Elizabeth Zeitler

Graduate Institution: Princeton University

Graduate Discipline: Physical Chemistry - Electrochemistry

Hometown: Iowa City, IA

Relevant SC Research: Basic Energy Sciences

Research Interest:

I am interested in the electrochemical investigation of energy storage to facilitate the transition to clean sources of power. My current work in the Bocarsly group focuses on energy storage in the chemical bonds of a liquid fuel. We employ pyridinium-based catalysts which act as electron transfer agents to reduce CO_2 to fuels such as methanol. Specifically, I investigate nitrogen heterocycles with extended aromatic systems for their kinetic and energetic properties as CO_2 reduction catalysts using electrochemical and spectroscopic techniques. Additionally, I have studied the mechanism of pyridinium-catalyzed CO_2 reduction at different electrode materials including nichrome alloys. I am interested in understanding the mechanism of electron transfers and bond-breaking and bond-forming reactions at electrode surfaces that lead to energy dense fuels. Beyond my current work in electrochemical catalysis of CO_2 reduction, I am interested in battery electrochemistry and energy policy.

About Me:

I am beginning my fourth year as a graduate student in the Bocarsly lab in the Princeton University Chemistry Department. In addition to my work in the lab, I have enjoyed teaching undergraduates in general chemistry as well as facilitating the Chemistry Senior Thesis Writing Group. I volunteer with the Princeton University Prep Program for children from low income backgrounds as a chemistry tutor and teacher. I've also reached out to the community through leading tours of the chemistry department and our lab for school children and adults. I'm motivated by the energy policy implications of my work and have enjoyed interacting with the community of scholars working on energy science and policy here at Princeton. Next year I'm looking forward to expanding my involvement in this arena through the Princeton/Rutgers IGERT program on nanotechnology for clean energy which I will join as an associate trainee. After Princeton, I plan to seek a postdoctoral position to broaden my research skills in the area of electrochemistry for energy storage. Following that, I plan to find an academic job with a significant teaching component and to stay involved in the energy policy sphere as well. I lived in Bristol, England for a year during my undergraduate studies and would love to work abroad again. Outside of my academic life, I enjoy cooking and baking, riding my bike and reading.