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## Frontiers of Scientific Computing Lecture Series

**Combinatorial Algorithms Enabling Computational Science and Engineering: The CSCAPES Institute****Alex Pothen, Old Dominion University**

Professor, Computer Science Department and Center for Computational Science

Johnston Hall 338  
April 02, 2008 - 01:30 pm**Abstract:**

Combinatorial problems arise as critical subproblems in many computational simulations in science and engineering. Combinatorial scientific computing (CSC) is a multi-disciplinary area in which such problems are formulated and solved. The CSCAPES Institute has been established with funding from the Office of Science of the U.S. Department of Energy to solve CSC problems and thereby enable high performance computing for breakthrough science. Participants include researchers from Sandia and Argonne National Labs, Ohio State, Colorado State, and Old Dominion University. The CSCAPES Institute focuses on three major areas of research: parallelization toolkits and load balancing, automatic differentiation, and large-scale graph and matrix computations. The application areas include astrophysics, plasma fusion, accelerator design, systems biology, climate modeling, etc. This talk will discuss the work being done at the CSCAPES Institute. Researchers from sciences and engineering who wish to use high performance CSC software tools are invited to interact with us.

**Speaker's Bio:**

Alex Pothen is a professor of computer science and computational science at Old Dominion University. He is also the Director of the CSCAPES Institute, funded under the Scientific Discovery through Advanced Computing program of the Department of Energy. From Fall 2008, Alex will be a professor of Computer Science and Director of the Computing Research Institute at Purdue University. Alex received an undergraduate degree in chemistry from the Indian Institute of Technology, New Delhi, and his PhD, in applied mathematics, from Cornell University. His research interests are in combinatorial scientific computing.

**This lecture has a reception.**