

Foreword

This book contains two sets of notes prepared for the Advanced Course on Ramsey Methods in Analysis given at the Centre de Recerca Matemàtica in January 2004, as part of its year-long research programme on Set Theory and its Applications. The common goal of the two sets of notes is to help young mathematicians enter a very active area of research lying on the borderline between analysis and combinatorics. The solution of the distortion problem for the Hilbert space, the unconditional basic sequence problem for Banach spaces, and the Banach homogeneous space problem are samples of the most important recent advances in this area, and our two sets of notes will give some account of this. But our main goal was to try to expose the general principles and methods that lie hidden behind and are most likely useful for further developments. The goal of the first set of notes is to describe a general method of building norms with desired properties, a method that is clearly relevant when testing any sort of intuition about the infinite-dimensional geometry of Banach spaces. The goal of the second set of notes is to expose Ramsey-theoretic methods relevant for describing the rough structure present in this sort of geometry.

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