Oberseminar
Analysis und Theoretische Physik

Prof. Dr. Gieri Simonett
(Vanderbilt University Nashville)

On magnetoviscoelastic fluids in 3D

I will introduce a thermodynamically consistent model for a magnetoviscoelastic fluid in 3D. Existence, uniqueness, and asymptotic behavior of strong solutions is studied in the framework of quasilinear parabolic systems and maximal regularity in L_p-spaces. It will be shown that the critical points of the entropy functional with prescribed energy correspond exactly to the equilibria of the system. Constant equilibria are normally stable: solutions that start close to a constant equilibrium exist globally and converge exponentially fast to a (possibly different) constant equilibrium. Moreover, it will be shown that the negative entropy serves as a strict Lyapunov functional and that every solution that is eventually bounded in the topology of the natural state space exists globally and converges to the set of equilibria.

Dienstag, 05.12.2023, 15:00 Uhr, Raum c311
Hauptgebäude der Universität

Veranstalter:

Prof. Dr. Wolfram Bauer, Prof. Dr. Joachim Escher
Prof. Dr. Johannes Lankeit, Prof. Dr. Elmar Schrohe
Prof. Dr. Alexander Strohmaier
Prof. Dr. Christoph Walker
Dr. Alden Waters