Veranstaltungen im Sommersemester 2022

Das fünfunddreißigste Treffen des Rhein-Main Arbeitskreises findet

Freitag, den 01. April 2022, 15:15 Uhr

an der

Philipps-Universität Marburg, Fachbereich Mathematik und Informatik,
Hans-Meerwein-Straße 6,
D-35032 Marburg,

als Hybridveranstaltung über BigBlueButton und in **HS IV (Ebene A4)** statt.

Für die Teilnahme in Präsenz gelten die Corona-Regelungen der Philipps-Universität Marburg, welche Sie hier finden. Des Weiteren gibt es ein spezielles Hygienekonzept für die Veranstaltung. Bitte denken Sie an Ihren **3G-Nachweis**.

Programm

15:15 Uhr: Prof. Dr. Gerlind Plonka-Hoch (Universität Göttingen)
From ESPRIT to ESPIRA: Estimation of Signal Parameters by Iterative Rational Approximation
Den Abstract des Vortrages finden Sie hier.

16:00 Uhr: Tee/Kaffee

16:30 Uhr: M.Sc. Aaron Brunk (Johannes Gutenberg Universität Mainz)
Relative energy method for viscoelastic phase separation
Viscoelastic phase separation describes the evolution of a mixture with constituents that show Newtonian, and viscoelastic behaviour after a rapid temperature drop. In such a situation the quasi-homogeneous mixture tends to separate into two different phases towards an energetically favourable configuration. This together with the asymmetry of the constituents leads to a quite broad class of phenomena, such as the transient formation of network-like structures of a slow-component-rich phase and its volume shrinking, see Tanaka [1]. Such complex dynamics is governed by a system of nonlinear partial differential equations, which was derived by Zhou et al. in [2], see also [2,3] for some numerical simulations. However, mathematical analysis of this model, including well-posedness, stability was open.

In this talk, I will present our latest results on the analysis and numerics of the viscoelastic phase separation system. The well-posedness of the model in terms of Hadamard and Lions will be discussed. I will focus on the relative energy method, which provides a clear inside into the structural properties of the model. The power of the relative energy method will be illustrated not only on the level of weak solutions but also in the context of numerical analysis for our problem, [4].

[1] H. Tanaka; Viscoelastic phase separation; J. Phys.: Condens. Matter 12 R207; 2000
[2] D. Zhou, P. Zhang, W. E; Modified models of polymer phase separation; Phys. Rev. E 73, 061801; 2006
[3] P. Strasser, G. Tierra, B. Dünweg, M. Lukacova-Medvidova; Energy-stable linear schemes for polymer–solvent phase field models; Comput Math Appl Volume 77, Issue 1, Pages 125-143; 2019
[4] A. Brunk; Viscoelastic phase separation: Well-posedness and numerical analysis, Dissertation JGU Mainz, 2022

17:15 Uhr: M.Sc. Thomas Schillinger (Universität Mannheim)

Control Strategies for Transport Networks under Demand Uncertainty

We consider transport networks with uncertain demands. Network dynamics are given by linear hyperbolic partial differential equations and suitable coupling conditions, while demands are incorporated as solutions to stochastic differential equations. For the demand satisfaction, we solve a constrained optimal control problem. Controls in terms of network inputs are then calculated explicitly for different assumptions. Numerical simulations are performed to underline the theoretical results.

anschließend: Aufgrund der aktuellen Corona-Situation wird keine Nachsitzung stattfinden. Informationen zur Anreise finden Sie auf dieser Seite.