



CMCC *Mechanochemistry Discussions*

Online Seminar Series

Mechanochemistry: from Basics to Commercialization

Livestreaming at
10:00 AM (CT)

THURS., November 18, 2021

on the CMCC YouTube Channel:

<https://www.youtube.com/channel/UC7eCYPKbGTKpgO7W2bNABxg>



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ABSTRACT:

Mechanochemical synthesis involves grinding together solid reactants with little or no solvent. Potentially, it therefore presents huge advantages over conventional synthetic methods in both sustainability and cost. We are trying to address some key questions: How does it work at macroscopic and molecular levels? and How can it be scaled up and applied industrially? On the former question, we have developed kinetic/mechanistic models for macroscopic insights and applied molecular dynamics for molecular-scale insights. For the latter, we have developed twin screw extrusion (TSE) techniques and successfully applied them to a broad range of chemical synthesis, finding that it is scalable and that there are indeed considerable advantages over conventional methods. Very recent collaborative work on comparing life-cycle analysis of TSE processes with conventional solvent-based methods will be presented.



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