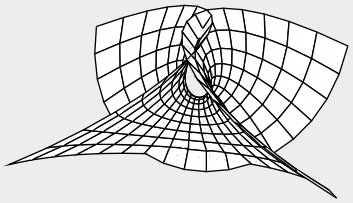

Einladung zum Oberseminar Mathematik in den Naturwissenschaften

Julius-Maximilians-Universität Würzburg
Lehrstuhl für Mathematik in den Naturwissenschaften

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Julius-Maximilians-Universität, Deutschland

Gevrey-class-3 Regularity of an hyperbolic Extension of the Prandtl Equations

For more than a century, the Prandtl theory of boundary layers has inspired many scientific disciplines (such as aerodynamics, automobile design, elasticity, plasticity and rheology). Although the Prandtl equations are nowadays classical, their solutions present a particular unstable nature. These instabilities are nowadays moderately well understood. From a purely analytic prospective, they reduce the function setting in which the equations are well-posed. More precisely, without any structural assumption, the Prandtl equations are locally well-posed when the initial data are Gevrey-class 2 along the horizontal direction and ill-posed for any lower regularity.

The goal of this talk is to present a meaningful physical extension of the Prandtl equations that allows to overcome the barrier given by the Gevrey-2 class. This extension relies strongly on inertial effects of the fluid and we show that its linearization around a shear flow is indeed well-posed with initial data that are Gevrey-class 3 along the horizontal direction (hence less regular than Gevrey 2).

This talk is based on a joint work with J. Kortum (University of Würzburg, Germany) and S. Scrobogna (University of Trieste, Italy).

Ort: Mathmatik Ost, 40.03.003/Zoom	Zeit: Donnerstag, 12.01.2023 um 14:15 Uhr

You are cordially invited to this lecture. Request the Zoom link from anja.schloemerkemper@mathematik.uni-wuerzburg.de

gez. Anja Schlömerkemper