TECHNISCHE UNIVERSITÄT
CHEMNITZ

Fakultät für Mathematik
Chemnitzer Mathematisches Colloquium

Einladung

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

Frau Prof. Dr. Sabine Le Borne (Technische Universität Hamburg)

über das Thema

Iterative solvers for RBF interpolation problems.

Der Vortrag findet am

Donnerstag, dem 29. November 2018, 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. Martin Stoll geleitet.

Abstract:
Scattered data approximation deals with the problem of producing a function that in some sense represents some given (typically scattered) data and allows to make predictions at other times, locations or parameter settings. Applications are quite diverse: Surface reconstruction, image compression, numerical solution of PDEs (with their diverse applications), and the currently ubiquitous machine learning, to name just a few.

In a scattered data interpolation problem, the interpolant is typically a linear combination of some radial basis functions (RBF). The coefficient vector of the interpolant may be computed as the solution of a linear system which results from enforcing the interpolation conditions for the given scattered data. While properties of the interpolation matrix obviously depend on the choice of basis functions, several of the most commonly used approaches yield highly ill-conditioned, dense matrices, resulting in a challenge to solve the linear system and hence to solve the scattered data interpolation problem.

This talk deals with these challenges and some possible solution strategies exploiting techniques from the framework of (rank-structured) hierarchical matrices.

Prof. Dr. Christoph Helmberg
Dekan

Mathematik!
TU Chemnitz