



Department of Chemistry & Biochemistry Seminar

Friday, March 19th, 2021

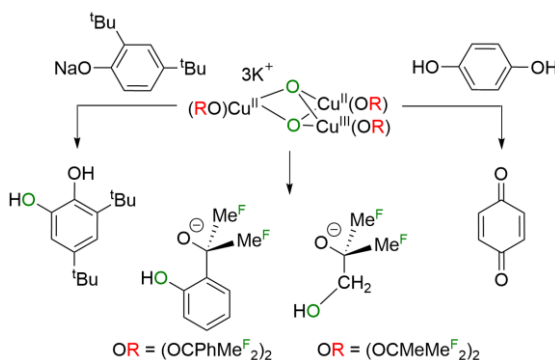
1:30pm – 2:45pm

Zoom ID: 960 452 0800

Password: Alkoxide

Fluorinated-Alkoxide Cu Compounds and Their Oxidation Chemistries

Speaker: Prof. Linda H. Doerr, Boston University



Abstract: Controlled oxidation reactions are all around us in biological processes, and are used widely in chemical industry on a variety of scales. Nevertheless, there are many reactions that chemists cannot do as efficiently or as sustainably as we would like. Chief among these is the controlled oxidation of C-H bonds. Our group has specialized in the development of fluorinated alkoxide complexes of transition metals for that purpose. Perfluorinated ligands are inherently inert to C-H oxidation and therefore focus their oxidizing ability on intermolecular substrates. The alkoxide O-donor environment is consistently weak field and favors high-spin configurations in these complexes. Cu(I) complexes with perfluorinated ligands react readily with O₂ to form highly reactive intermediates. The formation, composition, lifetime, and substrate reactivity of these intermediates can be controlled by the nature of the alkoxide ligand, as well as through second-sphere interactions of the counter cations. Both stoichiometric and catalytic reactions have been observed. This talk will present an overview of our past work and discuss the most recent unpublished results.

Biography: Linda H. Doerr was born in Ithaca, NY, and grew up in Pensacola, FL. She completed her undergraduate studies in chemistry at Cornell University, working in the laboratories of Klaus Theopold and Frank DiSalvo. Her Ph.D. thesis work was done at MIT with Stephen Lippard, after which came postdoctoral studies with Malcolm Green at the University of Oxford. She served on the faculty at Barnard College from 1999 to 2006. Since that time she has been at Boston University, where she is a Professor in Chemistry and in the Division of Materials Science and Engineering. She is the faculty mentor for the BU undergraduate WISE organizations and leads the BU REU Chemistry Program. She has been recognized with various awards, including an NSF CAREER Award, a Henry Dreyfus Teacher-Scholar Award, and a Fulbright Scholar Award.