Fakultät für Informatik und Mathematik - Universität Passau

## Kolloquium

am Dienstag, 21.11.2023, 17:00 Uhr im Hörsaal 11, FIM, Innstr. 33 der Universität Passau

## auf Einladung von Prof. Dr. Tobias Harks zum Vortrag von Prof. Dr. Peter Gritzmann (Professor für Diskrete Optimierung an der TU München)

## mit dem Vortragstitel:

## Diagrams, clustering, and coresets, and their application to the representation of polycrystals

**Abstract:** We study geometric diagrams and their relation to constrained clustering with a view towards representing and analyzing polycrystalline materials and their dynamics.

We introduce various techniques for converting grain maps into geometric diagrams. In particular, weight-constrained anisotropic clustering allows to compute diagram representations from data on the volume, center and moments of the grains which are available through tomographic measurements. Also we develop new coreset techniques, interesting in their own right, which are utilized to significantly acelerate the computations. This effect is demonstrated on 3D real-world data sets.

(The talk is based on recent joint work with A. Alpers, M. Fiedler, F. Klemm.)