

Technical Page

Proposal Type: Regular
 General Category: Astronomy
 Sub-Category: Spectroscopy
 Observation Category: Extragalactic
 Total Time Requested: 6 Hours

Proposal Title: The Kinematics of Dwarf Irregular Galaxies

ABSTRACT:

Disentangling the contributions of ordered rotation and velocity dispersion to 21 cm profile widths is a necessary prerequisite for using H I measurements of gas-rich dwarf galaxies as Tully-Fisher distance indicators and as probes to their dark matter content. We propose high spectral resolution (0.65 km/s) 21 cm (L band) observations of 15 dwarf irregular galaxies of optical diameters less than 1 arcminute. Previous Arecibo spectra of these galaxies at a resolution of 8 km/s show single-peaked (Gaussian) profiles. However, most spectra (212) of the original survey displayed the double-horned profiles associated with a rotating gas disk. It is possible that the rotation component of these 15 galaxies was masked by the binning. Successive smoothing of the high resolution spectra will reveal any rotational component. For that portion of the sample (3 - 5) which are face-on, the high resolution single-peaked profiles will provide an estimate of the velocity dispersion of the gas. If scheduled, the observations and analysis of the data will constitute a summer student project.

Name	Institution	E-mail	Phone	Student
Jo Ann Eder	NAIC	eder@naic.edu	787-878-2612	

Instrument Setup

L-narrow

Atmospheric Optical Instruments:

Special Equipment or setup: none

RFI Considerations

Frequency Ranges Planned

1395 - 1420