

Kolloquiumsankündigung

Die Fakultät für Mathematik der TU Dortmund

lädt ein zu einem

Mathematischen Kolloquium

am Montag, 20. Juni 2022,

um 16.30 Uhr im Mathematikgebäude, Hörsaal E28.

Es spricht:

Prof. Dr. Anja Fischer

Fakultät Wirtschaftswissenschaften, TU Dortmund

zum Thema:

Combinatorial optimization meets facility layout problems

Abstract:

Given a set of departments and the pairwise transport weights between them, the Single-Row Facility Layout Problem (SRFLP) asks for an arrangement of the departments on one side of a path such that the weighted sum of the distances between the departments is minimized. The best integer linear programming approach for the SRFLP is based on the betweenness model (Amaral, 2009).

In this talk we present new classes of inequalities for the associated betweenness polytope and show their validity using combinatorial arguments. Using a cutting plane approach allows us to solve more and larger instances of the SRFLP to optimality than the lower bounding approach of Amaral. In the second part of the talk we consider the Multi-Bay Facility Layout Problem and Facility Layouts with Pier Type Patterns which are special Combined Cell Layout Problems (CCLP). Here the path structure is more complicated. We solve these problems exactly by enumerating over all assignments of the departments to the cells and solving several CCLP with fixed-cell assignment using the betweenness model in each of the subproblems. We show how to reduce the number of distinguishable cell assignments significantly by merging two cells of type single-row.

Hierzu laden wir alle Interessierten herzlich ein.

Vor dem Vortrag findet ein Institutstee / -kaffee statt
(16.00 Uhr im Besprechungsraum M614/616)