The PRIMOS Project
Seven Years of Astronomical Discovery

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PRIMOS

PRebiotic Interstellar MOlecular Survey
– A Key Science Project with the GBT
(Hollis et al. 2007)


The deepest, most frequency complete centimeter wave survey.

1 – 50 GHz present, 50 – 92 GHz coming!
Interstellar Spectroscopy at Centimeter Wavelengths

Why look in centimeter?
We see the noise floor
(Some) New Molecule Detections

- Propenal
- Cyanoformaldehyde
- Propanal
- Ketenimine
- Ethanimine
- Carbodiimide
- Cyanomethanimine
- Acetamide
- Cyclopropenone
- Methyltriacetylene
Direct Comparison to Lab Spectroscopy Highlighting New Detections


Weakly Masing Transitions
Carbodiimide

Weakly Masing Transitions
Carbodiimide

The conclusion is that all detected methyl formate lines below 30 GHz are masers!

Q. What mechanisms are pumping these new masers?
A. Can mapping the distribution give insight to excitation and possible formation?

PRIMOS & Broadband Interferometry

Direct comparisons at centimeter wavelengths
PRIMOS & ALMA

Need both cm & mm to compile molecular inventories.

Non-LTE effects important for interpreting results.

Can sample different physical environments.