

Proposal Abstract:

The diffuse radio bridge between clusters of galaxies reveals the physics of cluster merging at early stages. Up to now, only three radio bridges are confirmed in binary clusters of galaxies, and many of their properties are unclear. Owing to the extraordinary sensitivity and a wide bandwidth, the FAST is an ideal telescope to detect the ultra-faint radio bridges in cluster binaries and investigate their properties. We propose to detect the radio bridges in three pairs of galaxy clusters at low redshifts, i.e., A399-A401, A2029-A2033 and A2061-A2067. The radio bridge between A399 and A401 has been detected by LOFAR at 140 MHz, but not been studied at higher frequencies. The possible bridge between A2061-A2067 was reported based on the data of GBT. Recently, the material bridge between A2029-A2033 was confirmed from X-ray data. We plan to map the diffuse radio emissions in these three cluster binaries with FAST and study the characteristics of radio bridges from polarization and spectral maps.