

**Proposal Abstract:**

FEASTS (FAST Extended-Atlas-of-Selected-Targets Survey) started since 2021. It targets the fundamental question of how baryonic cycles drive galaxy evolution, and traces the multi-phase and dynamic baryonic flow, which links the IGM, the CGM, the ISM and stars, from the neutral hydrogen perspective. It systematically and uniformly maps the large galaxies as well as their 100-kpc surroundings in the Local Volume, and aims to detect the extended, low-surface density, and low mass HI, which is typically missed in interferometric observations like SKA pathfinders and SKA-1. Based on the observations between November 2021 and March 2023, we have confirmed the good data quality and verified the feasibility. We newly detect low-density HI in/around many nearby galaxies, and find a diversity in their distributions and morphologies. As first science, we study in detail the property of diffuse HI possibly produced by tidal interaction in the N4631 group. We show that this newly detected diffuse HI which represents an intermediate phase between the dense HI and the ionized CGM/IGM opens a new window to the baryonic cycle of galaxies.