

Title: Don't stop the milling: A Mechanistic Approach to Mechanochemistry

Abstract:

Mechanochemistry has recently emerged as a sustainable method for chemical synthesis capable of minimizing the amount of solvent required for chemical reactions and potentially unlocking new chemical reactivity. However, our understanding of the mechanisms which drive mechanochemical reactions remains limited. This talk will focus on state-of-the-art approaches and tools to gain mechanistic understanding of milling reactions and how a mechanistic approach can unlock the full potential of mechanochemistry to minimize the energy input, waste, and solvent quantities required for chemical synthesis. The development of real time reaction monitoring methods and their application towards understanding the mechanochemical synthesis of metal organic frameworks, simple organic reactions, cocrystals, and actinide complexes will be discussed.