Oberseminar
Mathematische
Strömungsmechanik

Institut für Mathematik der Julius-Maximilians-Universität Würzburg

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On kinetic models for chemical reactions and convergence to equilibrium

Abstract:

In this talk, we consider a reaction-kinetic model for a two-species gas mixture undergoing pair generation and recombination reactions on a flat torus. The model describes the evolution of a two species gas mixture, subject to kinetic transport, scattering with a background, a second order pair generation reaction, and its inverse recombination. We are concerned with the question of proving quantitative decay-to-equilibrium results. Our motivation is to carry out first small steps in the directions of proving such quantitative decay-to-equilibrium results not only for linear equations but for nonlinear kinetic models without smallness assumptions. The exponential decay to equilibrium is proven for the kinetic model by hypocoercivity estimates. The analysis profits from uniform bounds of the solution in terms of the equilibrium velocity distribution. This is joint work with Christian Schmeiser (University of Vienna) and Gianluca Favre (University of L'Aquila)..

Raum 40.03.003 (Emil Fischer Str. 40)

Tuesday, Feb. 14 at 13:00 pm

Zu diesem Vortrag sind Sie herzlich eingeladen.

gez. Christian Klingenberg