

Invitation to the Oral Examination – Department MATH

For the occasion of his/her examination for a Doctoral Degree,

Maximilian Fiedler

will present his/her dissertation entitled/on

Fast Constrained Clustering of Big Data: Theory and Application to Grain Mapping

on **29.11.2024** at **10:00 h**

Attendance to the presentation is open to the public. The presentation will be in English.

The candidate, all members of the Examination Committee, and authorized examiners of the TUM School of CIT are invited to the presentation and subsequent oral examination.

The presentation and subsequent examination will take place in room **00.12.019**

Examination committee:

Chair: Prof. Dr. rer. nat. Michael Ulbrich

First Examiner: Prof. Dr. rer. nat. Peter Gritzmann

Second Examiner: Prof. Dr. rer. nat. Andreas Brieden

Third Examiner: Assoc. Prof. Ph.D. David Bourne

Garching, the 29 of November 2024

Mailing list:

Members of the examination committee

Doctoral candidate

Abstract:

We design a framework for fast, constrained clustering of big data using coresets — small data sets that approximate the clustering problem. Constrained clusterings are crucial for applications such as consolidating farmland, representing polycrystals, or generating superpixels. Applying our framework to represent polycrystals, we quickly compute accurate three-dimensional material representations. We also introduce Power-SLIC, a superpixel generation algorithm that leverages our techniques.