

FREIE UNIVERSITÄT BERLIN Fachbereich Mathematik und Informatik

Promotionsbüro, Arnimallee 14, 14195 Berlin

DISPUTATION

Freitag, 18. November 2016, 14.15 Uhr,

Ort: Raum 005, Takustraße 9, 14195 Berlin

Disputation über die Doktorarbeit von

Herrn Romain Grunert

**Thema der Dissertation:
Piecewise Linear Morse Theory**

**Thema der Disputation:
Happy Ending Improved
Andrew Suk's Breakthrough Result on the Happy Ending Problem**

Die Arbeit wurde unter der Betreuung von **Prof. Dr. G. Rote** durchgeführt.

Abstract:

The happy ending problem was introduced by Esther Klein, Paul Erdős, and George Szekeres. It asks for the minimum number $N(n)$ fulfilling the following assertion: Any point set in the plane in general position with at least $N(n)$ points contains n points in convex position. In a seminal paper from 1935, Erdős and Szekeres prove an upper bound of $N(n) \leq \binom{2n-4}{n-2} + 1$ and conjecture that $N(n) = 2^{n-2} + 1$ is the correct answer. For more than 60 years, no progress was made on the upper bound, and subsequent improvements remained within a constant factor of the original upper bound until this spring, when Andrew Suk published his breakthrough result stating that $2^{n+o(n)}$ points suffice. In this talk, I will first give a short survey on previous results and then present Andrew Suk's proof, illustrating the underlying geometric observations.

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. G. Rote