



CMCC Mechanochemistry Discussions

Online Seminar Series

Optimizing Milling for Mechanochemistry

Livestreaming at
10:00 AM (CT)
THURS., May 21, 2026

on the CMCC YouTube Channel:

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



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Milling is a major global consumer of energy and a key process in material processing, and this presentation explores how advances in milling science from the power generation sector can be applied to mechanochemical extraction. The shift from coal to biomass in power stations has exposed challenges caused by mismatches between milling mechanisms such as impact and abrasion and material properties ranging from brittle to ductile, leading to issues like mill choking and explosions and driving the development of new metrics and a better understanding of milling limitations. These insights are directly relevant to mechanochemistry, where ball milling relies on impact fracture but is limited by critical particle size and differing fracture behaviours, particularly when milling mixed materials. Recent work shows that co-milling brittle and ductile materials can provide synergistic benefits, improving particle size reduction and reducing problems such as mill choking. Challenges such as caking in biomass processing also reflect issues seen in mechanochemistry, and through milling optimisation, the cause of such issues can be identified and overcome. The presentation will also introduce novel laboratory scale milling metrics that correlate with full scale performance, along with ongoing efforts to develop similar approaches for mechanochemical extraction to better connect energy input, particle size reduction, and product yield.



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