Oberseminar im Institut für Angewandte Analysis

Wintersemester 2025/26

Im Rahmen des Oberseminars spricht am Montag, den **12. Januar 2026**:

Kaori Nagatou

Karlsruher Institut für Technologie

Computer Assisted Proofs for Nonlinear Partial Differential Equations

Numerical methods that ensure the reliability of numerical results obtained by a computer, sometimes referred to as "numerical verification methods", have attracted a lot of attention in recent years. These methods not only guarantee a bound for the error between an approximate solution and an exact solution, but also prove the existence of an exact solution within the computed error bounds. That is why such methods are also referred to as "Computer Assisted Proofs". In particular, they can cover cases where purely analytical methods have failed. This lecture will introduce the fundamental concepts of computer assisted proofs for partial differential equations (in particular elliptic boundary value problems) and show some examples, including the current project on non-selfadjoint spectral problems related to self-similar blowup in nonlinear wave equations.

Der Vortrag findet in **Raum E.60, Helmholtzstr. 18** statt.
Beginn: 16 Uhr (c.t.). Alle Interessierten sind herzlich eingeladen.

W. Arendt, A. Dall'Acqua, A. Schlichting, R. Zacher.