

In der Reihe „Chemnitzer Mathematisches Colloquium“ der Fakultät für Mathematik der TU Chemnitz spricht

Herr Prof. Dr. Roland Duduchava (Tbilisi State University)

über das Thema

Mixed boundary value problems for the Helmholtz equation in a model 2D angular domain.

Der Vortrag findet am

**Donnerstag, dem 2. Juni 2016, um 16.00 Uhr im Raum B202,
Reichenhainer Straße 70**

statt.

Ich möchte Sie hiermit recht herzlich zu dieser Veranstaltung einladen. Das Kolloquium wird von Herrn Prof. Dr. Bernd Silbermann geleitet.

Abstract:

The purpose of the research is to study model mixed boundary value problems (BVPs) for the Helmholtz equation in a planar angular domain $\Omega_\alpha \subset \mathbb{R}^2$ of magnitude α . The BVP is considered in a non-classical setting when solutions are sought in the Bessel potential spaces $\mathbb{H}_p^s(\Omega_\alpha)$, $s > 1/p$, $1 < p < \infty$. The problems are investigated using the potential method by reducing them to an equivalent boundary integral equation (BIE) in the Sobolev-Slobodečĭĭ space on a semi-infinite axis $\mathbb{W}_p^{s-1/p}(\mathbb{R}^+)$, which is of Mellin convolution type. By applying the recent results on Mellin convolution equations in Bessel potential spaces obtained by V. Didenko and R. Duduchava, explicit conditions of the unique solvability of this BIE in the Sobolev-Slobodečĭĭ $\mathbb{W}_p^r(\mathbb{R}^+)$ and Bessel potential $\mathbb{H}_p^r(\mathbb{R}^+)$ spaces for arbitrary r are found and used to write explicit conditions for the Fredholm property and unique solvability of the initial model BVPs for the Helmholtz equation in the above mentioned non-classical setting.

Prof. Dr. Christoph Helmberg
Dekan

