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VISITING PROGRAM

TSVP TALK

Ester Reduction with Milstein-Type Catalysts: Theory and Experiment



2025
THU. **Jul. 10**

15:00–16:00

HYBRID L5D23, ZOOM



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Milstein-type hydrido-halide complexes with N-heterocyclic pincer ligands are dearomatized under basic conditions. The dearomatized species were proposed to act as catalysts in the reduction of carbonyl compounds under H₂. Our recent work has demonstrated that the Milstein-type catalysts are non-innocent. The aromatic ligand backbone of the NNP pincer ligands is susceptible to hydrogenation under the catalytic conditions. This presentation deals with the reactivity and structure of a series of NNP complexes of ruthenium. The catalytic activity of these complexes has been tested in ester reduction under hydrogen. Insights into the mechanism of the catalytic ester reduction have been obtained with the help of NMR studies and DFT calculations.

Dmitry Goussev

Wilfrid Laurier University

Dmitry Goussev earned his Ph.D. in Bio-Physical Chemistry in 1987 and his M.Sc. in Chemistry in 1983, both from the Moscow Institute of Fine Chemical Technology. His postdoctoral research took him to the University of Zurich, Indiana University, and the University of Toronto before he joined the faculty at Laurier. Goussev's research focuses on the synthesis of novel pincer-type ligands and their complexes with noble metals from Groups 7 through 9. His lab is developing highly efficient and practical catalysts for various reactions, including hydrogenation, dehydrogenation, and coupling reactions involving aldehydes, alcohols, amines, esters, and amides. A significant portion of his research is dedicated to understanding these catalytic reactions at a molecular level through the use of Density Functional Theory (DFT) calculations.

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