אוניברסיטת
בן-גוריון בנגב

The Department of Mathematics

2020–21–B term

Course Name pcf theory and its applications

Course Number 201.2.5471

Course web page
> `https://www.math.bgu.ac.il//en/teaching/spring2021/courses/`
> `pcf`

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Office Hours `https://www.math.bgu.ac.il/en/teaching/hours`

Abstract

Requirements and grading[1]

Course topics

The course will present the fundamentals of Shelah's pcf theory and some of its many applications in cardinal arithmetic, infinite combinatorics, general topology and Boolean algebra.

Pcf theory deals with the spectrum of possible cofinalities of reduced products of small sets of regular cardinals. The pcf theorem asserts the existence of a sequence of generators for the set of possible cofinalities.

The most well known application of the theory are Shelah's bound on the powers of strong limit singular cardinals, most notably on the power of the first singular cardinal, which actually follows from the more informative bound on the covering number of countable sets. These results will be presented in full. Other applications which will be given are the construction of topological spaces, embeddability of Boolean algebras, extensions of measures and bounds on coloring numbers of graphs.

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[1]Information may change during the first two weeks of the term. Please consult the webpage for updates