## **INORGANIC SEMINAR**

## Selective, Catalytic Functionalization and Deconstruction Reactions

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The selective introduction of functional groups at the positions of typically unreactive, strong bonds has been a longstanding challenge in catalysis. To this end, our group has developed practical methods for the catalytic functionalization of strong C-H bonds with main group reagents. These studies have led us to a general strategy in which we install a single transient functional group to form a range of products from one C-H bond functionalization reaction. This research has led us to seek next-generation catalysts for the functionalization of C-H in complex molecules, new classes of reactions for functionalization of these bonds, new strategies, such as the construction of artificial metalloenzymes to control the site at which such reactions occur, new ways for such enzymes and natural enzymes to work in concert to form unnatural products through artificial biosynthetic pathways, and new ways to deconstruct or change the properties of polyolefins by reactions initiated at C-H bonds. This lecture will focus this presentation on the design and selection, as well as the intimate mechanism, of catalysts and catalytic reactions for the functionalization of C–H bonds and the deconstruction of polyolefins.









Tuesday, April 29, 2025 🔹 🕓 12:30 pm 👤 BRWN 4102



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