

# Brandon M. McMurtry

Ph.D. Candidate in Chemistry • Columbia University in the City of New York  
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## Education

08/2016 - Present: Ph.D Candidate in Chemistry, Columbia University in the City of New York  
Research Advisor: *Jonathan S. Owen*

08/2012 - 05/2016: B.S. in Chemistry with Honors, University of Hawai'i at Mānoa.  
Cumulative GPA: **3.90**. Research Advisors: *Ralf I. Kaiser, Matthew F. Cain*.

## Research Positions

07/2016 - Present: **Graduate Researcher (Dr. Jonathan Owen)**, Columbia University

- Studied the synthesis of indium phosphide quantum dots deriving from a series of novel phosphine-derived precursors.

02/2013 - 05/2016: **Research Assistant (Dr. Ralf I. Kaiser)**, University of Hawai'i at Mānoa

- Studied the formation of benzene and pyridine carboxylic acids in modeled interstellar ices. Reaction mechanisms were elucidated by way of *in situ* Fourier-transform infrared spectroscopy and mass spectrometry.
- Analyzed the mass spectra of irradiated methane ices collected using a reflectron time-of-flight mass spectrometer coupled to a photon ionization light source.

05/2015 - 08/2015: **Research Assistant (Dr. Matthew F. Cain)**, University of Hawai'i at Mānoa

- Investigated the synthesis of a chiral hybrid phosphine-phosphaalkene ligand derived from the chiral pool starting material, (-)-myrtenal.
- Investigated the synthesis of a flexible hybrid phosphine-phosphaalkene ligand of either a three or four carbon spacer between phosphorus units.

## Teaching Experience

09/2016 - Present: **Teaching Assistant: General Chemistry Recitation**, Columbia University

- Wrote and graded quizzes for three recitation sections of 20 students. Planned weekly lessons to review and discuss concepts covered within lecture.

07/2016 - 08/2016: **Teaching Assistant: General Chemistry Lab**, Columbia University

- Led twice weekly general chemistry lab sections with undergraduate and post-back students in addition to weekly office hours. Also served as a grader for in class assignments and lab reports.

01/2016 - 05/2016: **Teaching Assistant: Physical Chemistry II**, University of Hawai'i

- Assigned to grade homework, midterms, and final exam as well as conduct problem sessions to review homework and prepare students for exams

01/2015 - 12/2015: **Teaching Assistant: College Physics I/II**, University of Hawai'i

- Assisted professor in conducting demonstrations and distributing handouts for as well as providing assistance to students with in-class examples

08/2014 - 06/2015: **Private Tutor**, Honolulu, HI

- Tutored high school students in Honors Chemistry; all passed with above-average grades

## Publications

- **McMurtry, B. M.**; Saito, S. E.; Turner, A. M.; Chakravarty, H.K.; Kaiser, R. I. On the Formation of Benzoic Acid and Higher Order Benzene Carboxylic Acids in Interstellar Model Ice Grains, *The Astrophysical Journal*, **2016**, 81, 174.
- **McMurtry, B. M.**; Turner, A. M.; Saito, S. E.; Kaiser, R. I. On the Formation of Niacin (Vitamin B3) and Pyridine Carboxylic Acids in Interstellar Model Ices. *Chemical Physics*, **2016**, 472, 173.

## Presentations

- **McMurtry, B. M.** *On the Formation of Niacin (Vitamin B3) and Pyridine Carboxylic Acids in Interstellar Model Ices.* **Talk.** Natural Sciences Oral Presentation at the Spring Undergraduate Showcase, University of Hawai'i at Mānoa, May 6, 2016.
- **McMurtry, B. M.** *Origins of Life on Earth: Modeling the Formation of Pyridine Carboxylic Acids in Interstellar Model Ice Grains.* **Poster.** Spring Undergraduate Showcase, University of Hawai'i at Mānoa, May 6, 2016.
- **McMurtry, B. M.** *On the Formation of Niacin (Vitamin B3) and Pyridine Carboxylic Acids in Interstellar Model Ices.* **Talk.** Natural Sciences Oral Presentation at the Fall Undergraduate Showcase, University of Hawai'i at Mānoa, December 11, 2015.
- **McMurtry, B. M.** *Origins of Life on Earth: Modeling the Formation of Pyridine Carboxylic Acids in Interstellar Model Ice Grains.* **Poster.** Fall Undergraduate Showcase, University of Hawai'i at Mānoa, December 11, 2015.

## Awards and Honors

05/2016	University of Hawai'i Chemistry Department Magistad Awardee
05/2015	University of Hawai'i Chemistry Department Giichi Fujimoto Scholar
2012 - 2016	Honors Program, University of Hawai'i at Mānoa
2012 - 2016	Dean's List, University of Hawai'i at Mānoa

## Scholarships

2014 - 2016	University of Hawai'i Chemistry Departmental Merit Scholarship
2015	Associated Students of the University of Hawai'i Academic Scholarship
2012 - 2016	University of Hawai'i Marching Band Scholarship
2012 - 2016	University of Hawai'i at Mānoa Regents Scholarship

## Professional Affiliations

2016 - Present	Member, Phi Beta Kappa Honor Society
2015 - Present	Student member, American Chemical Society

## Relevant Skills

Experience analyzing and collecting  $^1\text{H}$ ,  $^{13}\text{C}$ , and  $^{31}\text{P}$  1D, 2D NMR; FT-IR; UV-VIS; MS  
Experience working with ultra-high vacuum (UHV) systems  
Familiar with standard air-free Schlenk line and glove box techniques  
Experience with Python and Microsoft Excel