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

Montag, 12. Oktober 2015, 14.15 Uhr

Ort: Institut für Mathematik, Arnimallee 2 (Villa), 14195 Berlin, Seminarraum 001

Disputation über die Doktorarbeit von

Herrn Francesco Grande

Thema der Dissertation:

On k-level matroids: geometry and combinatorics

Thema der Disputation:

White's conjecture and lattice path matroids

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

Abstract: White's conjecture from 1980 claims that the toric ideal of a matroid is generated by binomials corresponding to symmetric basis exchanges. This conjecture has been proven for some particular classes including graphic matroids and matroids of rank at most 3, but is otherwise wide open. We will give an overview of the recent developments and examine the case of lattice path matroids. These matroids were introduced by Bonin, de Mier and Noy as particular types of transversal matroids whose bases correspond to certain planar lattice paths.
In 2011 Schweig proved White's conjecture for lattice path matroids and in 2014 Lasoń and Michałek showed that the conjecture holds for a class containing all lattice path matroids, namely strongly base orderable matroids. We will present Schweig's approach which underlines an interesting interplay between algebra and combinatorics and leads to the stronger result that the quadratic binomials of symmetric basis exchanges form a Gröbner basis of the toric ideal of lattice path matroids.
No background in matroid theory is required for the talk.

Die Disputation besteht aus dem o. g. Vortrag, danach der Vorstellung der Dissertation einschließlich jeweils anschließenden Aussprachen.
Diese Ankündigung erfolgt vorbehaltlich des Abschlusses der Auslagefrist am 28.09.15.

Interessierte werden hiermit herzlich eingeladen

Der Vorsitzende der Promotionskommission
Prof. Dr. R. Sanyal