

Technical Page

Proposal Type: Regular
 General Category: Astronomy
 Sub-Category: Spectroscopy
 Observation Category: Extragalactic
 Total Time Requested: 30 Hours
 Minimum Useful Time: 30 minutes

Proposal Title: Testing Cosmology with Isolated Dwarf Galaxies

ABSTRACT:

We propose HI observations of isolated low mass galaxies to better quantify the galaxy mass function. The galaxy mass function at low masses (<60 km/s) is related to the small-scale matter power spectrum, thus these observations will constrain our cosmological model, in particular the mass of the dark matter particle. While the mass function is well studied for Local Group dwarf galaxies, comparing these observations to theoretical predictions are difficult because of ram pressure and tidal stripping. By contrast, isolated dwarf galaxies are less affected by these processes. We have optically identified 73 isolated galaxies with expected low masses (between 40-60 km/s) which will nearly triple the current number of isolated galaxies with mass estimates. We request 30 hours using the L-band receiver to obtain HI observations of isolated dwarf galaxies, with the goal of robustly quantify the isolated galaxy mass function for low mass galaxies.

Name	Institution	E-mail	Phone	Student
Marla Geha	Yale University	marla.geha@yale.edu	203-432-5796	no

Remote Observing Request

- Observer will travel to AO
- Remote Observing
- In Absentia (instructions to operator)

Instrument Setup

L-wide

Atmospheric Observation Instruments:

Special Equipment or setup: none

RFI Considerations

Frequency Ranges Planned