

## Allerton Conference Poster Abstract

Title: Incorporation and Activation of Mechanophore (SP) in High-Performance Thermosets (pDCPD)

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### Abstract:

Mechanical activation of force-responsive molecules (mechanophores) has been widely studied in different platforms including soluble linear polymers, nanoparticles and bulk polymers. However, the activation of mechanophore in high-performance thermosets was rarely reported. In this work, the incorporation and activation of mechanophore (SP) in high-performance thermosets (pDCPD) were achieved and studied. Meanwhile, a group of mechanophores with similar force-responsive core but different connections were designed and synthesized to study the topology-activating property relationship in high-performance thermosets. The mechanical properties of mechanophore-doped thermosets were further qualitatively and quantitatively studied by DSC, DMA and tensile experiments. Preliminary experimental results from this work indicates that the activating properties of mechanophores in high-performance thermosets are significantly different with that in general thermoplastics and/or thermosets with low T<sub>g</sub>, and the doping topology of mechanophores plays a determinative role on their activating properties in this platform.