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Abstract:

The progenitors of Fast Radio Bursts (FRBs) have been highly debated in past decade. The discovery of a bright radio burst from a Galactic magnetar, SGR 1935+2154, implies that some of faint FRBs can originate from normal magnetars. Many theoretical studies suggest various of high-energy events may be invoked from young magnetars, however, there has been not any extragalactic FRB event observed associated with the other high-energy transients. From the observations performed by FAST in 2021, we detected a candidate of radio transient with signal-to-noise ratio of 7 from GRB 130603B, which was suspected to have a magnetar origin from the initial X-ray detection. The dispersion measure of this candidate signal is highly consistent with the inferred value for GRB 130603B at redshift of 0.356. Here we propose to monitor GRB 130603B to investigate whether it is truly an FRB source or not. For a deep and complete survey, 17.2 hours observing time is requested in total. If more significant events were detected, we would confirm the association of progenitors of both FRBs and SGRBs, and directly uncover the physical origin of cosmological FRBs.