



INORGANIC CHEMISTRY SEMINAR

New Insights into the Role of Tin in Alkoxysilane Curing

Amine bases are widely reported to be important for accelerating alkoxysilane cure speeds either as sole catalysts or as additives in the presence of transition metal or main group species. However, focused mechanistic analyses are sparse, leaving open the question of the exact role of the base, itself, in the presence of a metal additive and the identity of the active curing catalyst. This talk will detail some fundamental studies aimed at understanding these prevailing questions and the finding that certain amidine- or guanidine fragments function to induce the rearrangement of a catalyst additive to what we believe is the true catalyst in alkoxy silane curing. Additional studies directed at the role of co-catalysts will also be discussed.

Jon joined Dow as a member of Chemical Science in January of 2020. He has worked on a variety of projects since then, including synthesizing surfactants for polyurethane foams, catalyst discovery for polyolefins, and studying catalyst speciation for silicone curing. Most recently, he has been developing new synthetic methods and architectures for UV-activated platinum hydrosilylation catalysts as well as cooperative and multifunctional ligands for alkoxylation catalyst discovery efforts.

Jon earned his Ph.D. in Inorganic Chemistry under the direction of Prof. Richard Schrock at MIT, studying the synthesis and reactivity of novel molybdenum and tungsten imido alkylidene olefin metathesis catalysts. This experience was followed by two post-doctoral stints at UCLA: under the direction of Prof. Alexander Spokoyny, Jon delved into the world of polyhedral boron clusters, leveraging their unique properties to develop nucleophilic borylation reagents, photooxidants, ligand scaffolds for luminescent materials, and methods for carborane cross-couplings. He then worked briefly under Prof. Ellen Sletten studying cucurbituril-based host-guest chemistry. Jon completed his B.S. degree in chemistry from Villanova University.



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