

Proposal Abstract:

The physical origins of Fast Radio Bursts (FRBs) have been highly debated in the past decade, until a bright radio burst from the Galactic magnetar was detected in 2020. The discovery of Galactic FRB has proved that at least some faint FRBs can originate from normal magnetars. Theoretically, young magnetar can give rise to wind nebula with persistent emission in radio band, while it has not been observed among the Galactic magnetars yet. So far, there are two active FRB repeaters confirmed to be associated with persistent radio sources, which are thought to be magnetar wind nebulae near the FRB progenitors. Recently, a special radio source, VT 1137-0337, was discovered in the VLA Sky Survey. All the observational facts strongly indicate its origin of magnetar wind nebula. We propose to observe this radio source with FAST to search for possible fast radio transients. If detection made, the PRS-FRB association would be strengthened deeply and we would be able to directly uncover the nature of active repeaters.