ALPEN-ADRIA UNIVERSITÄT KLAGENFURT

INVITATION TO THE DOCTORAL SEMINAR

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"Foundations of Nonlinear Acoustics: From Physics to Mathematics"

N.2.35 | Wednesday, 7 January 2026 | 10:00 a.m.

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.

Barbara Kaltenbacher and the Department of Mathematics look forward to seeing you at the talk!