ALPEN-ADRIA UNIVERSITÄT KLAGENFURT

Invitation to the Doctoral Seminar

Prof. Herbert Egger

Johannes Kepler Universität Linz

“The flow of gas in pipe networks”

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Abstract

Transport of gas, oil, or water in pipeline networks can be describd by systems of partial differential equations defined over metric graphs which model the underlying transport infrastructure. Steady state solutions are governed by nonlinear systems similar to the models describing electric circuits. In this talk, we review the basic equations decribing the flow of gas in pipeline networks, discuss their solvability, and long-time dynamics. The results are based on a systematic discretization of the equations and some basic ingredients from network theory and convex analysis which are key ingredients for our investigations. The concept of relative entropy estimates will be introduced and employed for the stability analysis.

Elena Resmerita and the Department of Mathematics look forward to seeing you at the talk!