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Some Results about a Fluid-solid System

We consider a system describing the motion of a solid immersed in an incompressible fluid. The motion of the fluid is described by the Navier-Stokes equations or Euler equations, depending on the viscosity. Suppose the solid is a rigid body, whose motion consists of translation and rotation. The motion obeys the Newton's law, i.e., the balance of linear and angular momentum. Its change is due to the force coming from the fluid. The whole system is a free boundary problem, since the location of the solid is unknown a priori. In this talk, some results about its local or global wellposedness will be discussed. The talk is based on the joint work with Zhouping Xin and Aibin Zang.