1018-76-175 **Ching-hsiao Cheng*** (cchsiao@math.ucdavis.edu), University of California Davis, Department of Mathematics, One Shields Avenue, Davis, CA 95616, **Daniel Coutand** (coutand@math.ucdavis.edu), University of California Davis, Department of Mathematics, One Shields Avenue, Davis, CA 95616, and **Steve Shkoller** (shkoller@math.ucdavis.edu), University of California Davis, Department of Mathematics, One Shields Avenue, Davis, CA 95616.
Navier-Stokes equations interacting with a nonlinear elastic shell.

We study a moving boundary value problem consisting of a viscous incompressible fluid moving and interacting with a nonlinear elastic shell. The fluid motion is governed by the Navier-Stokes equations, while the shell is modeled by the nonlinear St. Venant-Kirchhoff constitutive law, and they are coupled together by continuity of displacements and tractions (stresses) along the moving material interface. We prove existence and uniqueness of solutions in Sobolev spaces. (Received March 06, 2006)