

Innovations in Microwave Spectroscopy

Research Topics

- Molecular Structure and Chirality
 - New Approaches in Absolute Structure of Chiral Species
 - Monomer and Weakly Bound Complex Structure Determination
- Instrumentation Development
 - Multiple Detection CP-FTMW/3-wave mixing Technique
 - Laser Ablation-Equipped CP-FTMW Techniques
 - FTMW Techniques for Undergraduate Teaching
- Understanding Complicated Spin Interactions
 - Detecting and Analyzing Forbidden Transitions
 - Spin couplings in actinide molecules as a probe for f -electron bonding schemes
 - Understanding weakly bound O₂ complexes

Facilities

- Materials Research Center Member
- High Performance Computing Center Member
- Founder of the Midwest Microwave Consortium

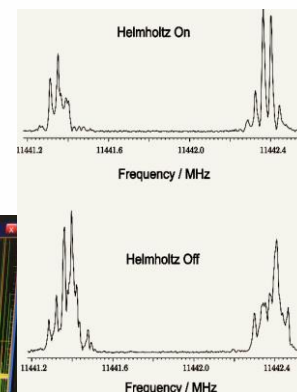
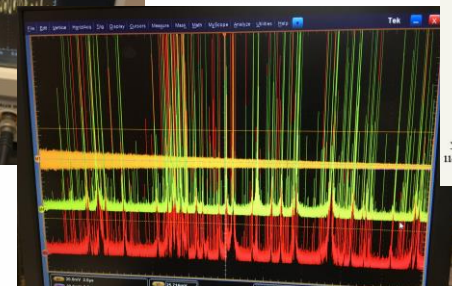
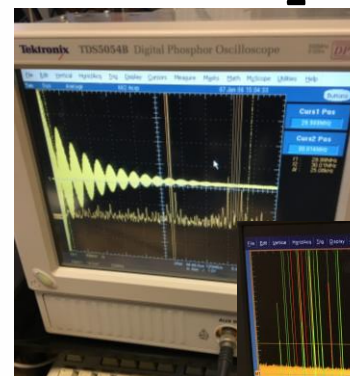
PoC

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Funding

- National Science Foundation
- NASA Missouri EPSCoR
- UM Research Board



(Left) Signal Testing a low-cost FTMW undergraduate teaching lab. (Middle) Multiple Detection CP-FTMW Experiment. (Right) O₂-HCl vdW complex signal.

Keywords

- Microwave Spectroscopy, Rotational Spectroscopy, Molecular Structure, Chirality, Actinide Chemistry

Recognitions/Significant achievements

- 2019 Flygare Award Winner
- 2018 ACS Kavli Foundation Emerging Leader in Chemistry Nominee
- Editor of the Microwave Spectroscopy Information Letter
- 2015 Tappemeyer Teaching Excellence Award Winner