Invitation to the Oral Examination – Department MATH

For the occasion of her examination for a Doctoral Degree,

Anja Kirschbaum

will present her dissertation entitled

On Prediction Bodies: Tomographic Data Transformations in a Convex Setting

Über Prediction Bodies: Tomografische Datentransformationen in einem konvexen Kontex

on **13 April 2026** at **10:00 h**

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

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 02.06.011, Boltzmannstr. 3, 85748 Garching and online via MS Teams.

Those wishing to participate in the exam via MS Teams should send an email to Jürgen Richter-Gebert (richter@ma.tum.de, cc: niebauer@cit.tum.de) by Thursday, April 9, 2026. Subject: Doctoral thesis Kirschbaum.

Access details for the doctoral thesis will be sent to participants by email before the exam.

Examination committee:

Chair: **Prof. Jürgen Richter-Gebert**

First Examiner: **Prof. Peter Gritzmann**

Second Examiner: **Prof. Martin Henk**

Third Examiner: **Prof. Andreas Brieden**

Garching, the **April 2, 2026**

Mailing list:

Members of the examination committee

Doctoral candidate

Abstract:

This thesis studies the theoretical properties of a class of tomographic data transformations used in machine learning. Using a simplified geometric model based on continuous X-rays and convex bodies, it examines the transformation's geometric properties, such as structural sensitivity, stability, and predictive behavior.

Diese Arbeit untersucht die theoretischen Eigenschaften einer Klasse tomographischer Datentransformationen, die im maschinellen Lernen eingesetzt werden. Anhand eines vereinfachten geometrischen Modells, basierend auf kontinuierlichen X-ray-Daten und konvexen Körpern, werden die geometrischen Eigenschaften der Transformation analysiert, z.B. ihre Fähigkeit, strukturelle Merkmale der zugrunde liegenden Daten zu erfassen, sowie ihre Sensitivität gegenüber Störungen in den Eingangsdaten.