

INHOMOGENEOUS NAVIER-STOKES SYSTEM: WELL POSEDNESS FOR ROUGH DATA

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I will talk about minimal assumptions on regularity of the initial density for the issue of the well posedness to the inhomogeneous Navier-Stokes system for incompressible flows with variable density. Thanks to an approach via the Lagrangian coordinate system we are able to show the existence of unique solutions with positive bounded initial density, admitting arbitrary jumps. For global in time existence we are obligated to assume some smallness conditions.

The talk will be based on results joint with Raphael Danchin (Paris):

[1] R. Danchin, P.B. Mucha: A Lagrangian Approach for the Incompressible Navier-Stokes Equations with Variable Density, CPAM 2012;

[2] R. Danchin, P.B. Mucha: Incompressible flows with piecewise constant density, ARMA 2013.