Christopher K Newman A Scalable Projection Method for the Unsteady Incompressible Navier-Stokes Equations

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We discuss a high order projection scheme for time integration of the incompressible Navier-Stokes equations. The method is based on a projection onto a divergence-free subspace interleaved with a Krylov based exponential time integration. This semi-explicit approach provides stability and high order accuracy without the need for a nonlinear iteration. We present numerical examples to support our claims and provide comparison against a Crank Nicolson scheme.