

Project name :HI Mapping and pulsars searching toward M31 region

PI: Wang Jie

We will blind map a region of 700 square degrees around the M31 and its dark matter halo in L band with about 700 FAST hours. In this survey, we will try to study the HVC mass function, HI satellite mass function in M31 halo, and cold CGM and ICM in the M31-M33 systems. Finally a HI galaxy sample up to  $z=0.35$  in this region will be constructed and published. Also a very deep commensal survey on the M31 galaxy for a ultra-deep HI mapping and pulsar searching will be carried out. Combined with other multi-band information, we could investigate into the detailed physics on the star formation in this nearest neighbor galaxy. Finally several special populations of dwarf galaxies in the local Universe (blue compacted dwarf, spiral dwarf, and dwarf hosts of AGNS ) will be observed with FAST to understand their formation history.