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Abstract:

Microquasars show fast radio variations which are connected to jet dynamics and formation near compact objects. Especially the sub-second timescale radio variability is unknown due to the previous poor sensitivity. The quasi-period oscillations (QPOs, with a period of 0.01-10 seconds) in black hole transients have been detected in X-ray and optical observations but have never been searched in radio bands. FAST has high sensitivities with high time-resolution capabilities, which is crucial in detecting the QPOs. The physics and parameters of QPOs are closely related to the jet mechanisms and general relativity effect during accretion to the fast-spinning black hole. Radio monitoring of bright microquasars will reveal fast variability of jet source flux and polarization, and could potentially discover possible QPOs. Meanwhile, high precision polarization and the variability studies will reveal magnetic configuration during the coronal jet coupling and local jet acceleration.