Karlsruhe Institute of Technology

Seminar of the Work Group
Nonlinear Partial Differential Equations
SS 26

June 3rd, 2026, 11:30 - 13:00
Seminar room: SR 3.069

On the Fritz John problem for a freely floating object

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Abstract

The Fritz John problem is a linear model describing the interaction between an incompressible, irrotational free-surface fluid and a partially immersed solid object. Introduced by John in 1949, it is closely related to the Cummins equations, which are widely used in naval engineering to model wave–structure interactions. A rigorous analysis is subtle because the contact points between the free surface and the object create corner singularities and lead to a non-standard trace space for the velocity potential.