This proposal has not been submitted before.

Proposal Type: Urgent  
General Category: Astronomy  
Sub-Category: Spectroscopy  
Observation Category: Solar System  
Total Time Requested: 12.75 Hours  
Minimum Useful Time: 2 hrs

Proposal Title: Observing the 18 cm OH radical line in interstellar comet C/2019 Q4 (Borisov)

ABSTRACT:

This project will observe radio emission coming from the tail of interstellar comet C/2019 Q4 (Borisov) using the Arecibo Observatory. The objective is to detect the OH radical line at 18 cm to measure its water production rate. The OH radical is a photodissociation product of water, the principal component of cometary ice, and by measuring it the water production rate of the comet can be characterized, and a reference for molecular observations of the comet at shorter wavelengths can be established as well. Borisov is only the second interstellar comet after 'Oumuamua, making a characterization of its composition a critical scientific objective that can only be achieved during the short window of time it will be visible from Earth.

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

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

Instrument Setup

L-wide

Atmospheric Observation Instruments:
Special Equipment or setup: none

RFI Considerations

Frequency Ranges Planned

Protection from IRIDIUM is requested to observe the 1612 MHz satellite OH line. However, given the urgency of the proposal and the fact that the 1612 MHz line is not the principal science objective, we request that time be allocated for observing the comet as soon as possible, even if IRIDIUM protection cannot be obtained for any or all observation sessions.

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