KIT

Karlsruhe Institute of Technology

Seminar of the Work Group
Nonlinear Partial Differential Equations
SS 2021

Speaker: Dr. Francesco Fanelli
May 14, 2021, 14:00 - 15:30
Zoom Link: https://kit-lecture.zoom.us/j/7143665630
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Viscous compressible fluids with discontinuous densities

Abstract

In this talk, we are interested in the well-posedness theory for the barotropic Navier-Stokes equations in a low regularity framework. We show a local in time existence and uniqueness result for (slightly) sub-critical initial velocity fields, and initial densities which are merely bounded, with no further regularity assumptions. In particular, densities having discontinuities across an interface are allowed; in that case, a description of the dynamics of the interface is also given. This result extends Hoff's theory for shock data, inasmuch as it holds true in any space dimension and for general pressure laws.

This talk is based on a joint work with *Raphaël Danchin* (Université Paris-Est Créteil) and *Marius Paicu* (Université de Bordeaux).