

1145-35-1691

**Yongjin Lu\*** (y1u@vsu.edu). *Feedback stabilization of a 2D fluid-structure interaction model.*

We study the feedback stabilization of a fluid-structure interaction (FSI) where a solid is submerged in the surrounding viscous incompressible fluid and interaction takes place at the interface between the fluid and the solid. The dynamics of this FSI model is described by a nonlinear system of partial differential equations (PDEs) coupling Navier-Stokes equation together with wave equation. We explore a few strategies of (boundary and/or interior) feedback stabilization that could produce uniform exponential decay rate of energy to an unstable equilibrium. These results are achieved by building special multipliers that could account for the interactive and hybrid nature of the coupled dynamics. The theoretical results are verified by numerical simulation using a monolithic approach to construct finite elements. (Received September 23, 2018)