

# thermalHUB

## Heat Transfer across Solid Contacts Enhanced with Nanomaterials

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**Abstract** This presentation describes thermal transport processes at solid-solid material interfaces. An overview of applications in the electronics industry serves to motivate the subject, and then the basic diffusive and ballistic constriction theories are introduced. The addition of carbon nanotube arrays to solid-solid interfaces has been shown to improve heat transfer significantly, and these materials will serve as an example of enhanced interfacial transport with nanomaterials. Experimental techniques and results are reviewed, and a model that employs ballistic transport principles is introduced to interpret these results.

**bio** Timothy S. Fisher received Ph.D. and B.S. degrees in Mechanical Engineering from Cornell University in 1998 and 1991, respectively. He joined Purdue's School of Mechanical Engineering and Birck Nanotechnology Center in 2002 after several years at Vanderbilt University. At the time of this recording, he was serving as a Visiting Professor in the Chemistry and Physics of Materials Unit of the Jawaharlal Nehru Centre for Advanced Scientific Research in Bangalore, India.

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**references** As listed in the presentation.

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