



CRI Seminar

Dr. Erik Boman
Researcher in Combinatorial Scientific Computing
Sandia National Laboratories
Thursday February 26, 2009
1:30 – 2:30 PM
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Load-Balancing in Parallel Computing Enables Computational Science

Abstract: Computer simulation has become an indispensable tool in computational science. The current trend is for supercomputers to have increasing numbers of processors and cores, which makes data distribution an important issue. We give an overview of effective algorithms for data partitioning and load-balancing in scientific computing. We present the Zoltan toolkit, an open-source software package for parallel computations, with emphasis on load-balancing. Zoltan was designed for large-scale, adaptive, multi-physics simulations. As part of the CSCAPES (Combinatorial Scientific Computing and Petascale Simulations) Institute, which is funded by the US Dept of Energy but led by Purdue, we have integrated algorithms for other combinatorial problems (e.g. matrix ordering and graph coloring).

Biography - Erik Boman is a researcher in combinatorial scientific computing at Sandia National Laboratories in Albuquerque, NM. He is a co-PI for the CSCAPES Institute, funded by the DOE Office of Science. Dr. Boman's research interests include parallel computing, graph algorithms, matrix computations, and optimization. He holds a Ph.D. in Scientific Computing from Stanford University.

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