



**College of Liberal Arts and Sciences**  
**Spring 2021 Chemistry Seminar Series**  
**Friday, May 21<sup>st</sup>**

Dr. Miriam Bowring  
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Reed College

**Large Isotope Effects, Reclaimed Catalysts, and Air Exclusion in Organometallics**

**Abstract:**

Our lab investigates mechanisms of organometallic catalysts for generating and storing alternative liquid fuels. In this talk, organometallic systems related to methane activation and hydrogen storage are established as case studies to investigate the source of anomalously large observed isotope effects. We aim to harness unusual reactivity such as proton tunneling for improved catalyst design. In addition, we are pursuing reclamation of automotive palladium pollution for organometallic catalysis. We have also developed a quantitative method for comparing the relative efficacy of common air-free synthetic techniques.

**Bio:**

Miriam Bowring is an assistant professor of chemistry at Reed College. Their undergraduate research group trains students to study mechanisms in organometallic catalysis, with particular focus on large isotope effects and environmental contaminants in catalysis. They hold a B.S. in chemistry from Yale University, and they carried out undergraduate research in catalysis with Marisa C. Kozlowski at the University of Pennsylvania, Gregory C. Fu at MIT, and Robert H. Crabtree at Yale. After working as a high school chemistry teacher and athletic coach, they earned a Ph.D. in chemistry from the University of California, Berkeley, working with Robert G. Bergman and T. Don Tilley to develop and study platinum-catalyzed hydrocarbon activation reactions. At Berkeley, they worked with the nonprofit Community Resources for Science and served on the Chancellor's Advisory Committee on LGBT Community. Dr. Bowring was an NIH postdoctoral fellow at both Yale University and University of Washington, where they worked with James M. Mayer and collaborators to observe activationless multiple-site concerted proton-electron tunneling. They arrived at Reed in 2016.