

Karlsruher PDE-Seminar

Fast Numerical Solution of Hyperbolic Integral Equations in Exterior Domains

Prof. Dr. Stefan Sauter

Universität Zürich, Institut für Mathematik
Winterthurerstraße 190, CH-8057 Zürich

stas@math.uzh.ch

<http://www.math.uzh.ch/?professur&key1=105>

Work in collaboration with Maria Lopez-Fernandez

We will present a generalized convolution quadrature for solving linear hyperbolic evolution equations. The original convolution quadrature method by Lubich works very nicely for equidistant time steps while the generalization of the method and its analysis to non-uniform time stepping is by no means obvious. We will introduce the generalized convolution quadrature allowing for variable time steps and develop a theory for its error analysis. This method opens the door for further development towards adaptive time stepping for evolution equations. As the main application of our new theory we will consider the wave equation in exterior domains, which is formulated as a retarded boundary integral equation.

Termin: Donnerstag, 4. Juli 2013, 17:30 Uhr

Ort: 1C-03, Allianz-Gebäude 05.20

Gastgeber: Die Dozenten des Schwerpunkts Partielle Differentialgleichungen