

## SOLVING 3D VISCOUS NAVIER-STOKES EQUATIONS USING CUDA

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**Abstract.** A CUDA implementation of the 3D viscous incompressible Navier-Stokes equations is proposed using as advection operator the BFEC (Back and Forth Error Compensation and Correction) schema. The Poisson problem for pressure is solved with a CG (Conjugated Gradient) preconditioning the system with FFTs (Fast Fourier Transforms). Study cases as Lid-Driven Cavity and Flow Past Circular Cilinder , both 2D and 3D, are solved in order to check accuracy and obtain performance measurements.