

## Technical Page

Proposal Type: Regular  
 General Category: Astronomy  
 Sub-Category: Spectroscopy  
 Observation Category: Galactic  
 Total Time Requested: 4 Hours

**Proposal Title:** Radio Line Observations Toward Star Forming Regions: An Undergraduate Educational Project using the Arecibo 305m Telescope

*ABSTRACT:*

The increased remote observing capabilities of astronomical observatories allow their use in higher education. This is important for general high level education of science students as well as for early training of a future generation of radio astronomers. With the goal of introducing a group of undergraduate students currently enrolled in the Astronomical Laboratory course at NMT (PHYS-328L) to 1. the field of massive star formation, and 2. the techniques of professional radio astronomy, we propose observations of six star forming regions with the Arecibo telescope. We will observe simultaneously a tracer of molecular gas (H<sub>2</sub>CO 6cm absorption), and a tracer of ionized gas (H110a). The students will be able to plan, conduct, and analyze radio observations. They will verify the close relationship between massive star forming regions and molecular clouds, and determine kinematic distances to HII regions and molecular clouds based on the (LSR) velocity centroids of the radio recombination lines and the H<sub>2</sub>CO 6cm detections. The proposed project is well understood due to previous work of the PI in this area, and we plan to observe during a period of the day when the telescope is not heavily used.

Name	Institution	E-mail	Phone	Student
Peter Hofner	New Mexico Tech	phofner@nrao.edu	505-835-2961	no

**Service Observing Request**

**Remote Observing Request**

- |   |  |
|---|--|
| <input checked="" type="checkbox"/> None<br><input type="checkbox"/> All of the observing run.<br><input type="checkbox"/> Part of the observing run.<br><input type="checkbox"/> Queue Observing | <input type="checkbox"/> No<br><input type="checkbox"/> Maybe<br><input checked="" type="checkbox"/> Yes |
|---|--|

**Instrument Setup**

C

**Atmospheric Observation Instruments:**

**Special Equipment or setup:** none

**RFI Considerations**

**Frequency Ranges Planned**

4820 - 4880 MHz