

# Lothar-Collatz-Seminar

Wed, 18. June · 10:00 · Geom 1240

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## Local and global strong solutions to the Navier-Stokes system with general Dirichlet boundary conditions

### Abstract:

In recent years, there has been growing interest in the study of open fluid systems, motivated by, among others, their numerical analysis. Open fluid systems are characterized by their ability to exchange matter with the external environment; that is, if  $\partial\Omega$  denotes the domain boundary and  $n$  the outward-pointing normal vector, the normal velocity component  $u \cdot n$  is not sign-constrained. This setting brings about challenges in obtaining higher regularity of the solution due to the hyperbolic nature of transport in a fluid.

In this talk, we explore the (conditions guaranteeing) existence of local-in-time strong solutions to the Navier–Stokes system in the  $L^p$ – $L^q$  setting. We also examine criteria under which these solutions may be extended to exist globally in time.

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[www.c3s.uni-hamburg.de/news-events/seminar-c3s.html](http://www.c3s.uni-hamburg.de/news-events/seminar-c3s.html)

