Numerical Analysis and Scientific Computing Seminar

Projected Krylov Methods for Saddle-Point Systems

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Abstract: Projected Krylov methods are full-space formulations of Krylov methods that take place in a nullspace. Provided projections into the nullspace can be computed accurately, those methods only require products between an operator and vectors lying in the nullspace. We provide systematic principles for obtaining the projected form of any well-defined Krylov method. We illustrate typical behavior on a few simple problems arising from the discretization of the Stokes and Navier-Stokes equations and describe a convenient object-oriented Matlab implementation.

Wednesday, March 20, 2013, 12:50 pm
Mathematics and Science Center: W306

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