Proposal Type: Director Discretionary Time
General Category: Astronomy
Sub-Category: Spectroscopy
Observation Category: 
Total Time Requested: 5 hours
Minimum Useful Time: 3 hours

Proposal Title: Galaxy observations by the "Hands on the Universe" undergraduate class at UW-Madison

ABSTRACT:
"Hands on the Universe" is a lab-based class for non-science majors at UW-Madison. We have 5 class sections, each with about 20 students. The final class lab (planned for early Dec 2011) explores the Hubble flow by obtaining computer-simulated optical observations of galaxies. We would like to request 5 hours of Arecibo time to conduct remotely complementary radio observations. We plan to use ON-OFF observing method and target bright galaxies which need a few minutes of integration time. We will ftp data files and run them through a data reduction pipeline, producing galaxy spectra essentially in real time. Students will then measure the recessional velocity for each galaxy and add these “real observations” to their Hubble graphs of simulated galaxies. We have experience in conduction remote observations with students and this to be highly motivational and exciting exercise for students.

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
<th>E-mail</th>
<th>Phone</th>
<th>Student</th>
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</thead>
<tbody>
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</tbody>
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Remote Observing Request

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

Instrument Setup

ALFA

Atmospheric Observation Instruments:

Special Equipment or setup: none
RFI Considerations

Frequency Ranges Planned

1250-1420 MHz

This proposal requires coordination with Punta Salinas radar within the band 1222-1381 MHz.
This proposal requires coordination with GPS L3 at 1381 MHz.