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Abstract:

Magnetospheric star-planet-interaction is one of the most detectable sources of radio emissions which may lead to the discovery of exoplanets. Such interactions lead to both cyclotron maser and synchrotron radio bursts, with the emissions being correlated with the planetary orbit period. The high sensitivity and polarization measure of FAST at L band makes it the best telescope to detect radio emissions from candidate exoplanetary systems. Specifically in this proposal, we will carry out FAST observations toward the most well observed flare star AD Leo. To unveil the mechanism of emission, simultaneous soft X-ray observations will also be arranged. And to check possible close-by planet orbit period modulation, a 24-day observation campaign is suggested. The proposed observation of AD Leo will likely reveal the mechanism of its radio bursts and explore the existence of close-by planets in the system.