of mode changing phenomenon. In this proposal, we aim to observe some mode changing pulsars using FAST. The highly sensitive observations will obtain the polarization profiles of different modes for them. We will divided the mode changing pulsars into different groups by analyzing their polarization properties. We will study the emissions variations during the mode-transition of these pulsars, which is important for understanding the triggering mechanism of mode changing. We will also examine the achievable timing precision by using a sub-set of pulses with a specific mode and expect to improve the timing precision.