

Proposal Abstract:

It is recently noticed that the orientation of interstellar magnetic field and the 'HI fibers' are often correlated. By comparing the HI4PI HI data and the Planck 353 GHz dust polarization data, we noticed that in a high Galactic latitude area in the Milky Way (~200 pc away), the HI gas displays a hub-filaments structure which is correlated to the dust polarization's giant hourglass morphology. To decipher the origin to such a HI structure, we propose to observe this area with FAST to get high resolution, high sensitivity map of HI. This project will be the first time that comparing the HI morphology and the orientation of magnetic field on pc scale. We can investigate how their correlation holds or breaks in such small physical scales. By doing this pilot observation, we will establish a resolved picture of the HI hub and get morphological and kinetic information of the HI gas that possibly interacting with the magnetic field.