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Abstract:

The accreting millisecond X-ray pulsars (AMXPs) are rapidly spinning, old, recycled neutron stars hosted in low-mass X-ray binaries. This project aims at observing two AMXPs in the FAST field of view, i.e., Aql X-1 and IGR J00291+5934, taking advantage of the high sensitivity of FAST. (Quasi-)Simultaneous X-ray observations will be carried out during FAST observing windows if feasible. We propose to perform four FAST observations of two AMXPs, Aql X-1 and IGR J00291+5934, with each observation last 1 hr, when they transit from X-ray outbursts to the quiescent state. These observations will allow us to capture the transition from the AMXP to the MSP phase and understand the mechanism of transition.