

NanoPhonics for Thermal Management

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The efficiency of today's thermal interface materials and nanoelectronic devices rely on the thermal properties of nanostructures. The governing mechanisms at play are related to phonon scattering at interfaces as for instance in layered systems or nano-object composites. Actual theoretical models however disagree with Kapitza resistance measurements by several orders of magnitude and very few data have been reported to define heat flux at a single nanocontact.

We will propose a new approach to the estimation of the interfacial contact resistance based on atomic scale simulations, which have been applied to carbon based thermal interface materials.