Spring 2022 Diversity in Chemistry Mini-Symposium

Department of Chemistry and Chemical Biology

Professor R. Lee Penn

University of Minnesota

Friday, March 4, 2022
Zoom Video Conferencing
11:00AM-12:30PM—Careers in Chemistry
2:00—3:30PM—Panel Session w/ Students

Host: Professor Kate Waldie

Iron Oxide Nanoparticles in Reactive Environments

Iron is the fourth most abundant element in the Earth's crust, and iron bearing minerals are reactive in both natural and engineered aqueous systems. Mineralogy and crystal size and shape evolve substantially as a function of changing conditions and redox conditions. We quantitatively compare reactivity of natural and synthetic iron oxides in redox reactions with model pollutant molecules like nitroaromatics and quinones. We extensively characterize solid-state materials before, during, and after reaction as well as track the loss or production of dissolved species. Variables like the presence of organic matter (e.g., Suwanne River Natural Organic Matter) can dramatically change how minerals grow, dissolve, and transform. The seminar will highlight several examples of our ongoing work studying the reactivity of iron oxide nanoparticles in aqueous systems.

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