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Abstract:

We propose to observe 25 galaxies from the FEASTS project. FEASTS started in 2021, and plans to use FAST to deeply and uniformly map the HI in the disks as well as in the 100-kpc surroundings of 118 large galaxies in the Local Volume. It aims to detect the extended, low-surface density, and low mass HI, which is typically missed in interferometric observations like surveys of SKA pathfinders and SKA-1. It searches for important clues to the fundamental question of how baryonic cycles drive galaxy evolution, by tracing the dynamic and multi-phase IGM, CGM, and ISM from the HI perspective. Based on the observations already conducted between November 2021 and April 2022, we have confirmed the good data quality of FAST and verified the feasibility of this project. FEASTS has an open-collaboration strategy, and we believe it will be a science feasts to all galaxy astrophysics researchers.