

APPLIED MATHEMATICS COLLOQUIUM

“Implicit Solvers for Incompressible Flow Problems”

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Abstract: This survey talk reviews some recent developments in the design of robust solution methods for the Navier-Stokes equations modelling incompressible fluid flow. There are two building blocks in our solution strategy. First, an implicit time integrator that uses a stabilized trapezoid rule with an explicit Adams-Bashforth method for error control, and second, a robust Krylov subspace solver for the spatially discretized system. Numerical experiments are presented that illustrate the effectiveness of our generic approach. It is further shown that the basic solution strategy can be readily extended to more complicated models, including unsteady flow problems with coupled physics and steady flow problems that are stochastic in the sense that they have uncertain input data.

**Monday October 27, 2014
4:30 PM
Room E17-122**

Applied Math Colloquium: <http://www-math.mit.edu/amc/fall14/>
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