

RAM PRESSURE STRIPPING OF NEARBY DWARF GALAXIES: for testing their mass (dark & luminous) and the surrounding IGM density

Abstract

The discovery by MeerKAT that WLM, an isolated dwarf galaxy, is ram-pressurized [Yang et al. 2022] raises fundamental questions about the dwarf galaxy interplay with the Inter-Galactic Medium (IGM). We propose to obtain MeerKAT 21-cm observations of four nearby dwarf irregular (Dirr) galaxies, using MeerKAT in the narrowband NE 107M mode (BW = 107 MHz and channel width = 3.3 kHz = 0.7 km/s). Our targets are NGC 3109, Sextans A, Sextans B and WLM. Building on the previous MeerKAT HI studies of WLM [Ianjamasimanana et al. 2020], we aim to map the low-surface brightness HI emission around each galaxy at a much higher sensitivity and resolution compared to the literature. This will allow us to study for the first time the possibility of ram pressure in dwarf galaxies and to robustly establish their evolution through the IGM.