Jay T. Bender

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LinkedIn

Education

2020-Present Ph.D. Candidate in Chemical Engineering, University of Texas at Austin.

Advisors: Professors Joaquin Resasco & Delia Milliron

2016-2020 B.S. Chemical Engineering, Cornell University, 2020, *Magna Cum Laude*

Research & Industry Experience

2020-present Graduate Research Assistant, University of Texas at Austin. Principal Investigator: Joaquin Resasco.

2020-present Graduate Research Assistant, University of Texas at Austin. Principal Investigator: Delia Milliron.

2017-2020 Undergraduate Research, Cornell University. Principal Investigator: Professor Jefferson W. Tester.

2019 Technical Operations Specialist Intern, Merck. Manager: Susan Froman.

Awards and Honors

- University of Texas at Austin Graduate School Professional Development Award 2022
- National Science Foundation Graduate Research Fellow 2020
- Harry P. Whitworth Endowed Graduate Fellowship in Engineering 2020
- Cornell University Robert F. Smith School of Chemical & Biomolecular Engineering Outstanding Service Award 2020
- AIChE National Student Conference Undergraduate Poster Competition: Catalysis & Reaction Engineering IV Third Place Award 2019
- AIChE Eckhardt Northeast Student Regional Conference Paper Competition First Place Award 2019
- AIChE National Student Conference Undergraduate Poster Competition: Catalysis & Reaction Engineering II Second Place Award 2018
- Cornell University College of Engineering Dean's List (x6)

Publications

Google Scholar Profile

5. **Bender, J.T.**, Petersen, A.S., Østergaard, F.C., Wood, M.A., Heffernan, S.M.J., Milliron, D.J., Rossmeisl, J., & Resasco, J. Understanding cation effects on the hydrogen evolution reaction. *Under review*

4. Staller, C.M., Gibbs, S.L., Gan, X.Y., **Bender, J.T.,** Jarvis, K., Ong, G.K., & Milliron, D.J. Contact Conductance Governs Metallicity in Conducting Metal Oxide Nanocrystal Films. *Nano Letters* **2022**, *22* (12), 5009-5014.
3. Hawkins, A.J., **Bender, J.T.,** Grooms, R.D., Schissel, C.J., & Tester, J.W. Temperature-responsive smart tracers for field-measurement of inter-well thermal evolution: Heterogeneous kinetics and field demonstration. *Geothermics* **2021**, *92*, 102046.
2. Beentjes, I., **Bender, J.T.**, Hawkins, A.J., & Tester, J.W. Chemical Dissolution Drilling of Barre Granite Using a Sodium Hydroxide Enhanced Supercritical Water Jet. *Rock Mechanics and Rock Engineering* **2020**, *53*, 483-496.
1. Beentjes, I., **Bender, J.T.**, & Tester, J.W. Dissolution and thermal spallation of barre granite using pure water hydrothermal jets. *Rock Mechanics and Rock Engineering* **2019**, *52*, 1339-1352.

Selected Conference Presentations

1. **J. Bender**, A. Petersen, F. Østergaard, A. Bagger, M. Wood, S. Heffernan, J. Rossmeisl, D. Milliron, J. Resasco. "Influence of Alkali Metal Cations on the Hydrogen Evolution Reaction in Acidic and Basic Electrolytes" American Institute of Chemical Engineers Annual Meeting 2022, Phoenix, AZ.
2. **J. Bender**, A. Hawkins, R. Grooms, C. Schissel, J. Tester. "Heterogeneous Hydrolysis of a Thermally Degrading Tracer" 45th Workshop on Geothermal Reservoir Engineering, Stanford, CA.
3. I. Beentjes**, J. Bender**, S. Hillson, J. Tester. "Hydrothermal Spallation of Barre Granite Using Supercritical Water Jets" 43rd Workshop on Geothermal Reservoir Engineering, Stanford, CA.

Teaching

2022 Graduate Teaching Assistant, *Reaction Kinetics*, CHE 391J. Instructor: Joaquin Resasco

2020 Undergraduate Teaching Assistant, *Chemical Engineering Thermodynamics*, CHEME 3130. Instructor: Jeffrey Varner

2020 Undergraduate Teaching Assistant, *Applied Process Controls*, CHEME 3700. Instructor: Franklin Lomax

2018 Undergraduate Teaching Assistant, *Physics II: Electromagnetism*, PHYS 2213. Instructor: Alan Giambattista

2017 Undergraduate Teaching Assistant, *Chemical Concepts*, CHEM 1002.

Service

2022 My Introduction to Engineering (MITE) volunteer. Taught 20+ high school students from around Texas optical properties of CdSe quantum dots.

2021-2022 McKetta Department of Chemical Engineering recruitment buddy.

2021-2022 Capital of Texas Undergraduate Research Conference judge. Evaluated 20+ undergraduate student research poster and seminar presentations with a panel of four judges during live Q&A sessions.

2021 UT Austin Girl Day Booth Organizer. Designed an asynchronous virtual science experiment for elementary school aged students to follow along with at home. Taught students thermodynamic states and phase transitions through making homemade ice cream.

2021-2022 Treasurer for University of Texas at Austin McKetta Department of Chemical Engineering Graduate Leadership Council. Planned and managed budget of $10,000.

2020-2021 First Years' representative for University of Texas at Austin McKetta Department of Chemical Engineering Graduate Leadership Council. Coordinated virtual and socially distanced events to ease the transition into graduate school for Fall 2020 and Fall 2021 graduate student cohorts.

2019-2020 President of Cornell University's AIChE student chapter. Organized educational fieldtrips, led professional development workshops, and arranged social events to help classmates achieve professional goals and promote cohesiveness among the undergraduate student body.

2018-2019 Fundraising and Outreach Chair of Cornell University's AIChE student chapter. Collaborated with on-campus outreach groups to teach socioeconomically underrepresented high school students chemical engineering principles. Taught approximately 120 students throughout the 2018-2019 academic year.

2017-2018 Sophomore Representative of Cornell University's AIChE student chapter. Planned and taught a four-week chemical engineering course for more than 20 Ithaca High School students.

Students Mentored

Sean Heffernan, B.S. Chemical Engineering, University of Texas at Austin, Expected Graduation 2023.