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Tuesday, March 28, 2017
Rm 135 WCharlton
4 – 5 pm

Small-time Global Controllability of the Navier-Stokes Equation with the Navier Slip Boundary Conditions

We prove the global controllability of the Navier-Stokes condition on a bounded domain when the fluid slips on the boundary according to the Navier condition. The controls are on the boundary: it is assumed that the velocity field can be prescribed on an open set of the boundary which meets every connected component of the boundary of the domain. The proofs rely on the following ingredients: the return method (Coron) in connection with the controllability of the Euler equations of incompressible fluids (Coron and Glass), asymptotic boundary layer expansion (Iftimie and Sueur), dissipation of the boundary layer (Marbach), and a local null controllability result (Fernandez-Cara, Guerrero, Imanuvilov and Puel for the Stokes no-slip boundary condition, extended by Guerrero to the case of the Navier slip boundary condition).

It is a joint work with Marbach and Sueur.

Refreshments will be served 3:15 – 3:45 pm in the Faculty & Graduate Student Lounge
Rm 4118 French Hall West

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