1095-35-60 **Mihaela Ignatova*** (mihaelai@stanford.edu), **Igor Kukavica**, **Irena Lasiecka** and **Amjad Tuffaha**. *On the well-posedness of a free boundary fluid-structure model.*

We address the well-posedness of a fluid-structure interaction model describing the motion of an elastic body immersed in an incompressible fluid. The fluid-structure system consists of the incompressible Navier-Stokes equations and a damped linear wave equation coupled through transmission boundary conditions on the free moving interface separating the elastic body and the fluid. We provide a priori estimates for the local-in-time existence of solutions for a class of initial data which also guarantees uniqueness. In the second part of the talk, we address the global-in-time existence and exponential decay of solutions to the system for given sufficiently small initial data. (Received August 26, 2013)