

FREIE UNIVERSITÄT BERLIN

Fachbereich Mathematik und Informatik

Promotionsbüro, Arnimallee 14, 14195 Berlin

D I S P U T A T I O N

Dienstag, 26. August 2025, 15:00 Uhr

Ort: Seminarraum 019 & [WebEx](#)
(Fachbereich Mathematik und Informatik, Arnimallee 3, 14195 Berlin)

Disputation über die Doktorarbeit von

Nikola Sadovek

Thema der Dissertation:

Obstructions across geometry and topology

Thema der Disputation:

On chromatic numbers of Kneser (hyper)graphs

Die Arbeit wurde unter der Betreuung von **Prof. Dr. P. Blagojevic** durchgeführt.

Abstract: In 1955, Kneser conjectured that for any partition of the k -element subsets of $[n]=\{1,2,\dots,n\}$ into $n-2k-3$ parts, there exists one part containing two disjoint sets. Lovász's 1978 proof of the conjecture was one of the earliest applications of topological methods in combinatorics. In 1973, Erdős formulated an extension of the conjecture which claims that for any partition of the k -element subsets of $[n]$ into at least $(n-r(k-1))(r-1)-1$ parts, there is one part that contains r pairwise disjoint k -sets. This was proved by Alon, Frankl, and Lovász in 1986.

In this talk, we will discuss how these two results can be reformulated as statements about the chromatic numbers of the Kneser graph and the r -uniform Kneser hypergraph, respectively. Furthermore, we will explore current research directions, including the conjecture of Alon, Drewnowski, Łuczak, and Ziegler that the chromatic number of the r -uniform Kneser hypergraph is attained on the r -stable subhypergraph.

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. P. Blagojevic