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

Donnerstag, 14. August 2014, 15.15 Uhr

Ort: Raum 031, Arnimallee 6, 14195 Berlin

Disputation über die Doktorarbeit von

Herrn Arne Cornelis Reimers

Thema der Dissertation:
Metabolic Networks, Thermodynamic Constraints, and Matroid Theory

Thema der Disputation:
Matroid Connectivity for Integer Programming

Die Arbeit wurde unter der Betreuung von **Prof. Dr. A. Bockmayr** durchgeführt.

Abstract: Integer programming is a powerful technique to solve many NP-hard problems surprisingly fast in practice. Tree width is a concept in graph theory that allows us to approach this dichotomy. This concept defines a structural property to measure the complexity of many NP-hard problems. In this talk I show how we can apply this approach to integer programming problems. Therefore, I explain how we can use matroid theory to extend graph theoretic concepts like vertex-connectivity to integer programs. This gives us the necessary tools to define and understand the concept of branch width for matroids, a measure that is similar to tree width. I use branch width to present a pseudo-polynomial time algorithm for solving integer programs with non-negative coefficient matrix of bounded branch width.

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. A. Bockmayr