

Technical Page

Proposal Type: Regular
 General Category: Astronomy
 Sub-Category: Spectroscopy
 Observation Category: Galactic
 Total Time Requested: 12 Hours

Proposal Title: A search for saturated masers using isotopes

ABSTRACT:

Galactic OH, H_2O and methanol masers in star-forming regions are believed to be saturated, and their intensity is proportional to the column density. This can be tested by observing transitions in molecules containing isotopes of H, C, O which are much less abundant, but still can be observed with large radio telescopes, such as Arecibo. On the other hand, if the masers are unsaturated, the intensity depends on column density exponentially, and the isotopic emission will be much weaker. It is proposed to observe several transitions of OH, H_2O and methanol with isotopically substituted atoms. Happily the famous 22 GHz transition of H_2O is shifted to 5.6 GHz for H_2O^{18} , and can be observed from Arecibo. We also plan to observe methanol at 1.989 GHz and 9.936 GHz and OH at 1.6 and 4.6 GHz.

Name	Institution	E-mail	Phone	Student
Viacheslav I. Slysh	Astro Space Center, Lebedev Physical Institute	vslysh@asc.rssi.ru	7-095-333-2167	no

Service Observing Request

Remote Observing Request

- None
- All of the observing run.
- Part of the observing run.
- Queue Observing

- No
- Maybe
- Yes

Instrument Setup

L-wide S-low C X-high

Atmospheric Observation Instruments:

Special Equipment or setup: none

RFI Considerations

Frequency Ranges Planned