This proposal has not been submitted before.

Proposal Type: Regular
General Category: Astronomy
Sub-Category: Spectroscopy
Observation Category: Extragalactic
Total Time Requested: 7.5 Hours
Minimum Useful Time: 2.5 hr

Proposal Title: Continued Monitoring of the Spectral Line/Continuum Outburst in NGC660.

ABSTRACT:
A radio continuum and spectral-line outburst has been serendipitously discovered by us in NGC660. From Feb. 2013, bi-monthly monitoring of this remarkable object has been started, with four observing epochs completed to date. Variability of the continuum spectrum, and of the detailed OH emission/absorption spectra at 4660, 4750, and 4765 MHz have been followed over this period. Such rapid changes in the molecular emission from the nuclear region of a galaxy are unprecedented. To delineate the physical model of this complicated starburst system further, we are supplementing these Arecibo observations with milliarcsecond-resolution HSA (VLBI) line and continuum imaging at yearly intervals (with Arecibo in the array). The VLBI images reveal a recent nuclear outburst with the OH features being associated with the outburst hotspots. The Arecibo single-dish and HSA monitoring are highly complimentary and a further year of Arecibo monitoring is requested here.

<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>
<tr>
<td>Christopher J Salter</td>
<td>Arecibo Observatory</td>
<td><a href="mailto:csalter@naic.edu">csalter@naic.edu</a></td>
<td>787 878 2612 X 281</td>
<td>no</td>
</tr>
</tbody>
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Remote Observing Request

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

Instrument Setup
L-wide    C    S-low    X-band    S-high    C-high

Atmospheric Observation Instruments:
Special Equipment or setup: We would like availability of as many of our requested receivers as possible. However the C-band receiver is essential.

RFI Considerations

Frequency Ranges Planned

1 - 10 GHz

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.