FIM
Nachdiplomvorlesung

Regularity Methods in Combinatorics

Abstract:

Szemerédi's regularity lemma provides a rough structural description of all large graphs. It shows that the vertices of any graph can be partitioned into a bounded number of parts such that the edges between almost every pair of parts behave in a random-like fashion. This result created a paradigm shift in how we view and study graphs, and it has become a central tool in combinatorics with diverse applications in mathematics and computer science.

In these lectures, we introduce the regularity lemma, its applications, variants, and alternative methods. We conclude with a proof of the celebrated Green-Tao theorem that there are arbitrarily long arithmetic progressions in the primes based on developing the sparse regularity method.

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March 6 - May 15, 2015
Fridays 10.15 - 12.00h
HG G 43, ETH Zürich Rämistrasse 101

No lecture on: *April 3 & May 1*

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