Optimization of Thermal Interface Material's Particle Features and Dispense Mechanism for Enhanced Heat Dissipation

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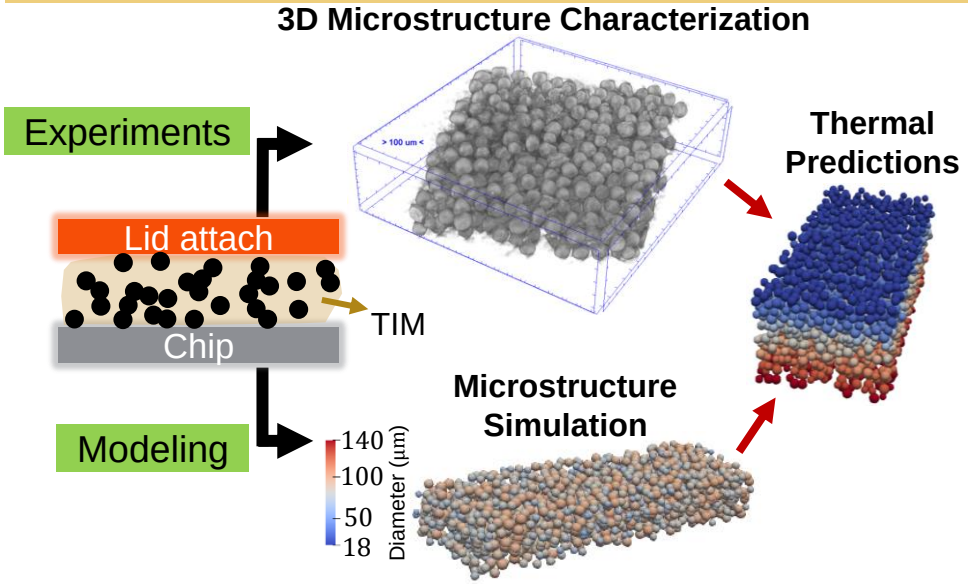
OBJECTIVE

- Investigate the effect of TIM assembly process on the particle redistribution within the material and its impact on thermal performance during operation
- Optimize effective thermal conductivity of TIMs by controlling its squeeze process and TIM formulation

METHODOLOGY

- Experimentally quantify particle redistribution in TIMs (consisting of spherical particles) using 3D X-ray imaging technique and characterize TIM thermal conductivity
- Develop validated microstructure and thermal conduction models to (a) simulate TIM squeezing and predict particle redistribution, and (b) predict TIM effective thermal conductivity

OVERVIEW



IMPACT

- Validated modeling will help optimize future experimental studies
- Technology transfer of this investigation can potentially have far reaching consequences on the performance of a wide range of electronics devices

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