



Vljudno vabljeni na predavanje:

Hierarchical Thermal Transport Modeling and Simulation in Semiconductors from Nano to Macro Scales,

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Miniaturization of electronic features, devices and systems into the sub-micron range has resulted in the need for developing physics-based prediction tools for heat transport regimes where the Fourier diffusion equation is not applicable. Thermal modeling of current and future electronics requires consideration of a broad range of spatial and temporal scales spanning six orders of magnitude. This talk describes computational modeling of sub-continuum heat transfer with Boltzmann transport equation, lattice Boltzmann method and atomistic molecular dynamics approaches. It also outlines the challenges to model nano-scale thermal transport and to integrate solutions across multiple length scales ranging from nanometers to macro scales. For illustration purposes, relevant thermal behavior in thin films, self-heating in silicon-on-insulator transistors and transient electrostatic discharges are considered.

O predavatelju:

Cristina Amon is Alumni Professor of Mechanical and Industrial Engineering at the University of Toronto and Dean of the Faculty of Applied Science and Engineering. Prior to her appointment at the University of Toronto, she was the Raymond J. Lane Distinguished Professor and Director of the Institute for Complex Engineered Systems at Carnegie Mellon University. She received her doctoral degree from MIT in 1988. She serves as Director of the MKS Instruments Board and chair of the Global Engineering Deans Council.

Professor Amon's research contributions include the development of Computational Fluid Dynamics for electronics thermal design subject to multidisciplinary competing constraints, which led to the multi-stage concurrent thermal design methodology with hierarchical model refinement. More recently, her research group has focused on numerical algorithms for sub-micron and nanoscale heat transport in semiconductors based on molecular dynamics, lattice-Boltzmann method and phonon Boltzmann transport. She has been invited to deliver keynote lectures world wide and has contributed over 260 refereed articles in education and research literature. Her editorship roles have included the ASME Journal of Heat Transfer, IEEE Transactions on Components and Packaging Technology, and Heat and Mass Transfer. She is a member of US National Academy of Engineering, Canadian Academy of Engineering and Royal Academy of Spain, and Fellow of ASEE, AAAS, ASME, CSME, EIC and IEEE.

Vljudno vabljeni!



Prof. dr. Jožef Duhovnik
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