

Ethan Curtis

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Educational Background

Stanford University

Summer 2019 – present

Ph.D., Theoretical Chemistry

Research Advisor: Todd Martínez

University of Michigan, Ann Arbor

Fall 2015 – Spring 2019

B.S.Chem., Honors Chemistry and Honors Mathematics

- Graduated May 2019 with High Distinction; High Honors in Chemistry, and Honors in Math
- Cumulative GPA 3.91/4.00

Honors and Awards

- US National Chemistry Olympiad national finalist 2015
- National Merit Scholar 2015
- First Year Achievement Award in Chemistry 2016
- Sophomore Student of the year in Chemistry 2017
- James Angell Scholar 2017, 2018
- Sophomore Honors Award 2017
- Chemistry Honors Vanko Award 2019

Employment and Experience

Undergraduate member, Zimmerman Lab

Fall 2015 – Fall 2019

- Collaborated with McNeil Lab to study chain-walking behavior of certain catalysts which carry out a “living” polymerization of polyphenylene
- Investigating the kinetics and thermodynamics of the Schlenk equilibrium with respect to thiophene Grignards (paper in review)
- Received stipends for summer research programs in 2016 (Summer Undergraduate Research Program) and 2017 (UM Energy Institute)

Multidisciplinary Design Program

Winter 2018 – Winter 2019

- Worked with a team of chemistry and engineering students under the guidance of Northrop Grumman and Prof. Stephen Maldonado
- Developed and tested an end-to-end method for extraction, refinement, and 3D printing of structural material in non-terrestrial environments
- Results presented at ASGSR Fall 2018 meeting, to NASA Space Technologies Mission Directorate, and to the Chief Technology Council of Northrop Grumman

Oklahoma State University REU Program

Summer 2018

- Conducted research in the Fennell Lab on developing new classical models of water for molecular dynamics simulations
- Studied incorporating polarization effects into a purely classical water model
- Created crystal models which can be 3D printed for educational purposes

Graduate Student, Martínez Lab

Summer 2019 – Present

- Examining Donor-Acceptor Stenhouse Adduct aggregates in the crystal and in solvent using *ab initio* molecular dynamics methods
- Determining reaction paths and barrier heights for ring-opening of ladderanes with force-modified potential energy surfaces
- Helping write GPU-accelerated coupled-cluster code for TeraChem, the Martínez lab's GPU-accelerated quantum chemistry package

Teaching Assistant, Stanford Chemistry Department

Fall 2019 – Present

- Fall 2019: Chem 121, Organic Chemistry II
 - Led two three-hour labs each week
- Winter 2020: Chem 151, Inorganic Chemistry I
 - Designed problem sets and computer exercises
 - Led one hour recitation section each week

Poster Presentations

- **E. R. Curtis**, A. K. Vitek, P. M. Zimmerman. Computational Investigation of Ring-walking on a Substituted Phenylene Tetramer, *Notre Dame Summer Undergraduate Research Symposium* (2016).
- **E. R. Curtis**, A. K. Vitek, P. M. Zimmerman. Computational Investigation of the Schlenk Equilibrium for Thiophene Grignards, *University of Michigan Summer Undergraduate Research Symposium* (2017).
- **E. R. Curtis**, A. K. Vitek, P. M. Zimmerman. Computing the Schlenk Equilibrium for Thiophene Grignards, *255th American Chemical Society National Meeting* (2018). **Poster award**
- **E. R. Curtis**, C. Fennell. Representing Water by Mixing Water Models. *Oklahoma State University Summer Undergraduate Research Symposium* (2018).
- **E. R. Curtis**, Z. J. Bellar, A. Chow, A. Kang, S. Sanvordenkar, G. Schlain, A. Wang, S. Maldonado. Applications of in situ Additive Manufacturing on Mars. *American Society for Gravitational and Space Research* (2018). **Poster award**

Technical Skills

- C++, Python, Java, BaSH
- Q-Chem, TeraChem, Amber, Gaussian, Gromacs