Universität Münster

FACHBEREICH 10
MATHEMATIK UND INFORMATIK
Prof. Dr. Arthur Bartels
Dekan

29.11.2023

E i n l a d u n g

zu der am Mittwoch, den 6. Dezember 2023,
um 10:15 Uhr im Hörsaal M4 stattfindenden

A n t r i t t s v o r l e s u n g

von Frau Juniorprofessorin Dr. Marlies Pirner

über das Thema

„Multi-species kinetic modeling and mathematical theory for physical applications"

Kurzfassung:
My goal is to model certain physical problems that can be described by kinetic partial differential equations. Examples of the physics models are inertial confinement fusion and the re-entry problem of a space vehicle. Using mathematical theory we verify well posedness and essential physical properties of the model. From the modeling point of view this requires extending existing models in the literature by extending them to gas mixtures or by including degrees of freedom in internal energy, chemical reactions and quantum effects. This leads to new difficulties in their theoretical study.
In this talk, I will present recent results on modeling and large time behaviour of solutions to kinetic equations for gas mixtures; entropy inequality and large time behaviour to kinetic equations with degrees of freedom in internal energy and chemical reactions; and results on entropy minimization problems leading to equations with conservation of mass, momentum and energy when we deal with velocity dependent collision frequencies.

gez. Arthur Bartels, Dekan