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Abstract:

Magnetars are a promising candidate for the origin of fast radio bursts (FRBs). The detection of an extremely luminous radio burst from the Galactic magnetar SGR 1935+2154 on 2020 April 28 added credence to this hypothesis. The applicant and team members carefully analyzed the FAST previous monitoring data towards SGR 1935+2154, detected radio persistent pulsation and revealed the state switching characteristic between FRB and radio pulsar. We propose a multi-wavelength cooperative triger and long-term FAST L-band & Insight-HXMT simultaneous monitoring of SGR 1935+2154. A successful detection of FRBs or radio pulsations will shed light on the physical connection between FRBs intrinsic emission mechanism and pulsar pulse emissions, and help to rule out a certain parameter space of some FRB models. On the other hand, no pulsed radio emission during a bursting phase will place the stringent constraints of the radio upper limits on the fluxes, also significantly improve our understanding of the emission geometries and spin evolution of the magnetar.