

Mechanical & Aerospace Engineering

seminar

Radiative Heat Transfer at the Nanoscale

September 4, 2015 at 1:30pm in CDN 60

abstract

Radiative heat transfer at the nanoscale has attracted considerable attention recently due to its promise for both modulation of heat transfer and for thermophotovoltaic energy conversion. In this talk, I will describe recent efforts in our group to experimentally elucidate nanoscale radiation. Specifically, I will present recent experimental work from our group where we have addressed the following questions: 1) Can theory accurately describe radiative heat transfer in single nanometer sized gaps? 2) What is the role of film thickness on the nanoscale radiation? and 3) Can radiative heat fluxes that are orders of magnitude larger than those between blackbodies be achieved? In order to address these questions we have developed a variety of instrumentation including a novel nanopositioning platform and several microdevices, which will also be described. Finally, we will outline how these advances can be leveraged for future investigations.

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biosketch

Prof. Pramod Reddy received a B. Tech and M. Tech in Mechanical Engineering from the Indian Institute of Technology, Bombay in 2002, and a Ph. D. in Applied Science and Technology from the University of California, Berkeley in 2007. He was a recipient of the NSF CAREER award in 2009, and the DARPA Young Faculty Award in 2012. He is currently an associate professor in the departments of Mechanical Engineering and Materials Science and Engineering at the University of Michigan, Ann Arbor.

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