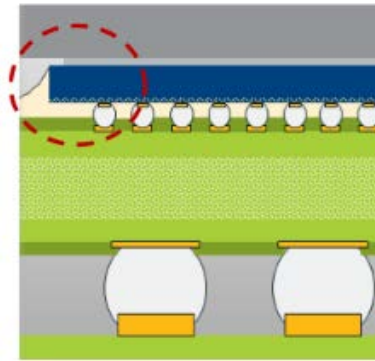
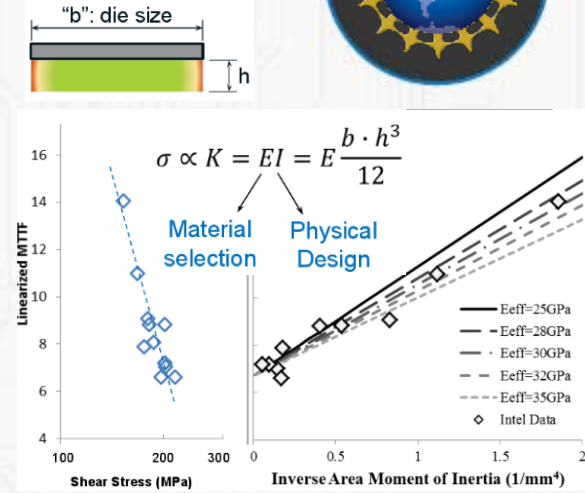


- Thermo-mechanical interactions in electronic packages (modeling + experiment)
- Materials and Surface enhancement for thermal transport
- Novel materials synthesis and electro-thermal characterization



Electronic Packaging
Mechanics/Reliability

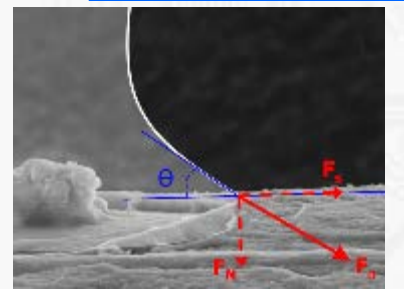
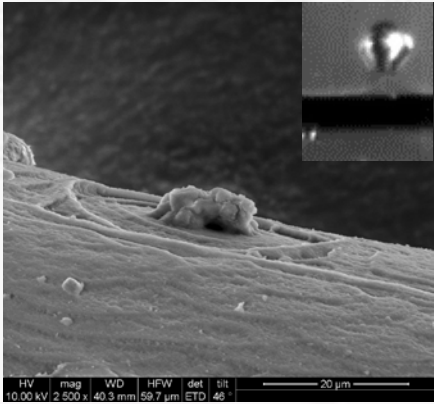


2-ph Heat transfer with Nanofluid and surface augmentation

Thermal Transport Enhancement

Novel Material Synthesis & Characterization

Tribo-catalysis of Hi aspect ratio graphene platelets: 0.5-2.5nm thick



$$q''_{NP} = N \cdot \rho_{NP} C_{NP} T_{wall}$$

$$\times \int 2\pi r_{bubble} \cdot t(r_{bubble}) \cdot [1 - \phi(d_{NP})] dr_{bubble}$$



NP synthesis and shape selectivity

