

# **Thermal Resistance and Effective Thermal Conductivity Measurements of Thermal Grease Using the Flash Diffusivity Method**

**Speaker: Robert Campbell** – Netzsch Corporation, Burlington, MA

E-Mail: [Robert.Campbell@netzsch.com](mailto:Robert.Campbell@netzsch.com)

## **Abstract**

Reliable performance measurements of thermal grease used as a thermal interface material in electronics packaging are important for material selection and design validation. As the grease is used in a thin layer typically 10's of microns thickness between various surfaces, measurements simulating the application can be difficult with various steady-state thermal conductivity methods. Utilizing multilayer analysis and special sample holders, the flash diffusivity method is well-suited to measurements of interfacial resistance and effective thermal conductivity of these thin interfaces. With a series of measurements over a range of grease thickness, the contact resistance and bulk thermal conductivity can also be estimated. The presentation will describe the method and sample holder setup and results for several commercially available materials will be evaluated.