

Technical Page

This proposal has not been submitted before.

Proposal Type: Director Discretionary Time
 General Category: Astronomy
 Sub-Category: Spectroscopy
 Observation Category: Extragalactic
 Total Time Requested: 12 Hours
 Minimum Useful Time: 2 hr

Proposal Title: A Pilot Study for a Spectral-Line Survey of Sloan-based Polar Ring Galaxies.

ABSTRACT:

Galaxies with polar rings (PRGs) are believed to be the product of intense galaxy merger processes. They display outer rings of gas, dust, and stars rotating in a plane perpendicular to the disk of the main galaxy. Increased rates of star formation are often seen in these peculiar objects. In one such galaxy, NGC 660, we detected a unique radio-continuum and molecular-spectral line outburst in 2008. The number of known PRGs has recently grown considerably via the Galaxy Zoo project of the Sloan Digital Sky Survey. In total, ~200 such objects are visible from Arecibo, and we eventually plan a survey of these. Here we propose a pilot study of 11 PRGs in HI and other molecular lines in the (rest) frequency ranges of 1420 – 1720 MHz, and 4480 –5300 MHz, covering transitions of HI, OH, HCN, NH₂CHO, excited-OH, H₂CO, CH, and CH₂NH. These observations will help optimize parameters for the complete survey, e.g. restrictions from the RFI environment, and required integration times.

Name	Institution	E-mail	Phone	Student
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Remote Observing Request

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

Instrument Setup

L-wide C

Atmospheric Observation Instruments:

Special Equipment or setup: none

RFI Considerations

Frequency Ranges Planned

1330 – 1730 MHz, 4480 – 5300 MHz

This proposal requires Iridium RFI protection at 1612 MHz between 10pm and 6am EST.

This proposal requires coordination with Punta Salinas radar within the band 1222-1381 MHz..

This proposal requires coordination with GPS L3 at 1381 MHz.