

## Hydrodynamic stability for the dynamic slip

Michael Zelina

*Charles University*

zelina@karlin.mff.cuni.cz

We consider the incompressible Navier-Stokes equation with the dynamic slip boundary condition. Our first goal is to prove the so-called linearization principle in the class of weak solutions satisfying the energy inequality. By this we mean that if the spectrum of certain operator has only positive real parts, then the stationary solution  $u^*$  of the Navier-Stokes equation is stable with respect to sufficiently small initial perturbations. We deal further with two explicit geometries, namely with either two infinite parallel planes or two concentric cylinders, where the solution  $u^*$  corresponds either to Couette/Poiseuille or Taylor-Couette flow. We eventually compare our results with well-known analogue results in the case of Dirichlet boundary condition.