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**“ADDRESSING THE CHALLENGES OF ADAPTIVITY AND SCALE IN
PARALLEL SCIENTIFIC SIMULATIONS”**

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ABSTRACT

Simulations are playing an increasingly important role in science and engineering and are rapidly becoming critical research modalities. Large scale, coupled, and dynamically adaptive simulations can enable highly accurate solutions to realistic models, and provide dramatic insight into complex phenomenon. However, the phenomena being modeled by these simulations are inherently dynamic and heterogeneous and spanning multiple time and space scales, and their large scale parallel implementation presents significant runtime challenges. In this talk I will present a computational engine that incorporates algorithmic and infrastructure solutions to addresses these challenges and enable efficient and scalable implementations in a wide range of application domains. Specifically, I will focus on addressing the space-time heterogeneity and dynamism of parallel adaptive mesh refinement formulations.

Speaker's brief bio:

Manish Parashar is Professor of Electrical and Computer Engineering at Rutgers University, where he also is co-director of the Center for Advanced Information Processing (CAIP) and director of the Applied Software Systems Laboratory. He received a BE degree in Electronics and Telecommunications from Bombay University, India and MS and Ph.D. degrees in Computer Engineering from Syracuse University. He has received the Rutgers Board of Trustees Award for Excellence in Research (2004-2005), NSF CAREER Award (1999) and the Enrico Fermi Scholarship from Argonne National Laboratory (1996). His research is in the broad area of computational science and applied parallel & distributed computing, and specifically on solving science and engineering problems on very large systems.

For more information please visit <http://www.caip.rutgers.edu/~parashar/>.