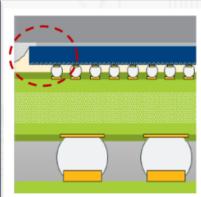


## David Huitink University of Arkansas

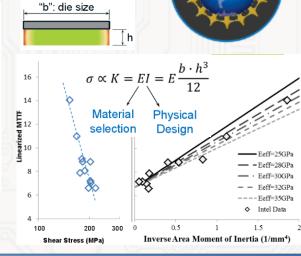
AN NSF SPONSORED CENTER



- Thermo-mechanical interactions in electronic packages (modeling + experiment)
- Materials and Surface enhancement for thermal transport
- Novel materials synthesis and electro-thermal characterization



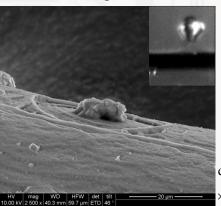
Electronic Packaging Mechanics/Reliability



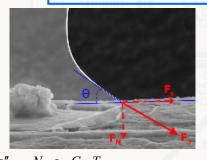
Tribo-catalysis of Hi aspect ratio

graphene platelets: 0.5-2.5nm thick

2-ph Heat transfer with Nanofluid and surface augmentation



Thermal Transport Enhancement



 $q_{NP}'' = N \cdot \rho_{NP} C_{NP} T_{wall}$   $\times \int 2\pi r_{bubble} \cdot t(r_{bubble}) \cdot [1 - \phi(d_{NP})] dr_{bubble}$ 

Novel Material Synthesis & Characterization

