



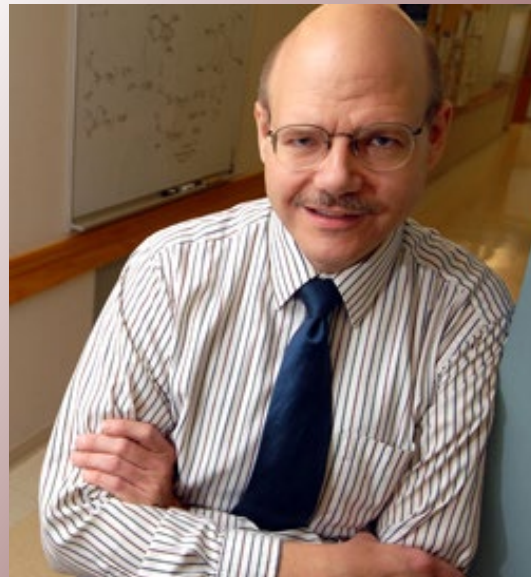
CMCC Mechanochemistry Discussions

Online Seminar Series

Organometallic Chemistry with a Hammer: Adventures in Mechanochemical Synthesis

Livestreaming at
10:00 AM (CT)

THURS., May 19, 2022



Dr. Tim Hanusa
Vanderbilt University, TN
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on the CMCC YouTube Channel:
<https://www.youtube.com/channel/UC7eCYPKbGTKpgO7W2bNABxg>

ABSTRACT:

Mechanochemical reactions—those induced by the direct absorption of mechanical energy, often by grinding or milling—have been known for centuries. However, their intentional use for synthesis is of more recent vintage, and examples in organometallic chemistry have been described for only a few decades. Although mechanochemical approaches to synthesis need not be completely solvent-free, they present an opportunity to investigate compounds not obtainable from conventional solvent-based methods. This may be because useable solvents interfere with the interaction of the reagents or because solvent molecules bind strongly to the products and change their structure and reactivity. Mechanochemistry is not a panacea for synthetic difficulties, however, as some reactions that proceed efficiently in ethers result in decomposition when the reactants are simply ground. Alternatively, in cases where multiple products form, the ratios of products may differ between the solid-state and solution reactions. Organometallic examples in which the solvent is optional, cases in which solvents (or solvated reagents) are essential, and those in which the absence of solvent provides routes to new complexes will be discussed.



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