1043-35-208   **Amjad Tuffaha*** (`tuffaha@usc.edu`), 3620 S. Vermont Ave., Kap 108, University of Southern California, Los Angeles, CA 90089, and **Igor Kukavica** and **Mohammed Ziane**. *Strong Solutions to a Nonlinear Fluid Structure Interaction System.* Preliminary report.

In this paper, we prove the existence of smooth solutions to a system of nonlinear fluid structure interaction first introduced by Lions and then studied by several other authors. The system consists of a Navier Stokes equation and an elastic equation interacting on an interface with velocity and stress matching boundary conditions.

In particular, the strong solutions here are obtained given initial data for the Navier Stokes equation in the space H^1. This is an improvement over past results where initial data of the Navier Stokes equation was assumed to be in the space H^2. (Received August 27, 2008)