



Oberseminar Mathematische Strömungsmechanik

Institut für Mathematik der Julius-Maximilians-Universität Würzburg

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The Motion of a Rigid Body in an Inviscid Compressible Fluid

Abstract: We study a fluid-structure interaction problem where a rigid body is immersed in an inviscid compressible fluid. The dynamics is thus modelled through a coupling between the rigid motion and the compressible Euler equations, which in itself pose considerable mathematical challenges. We show that a generalised form of solution (a so-called dissipative measure-valued solution) can be obtained as a vanishing viscosity limit from the compressible Navier-Stokes system with Navier boundary conditions, and that the solution enjoys the property of weak-strong uniqueness. To our knowledge, this is the first rigorous result on inviscid compressible fluid-structure interaction. Joint work with Qianfeng Li (Erlangen).

room 40.03.003 (Emil Fischer Str. 40)

Thursday, Sept. 17, 2026 at 12:30 pm,

Zu diesem Vortrag sind Sie herzlich eingeladen.

gez. *Christian Klingenberg*