Applied and Computational Seminar

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November 18, 2011 HH-3026, 3:00p.m.

A Space-Time Parallel Method for PDEs

Abstract:

During Part I of the seminar I discussed various domain decomposition algorithms to generate equidistributing meshes for the numerical solution of partial differential equations. In this talk I will present the Revisionist Integral Deferred Correction (RIDC) approach recently developed by Ong, MacDonald, and Christlieb. RIDC gives a relatively easy way to add small scale time parallelism to the solution of time dependent PDEs. In this talk I will show how large scale spatial parallelism can be added to RIDC using domain decomposition strategies. This will result in a truly parallel space-time method. Our current openmp/mpi implementation difficulties will be highlighted.