Strong solutions to a nonlinear fluid-structure interaction system.

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Abstract:

In this talk I consider the existence of local-in-time strong solutions to a well established coupled system of partial differential equations arising in Fluid-Structure interactions. The system consists of an incompressible Navier-Stokes equation and an elasticity equation with velocity and stress matching boundary conditions at the interface in between the two domains where each of the two equations is defined. I discuss new existence results for a range of regularity in the initial data as well as a free moving boundary scenario.