

Partial differential equations describing far-from-equilibrium open systems

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This short talk is devoted to the presentation of the project *Mathematical analysis of partial differential equations describing far-from-equilibrium open systems in continuum thermodynamics* funded by Czech Science Foundation. We present the most fundamental problems related to the mathematical theory for far-from-equilibrium open systems and its relevance when studying the infinite dimensional dynamical systems. We focus on two prototype examples, namely on the pipe flow and on the thermal convection, and discuss the key difficulties and suggest several possibilities how to treat such problems.

The main intension of the presentation is to attract attention on such problems and if possible to start or deepen collaboration with other participants. Some particular results will be presented by other members of the team (T. Bárta, P. Kaplický, D. Pražák and V. Průša) during their talks.