ALPEN-ADRIA UNIVERSITÄT KLAGENFURT

INVITATION TO THE DOCTORAL SEMINAR

Foundations of Nonlinear Acoustics: From Physics to Mathematics

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Chaired by Barbara Kaltenbacher | Department of Mathematics

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N.2.35

ABSTRACT

Nonlinear acoustic phenomena are highly relevant in many applications, from medical imaging to industrial cleaning. This talk first provides an overview of how the modeling equations arise from fundamental physical principles, such as the Navier–Stokes equations, and how standard models can be extended, for example, by incorporating fractional damping due to viscoelasticity. Then, while second-order wave equations are standard, we focus on a first-order-in-time formulation and highlight key aspects of a proof of existence and uniqueness of solutions in suitable Sobolev spaces.

We hope to see you there!