

Measure-valued solutions and weak-strong uniqueness for the incompressible inviscid fluid-rigid body interaction

Ondřej Kreml

Institute of Mathematics of the Czech Academy of Sciences

Abstract

We consider a coupled system of partial and ordinary differential equations describing the interaction between an incompressible inviscid fluid and a rigid body moving freely inside the fluid. We prove the existence of measure-valued solutions which is generated by the vanishing viscosity limit of incompressible fluid-rigid body interaction system under some physically constitutive relations. Moreover, we show that the measure-valued solution coincides with strong solution on the interval of its existence. This relies on the weak-strong uniqueness analysis. This is a joint work with Matteo Caggio, Šárka Nečasová, Arnab Roy and Tong Tang.