Proposal Abstract:

Interstellar magnetic field proved to be of significant importance to the forming and evolution of the Fermi Bubble, while Zeeman effect is the only feasible method to directly measure magnetic field strength in the corresponding area. Based on our experience of the FAST polarization commissioning, we propose FAST Zeeman observations of HI lines toward the edge of Fermi Bubble above 10° galactic latitude to obtain the first direct measurement of magnetic field strength of the Fermi Bubble. The proposed observation will testify the estimation of 100 μG magnetic fields of several existing models with a detection limit of 40 μG. Fermi Bubble contains critical information of the activities of early galaxy, while the magnetic field at the bubble edge is likely related to the expansion process of the bubble. Direct measurement of its magnetic field strength will thus be of huge importance to further research.