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Applied Math and Numerical Analysis Seminar

Hypo-coercivity for a nonlinear generation- recombination model

by

Professor Marlies PIRNER
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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 hypo-coercivity 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).

Date : February 8, 2023 (Wednesday)
Time : 3:00pm – 4:00pm (Hong Kong SAR)
Zoom link: <https://cuhk.zoom.us/j/9792985952>
Meeting ID: 9792985952
Passcode: 202266

All are Welcome