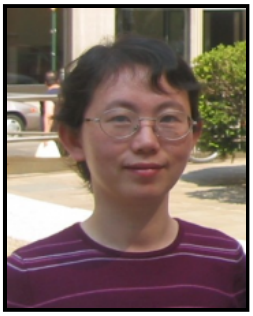

Special Guest Lectures

Inexact Balancing Domain Decomposition by Constraints Algorithms

Xuemin Tu, University of California, Berkeley

Assistant Researcher, Department of Mathematics

Johnston Hall 338
February 02, 2010 - 03:40 pm

Abstract:
Balancing domain decomposition by constraints (BDDC) algorithms are non-overlapping domain decomposition methods for solutions of large sparse linear algebraic systems arising from the discretization of boundary value problems. They are suitable for parallel computation. The coarse problem matrix of BDDC algorithms is generated and factored by a direct solver at the beginning of the computation. It will become a bottleneck when the computer systems with a large number of processors are used. In this talk, an inexact coarse solver for BDDC algorithms is introduced and analyzed. This solver helps remove the bottleneck. At the same time, a good convergence rate is maintained. We will also talk about the extensions of these inexact BDDC algorithms to problems arising from the mixed finite element and mortar finite element discretizations.

Speaker's Bio:
Xuemin Tu is currently an assistant researcher in the Department of Mathematics, University of California, Berkeley. She received her Ph.D. from Courant Institute of Mathematical Sciences, New York University in 2006. Her research interests include scientific computing and numerical analysis. She currently works on domain decomposition methods, nonlinear multigrid methods, and nonlinear filters with applications in oceanography.

Refreshments will be served.
This lecture has a reception.

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