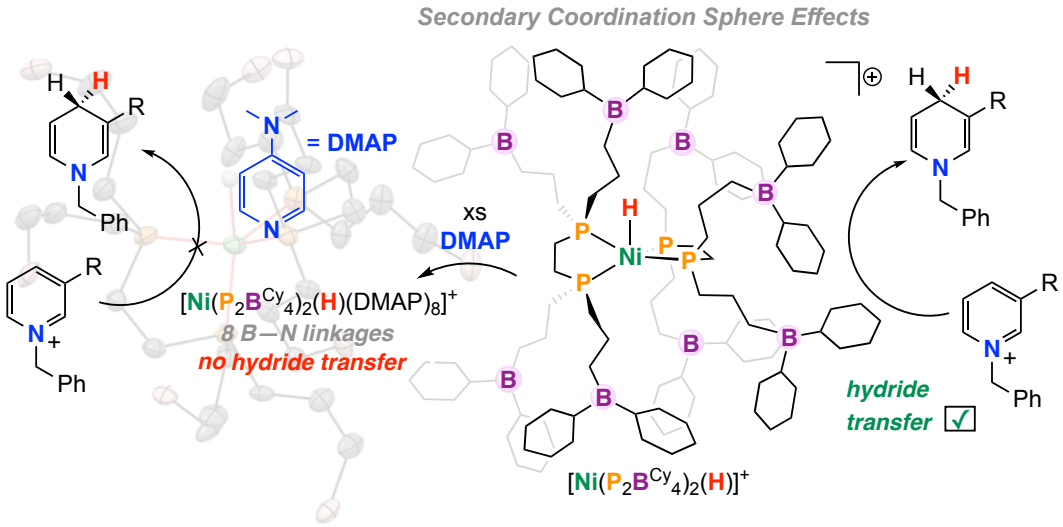
# *Exterior Decorating: Lewis Acid Secondary Coordination Spheres for Cooperative Reactivity*

*Prof. Marcus W. Drover*
*University of Windsor, Department of Chemistry*
*Windsor, Ontario, Canada*

e-mail: marcus.drover@uwindsor.ca | twitter: @marcuswdrover | web: www.droverlab.ca

My team's work spans the traditional bounds of synthetic organometallic and organic chemistry, with an overarching goal to develop new molecules that promote the equitable use of resources, specifically regarding global hydrogen, carbon, nitrogen, and oxygen cycles. As molecular architects, we are motivated by a desire to revise the way in which humans interact with the planet by inventing ways to utilize greenhouse gasses as feedstocks, designing new catalysts for clean energy, and providing better methods for the synthesis of specialty chemicals, pharmaceuticals, and bulk consumer products.

In this lecture, I will discuss several new ambiphilic diphosphine ligands that host Lewis acidic (boron-containing) secondary coordination spheres (SCSs). Diphosphines play a central role in the realm of synthetic chemistry with modifications to backbone length and R substituents leading to dramatic differences in net reactivity. Synthesis of these scaffolds and their ensuing coordination chemistry with late transition metals (cobalt, rhodium, and nickel) will be discussed with applications pertinent to themes in sustainability including catalysis, small-molecule fixation, and more.




**For reviews, see:**

1) **Drover, M.W.** *Chem. Soc. Rev.* **2022**, *ASAP*. DOI: 10.1039/D2CS00022A
2) Zurakowski, J. A.; Austen, B. J. H.; **Drover, M.W.** *Trends Chem.* **2022**, *ASAP*. DOI: 10.1016/j.trechm.2022.01.007