Karlsruher Institut für Technologie

Fakultät für Mathematik

Forschungsschwerpunkt Partielle Differentialgleichungen

Karlsruher PDE-Seminar

Direct and Inverse scattering from obstacles with generalized boundary conditions

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The talk will focus on the use of Generalized Impedance Boundary Conditions in direct and inverse scattering problems at a fixed frequency. We shall first motivate these non standard boundary conditions from asymptotic analysis of thin coatings or imperfectly conducting obstacles. We first analyze the scalar scattering problem in a general setting for these boundary conditions. We then consider the corresponding inverse problem where one is interested in recovering the geometry without exact knowledge of this operator. This problem is tackled with the use of the Factorization method. We next investigate complementary inversion algorithms based on steepest descent methods for a specific class of these boundary conditions. The talk will be mainly dedicated to the scalar problem. However, possible generalizations to the full Maxwell problem will be outlined. We conclude with 2-D and 3-D numerical results and some open problems.

Termin: Donnerstag, 15. November 2012, 17:30 Uhr
Ort: 1C-03, Allianz-Gebäude 05.20
Gastgeber: Die Dozenten des Schwerpunkts Partielle Differentialgleichungen