



# CMCC Mechanochemistry Discussions

Online Seminar Series

## *Catalytic Mechanopolymerization*

Livestreaming at  
10:00 AM (CT)

THURS., November 16, 2023

on the CMCC YouTube Channel:  
<https://www.youtube.com/channel/UC7eCYPKbGTKpgO7W2bNABxg>



**Dr. Toby Nelson**  
University of Tennessee  
Oak Ridge Innovation Institute  
<https://utorii.com/toby-nelson/>

### ABSTRACT:

Catalytic mechanopolymerization is defined here as the use of mechanochemical methods to polymerize monomers in the presence of a catalyst. This extension on traditional polymer mechanochemistry takes advantage of the carbon-carbon cross-coupling reaction technology for the synthesis of high performance materials. This talk will explore the mechanosynthesis of soluble polyfluorenes, poly(lactic acid)s (PLA)s and PLA nanoparticles. I will discuss lessons learned about the effect of ball-milled reaction parameters such as milling ball size, reaction time, collision frequency and temperature influence on conversion, degree of polymerization, molecular weights, polydispersity and yield.



The CMCC is supported by the Division of Chemistry of the National Science Foundation under grants: 2023644 (Phase I) and 2303044 (Phase II).

