
Chris Newman
A JFNK IMEX method for moving fluid simulation

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We discuss a method for coupling the Laplace-Beltrami mesh smoothing equations to the incompressible Navier-Stokes equations. The method is based on implicit/explicit treatment of the coupled PDES and solved using the Jacobian-free Newton-Krylov method interleaved with an error indicator for the mesh smoothing process.

We present numerical examples to support this study and provide comparison to fully coupled methods.