1113-35-173   **Yongjin Lu*** (`ylu@vsu.edu`). *Asymptotic and uniform stability of weak solutions to a nonlinear fluid-structure interaction model.*

Fluid-structure interaction modeling the dynamics of a structure submerged or surrounding viscous non-compressible fluid has wide applications ranging from aerospace engineering, civil engineering, medicine and environmental sciences, etc. In our study, we consider models where the elastic body exhibits small but rapid oscillations so that the dynamics is governed by a PDE system coupling Navier-Stokes equation with a wave equation. We will discuss the asymptotic and uniform stability of weak solutions to this nonlinear coupled system near either a trivial or nontrivial equilibrium via boundary and interface feedback controls. The result depends on the strength of the controls and the geometry of the interface. (Received August 20, 2015)