

DISTINGUISHED SEMINAR SERIES

Thermal Phenomena in Nanoelectronics



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Friday, October 19th, 2012, 2:00 pm

Warnock Engineering Bldg. (WEB) 1230 Reception to follow at 3:00 pm

Abstract:

Surging demand for high-tech products – from iPads to smart vehicles – is inspiring breakthroughs in materials integration and dimensional scaling for nanoelectronics. This seminar describes the many thermal challenges posed by this progress. We focus

both on fundamentals (sub-continuum heat conduction by electrons and phonons) and on the latest experimental techniques using nanomachining and high-speed optics. Example technologies include deeply scaled transistors, nonvolatile memory for portables, and thermoelectric waste heat recovery systems for vehicles.

About Dr. Goodson:

Kenneth E. Goodson is Professor and Vice Chair of Mechanical Engineering at Stanford. His NanoHeat Lab has graduated 40 PhDs including a dozen who are now Professors from MIT and UC Berkeley to Stanford and UIUC. Goodson studied at MIT (BS89, PhD93) and has co-authored 30 US patents, 150 archival journal articles, and 200 conference papers. Recognition includes the ASME Kraus Medal, plenary lectures at INTERPACK, ITHERM, PHONONS, SEMITHERM, and THERMINIC, and best/outstanding paper awards at SEMITHERM, ITHERM, and IEDM. Goodson co-founded Cooligy, which builds microfluidic cooling systems for computers (including the Apple G5) and was acquired by Emerson in 2006.

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