A U S H A N G

FREIE UNIVERSITÄT BERLIN

Fachbereich Mathematik und Informatik

Promotionsbüro, Arnimallee 14, 14195 Berlin

D I S P U T A T I O N

Mittwoch, 15. Mai 2024, 15:30 Uhr

Ort: Hörsaal

(Zuse-Institut Berlin, Takustr.7, 14195 Berlin)

Disputation über die Doktorarbeit von

Pedro Maristany de las Casas

Thema der Dissertation:

New Multiobjective Shortest Path Algorithms

Thema der Disputation:

Generic Solution Methods and Representations for Multiobjective Combinatorial Optimization Problems

Die Arbeit wurde unter der Betreuung von **Prof. Dr. R. Borndörfer** durchgeführt.

Abstract: Multiobjective Combinatorial Optimization (MOCO) problems are often intractable, an issue that can make multiobjective modelling unappealing in practice. A promising approach to tackle this issue is to compute representations: a subset of the set of feasible solutions that builds a parametrized approximation of the set of optimal solutions. A representation's parameters control the spacing between its elements and the quality of their elements w.r.t. the optimal solutions.

In the first part of the talk we discuss two common techniques to solve MOCO problems: the weighted sum scalarization method and the ε-constraint method. These techniques produce single optimal solutions and they are most often used as subroutines to compute complete sets of optimal solutions for MOCO problems. I.e., they are often used in exact MOCO algorithms.

In the second part of the talk we discuss how to use the ε-constraint method to compute representations of minimal cardinality for MOCO problems with two objective functions. In addition, we give a strong intuition on why techniques used in such biobjective optimization settings often perform poorly in general multiobjective optimization.

Die Disputation besteht aus dem o. g. Vortrag, danach der Vorstellung der Dissertation einschließlich jeweils anschließenden Aussprachen.

Interessierte werden hiermit herzlich eingeladen

Der Vorsitzende der Promotionskommission
Prof. Dr. R. Borndörfer