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Abstract:

Fast Radio Burst (FRB) is a mysterious physical phenomenon in the universe, and it is one of the most heat topics in the current astronomical field. FRB190520,which was discovered by the project applicant, is the first new repeating fast radio burst reported by FAST. Multi-band localization and follow-up observations were carried out through multilateral international cooperation, and it was determined that this source is the FRB with the largest known DM_host, and is the second source with a compact radio counterpart (compact PRS) among hundreds of known FRBs. The discovery work of FRB190520 has been accepted by the journal Nature, and a number of related studies have been published, submitted or in preparation. FRB190520 is highly active and has not been confined by the observation window, which is conducive to the in-depth study of long-time scale and multi-band joint observations. It has the potential to become a key source for revealing the origin of repeating FRBs. This project will use FAST to conduct regular monitoring of FRB190520 in order to obtain a complete burst set, and systematically analyze its basic physical characteristics such as energy distribution, dispersion evolution, and scattering time scale, then strive to make important progress in understanding the origin of FRBs.