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Abstract:

FRB 180301 is a repeating FRB source confirmed by FAST in July 2019. We have been monitoring the source with FAST since August 2021, and more than 30 bursts were captured. We found that the polarization properties of FRB 180301 is highly variable, that the degree of polarization drops below detection in March 2021, and re-appear in August 2021. Besides, the RM of the source show sign reversal between July 2019 to August 2021, the RM variation exceeds 1500 rad/m^2 , which indicates FRB progenitor reside in magnetised dynamically evolving environment with significant evolution on the scale of 40 AU with a lower limit 15 G on the average value of parallel magnetic field of the FRB local environment. In the current proposal, we propose to continue monitoring the FRB 180301. Particularly to track its RM evolution and to investigate the potential RM variation periodicity. We also propose to capture the rapid RM variation phase and study the burst properties when the sign of RM value flips. The observation will provide insights for the FRB binary models, the time scale of RM sign flipping may provides the characteristic scale of the neutral current sheet.