

An Overview of MEMS Modeling, Simulation and HPC Activities at PRISM

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PRISM is a new center at Purdue funded by the National Nuclear Security Administration (NNSA). Our charter is to advance the development of micro-electro-mechanical systems (MEMS) for civilian and defense applications. We seek to develop a deeper understanding of MEMS failure mechanisms through the use of verified, validated high performance computing. The talk will present our approach to MEMS modeling, including a description of the underlying multiscale multiphysics phenomena, the numerical approaches taken, and our approach to achieving scaling.

Biography



Jayathi Murthy is Robert V. Adams Professor of Mechanical Engineering at Purdue University and Director of PRISM: An NNSA-funded center for Prediction of Reliability, Integrity and Survivability of Microsystems. She received her Ph.D degree from the University of Minnesota in the area of numerical heat transfer and has worked in both academia and in industry. During her employment at Fluent Inc., a leading vendor of CFD software, she developed the unstructured solution-adaptive finite volume methods underlying their flagship software Fluent. More recently, her research has addressed sub-micron thermal transport, and the development of numerical techniques for concurrent electro-thermal simulation in emerging electronic devices. She is the recipient of the IBM Faculty Partnership award 2003-2005, the 2004 Journal of Electronics Packaging Best Paper award, the 2007 ASABE Best Paper

Award and the 2008 ASME Heat Transfer Division Best Paper Award. Prof. Murthy serves on the editorial board of *Numerical Heat Transfer*, is an editor of the 2nd edition of the *Handbook of Numerical Heat Transfer*, and serves as Associate Editor of the *ASME Journal of Heat Transfer*. She has served on numerous national committees and panels on electronics thermal management and CFD, and is the author of over 190 technical publications.