

Michael I. Jacobs

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EDUCATION

- **Graduate Student, Physical Chemistry** (Fall 2014 to present)
University of California-Berkeley
 - Research Advisor: Dr. Kevin Wilson and Prof. Rich Saykally
- **Bachelor of Arts, Chemistry and Biochemistry; Minor: Physics** (2011-2014, Highest Honors)
Oberlin College
 - Undergraduate Thesis: Kinetics of the Reactions of Isoprene-Derived Hydroxynitrates: Gas Phase Epoxide Formation and Solution Phase Hydrolysis
 - Research Advisor: Prof. Matt Elrod

RESEARCH EXPERIENCE

- **Graduate Research Assistant: Kevin Wilson Laboratory** (Fall 2014 to present)
Chemical Sciences Division, Lawrence Berkeley National Laboratory
 - Studying heterogeneous oxidation of solid and liquid aerosols with gas phase oxidants using X-ray photoelectron spectroscopy
- **Undergraduate Research Assistant: Matt Elrod Laboratory** (Fall 2011 to Spring 2014)
Department of Chemistry, Oberlin College
 - Learned about synthesis and purification of complex chemical compounds by refining and modifying procedures to create atmospherically relevant isoprene epoxide and hydroxy nitrate derivatives
 - Tested and helped develop various methods to measure the daytime gas phase OH radical rate constant for the synthesized isoprene epoxides and hydroxynitrates using a flow tube chemical ionization mass spectrometer
 - Used computer modeling to predict the atmospheric fate of the isoprene epoxides based on their measured OH rate constants
 - Used NMR spectroscopy to study hydrolysis kinetics of isoprene-derived hydroxynitrates
- **Undergraduate Research Program: Leemor Joshua-Tor Laboratory** (Summer 2013)
Cold Spring Harbor Laboratory
 - Cloned, expressed and purified ssRNA-binding, piRNA pathway-linked protein truncations in both *E. coli* and eukaryotic cells for crystallographic screening and biochemical characterization
 - Helped develop and carry-out an experiment to test a protein truncation's RNA binding activity for inclusion in crystallographic screening
- **Wright Scholar Research Assistant** (Summer 2011)
AFRL Propulsion Directorate, Wright-Patterson Air Force Base
 - Helped assemble instrumentation at Turbine Research Facility to test new turbine design
 - Processed the data obtained from the pressure sensors on the turbine

- **Summer Research Intern** (Summer 2010)
Kettering Innovation Center, Kettering Hospital
 - Created an audiovisual, multimedia program for patients during fMRI scans to help make the experience more enjoyable and the directions given to the patient easier to follow

TEACHING EXPERIENCE

- **Graduate Student Instructor**, Department of Chemistry, University of California-Berkeley
 - CHEM 1A, General Chemistry (Fall 2014) – Taught weekly discussion and lab sections
- **Undergraduate Teaching Assistant**, Department of Chemistry, Oberlin College
 - CHEM 339, Physical Chemistry I (Spring 2014)
 - CHEM 349, Physical Chemistry II (Fall 2013)

PUBLICATIONS

- 1) Mael, L.E.; Jacobs, M.I.; Elrod, M. J. Organosulfate and nitrate formation and reactivity from epoxides derived from methyl-3-buten-2-ol. *Journal of Physical Chemistry A* (submitted).
- 2) Jacobs, M.I.; Burke, W.J.; Elrod, M.J. Kinetics of the reactions of isoprene-derived hydroxynitrates: gas phase epoxide formation and solution phase hydrolysis, *Atmos. Chem. Phys.*, **2014**, 14, 8933-8946
- 3) Jacobs, M.I.; Darer, A.I.; Elrod, M.J. Rate Constants and Products of the OH Reaction with Isoprene-Derived Epoxides, *Environ. Sci. Tech.*, **2013**, 47 (22), 12868-12876.