Research in Professor France’s group spans the realm of synthetic organic chemistry, medicinal chemistry, natural products chemistry, and methodology development. The research is primarily motivated by the interest in developing new synthetic methodologies that can be applied toward the construction of complex natural products and pharmaceutically-interesting compounds.

Professor Frank began his undergraduate studies at Duke University, performing research with Professor Eric Toone. Through Inroads, he also interned at Avon Products, where he worked as a chemist in both the analytical division and the product development-skin care division. He graduated from Duke in 2000 and enrolled in Johns Hopkins University for his graduate studies. He joined the lab of Professor Thomas Lectka, studying the reactions of chiral zwitterionic enolates for the enantioselective synthesis of beta-lactams and alpha-halogenated esters. He received his doctorate in 2005 and secured a post-doctoral research position with Professor Al Padwa at Emory University. In 2007, he left Emory to join the faculty at Georgia Tech.

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Acceptor-Acceptor Diaz o Compounds as Building Blocks for Intermolecular C-H Functionalization and Ring-Forming Reactions

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Despite the variety of available acceptor groups, acceptor-acceptor diazo compounds (and the resulting metal carbenes) represent underutilized and underexplored synthetic building blocks for intermolecular C-H functionalization and ring-forming reactions. Herein, we report our progress toward the strategic use of functionalized acceptor-acceptor diazo compounds in the presence of dirhodium catalysts to functionalize enol ethers and enamides. Moreover, we discuss our efforts in developing a predictive model for intermolecular C(sp3)-H functionalization by deconvoluting sterics and electronics in the C-H transition state.