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, 29. November 2021, 10:00 Uhr

WebEx

Disputation über die Doktorarbeit von

Frau Nadja Seiferth

Thema der Dissertation:
Algorithmic Aspects of Packing Problems

Thema der Disputation:
The Complexity Class $\exists\mathbb{R}$ and Computational Geometry

Die Arbeit wurde unter der Betreuung von **Prof. Dr. H. Alt** durchgeführt.

Abstract: The complexity class $\exists\mathbb{R}$ has been named by Schaefer in 2009, first (implicit) hardness- and completeness-results date at least back to the 80's and 90's. It turned out that many problems in the field of computational geometry are $\exists\mathbb{R}$-complete, many of whom are related to graph drawing and recognizing members of graph classes. More and more problems from computational geometry are proven to be $\exists\mathbb{R}$-complete, thus the class seems to cover a wide range of somewhat natural problems. Up to today there are at least 7 publications on $\exists\mathbb{R}$ and computational geometry in 2021, showing the growing interest in the complexity class.
In this talk, we will formally introduce the complexity class $\exists\mathbb{R}$ and give an overview on results related to computational geometry. Then, we exemplary turn to the recent breakthrough result by Abrahamsen, Adamszek, and Miltzow and convey some insights of their $\exists\mathbb{R}$-completeness proof of the art gallery problem.

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. H. Alt