

MATHEMATISCHES FORSCHUNGSINSTITUT OBERWOLFACH

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## Set Theory

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ABSTRACT. This stimulating workshop exposed some of the most exciting recent developments in set theory, including major new results about the proper forcing axiom, stationary reflection, gaps in  $P(\omega)/\text{Fin}$ , iterated forcing, the tree property, ideals and colouring numbers, as well as important new applications of set theory to  $C^*$ -algebras, Ramsey theory, measure theory, representation theory, group theory and Banach spaces.

*Mathematics Subject Classification (2000)*: 03E02, 03E04, 03E10, 03E15, 03E17, 03E35, 03E45, 03E55, 03E60, 03E75.

### Introduction by the Organisers

This was an exciting workshop which divided almost evenly between pure set theory and applications of set theory to other fields. There were 52 postdoctoral and 4 doctoral participants with a high percentage of young people, making for a lively atmosphere. We scheduled only 11 long (50-minute) talks; the remaining 18 talks were short (30-minutes), allowing for ample time for informal discussion and collaboration.

Among the highlights of the workshop were the following: Viale presented exciting work showing that any standard approach to proving the consistency of PFA requires a supercompact. Todorcevic presented deep work on the study of higher-order gaps in  $P(\omega)/\text{Fin}$ , while Farah and Törnquist presented talks establishing the unclassifiability of separable  $C^*$ -algebras in the sense of descriptive set theory. Jensen described his ultimate generalisation of Namba forcing and Neeman worked miracles with forcings built from finite conditions. Zapletal launched

a new program mixing ideals with equivalence relations, Gitik solved the normality problem for precipitous ideals (negatively), Simon Thomas connected large cardinals with representation theory and Zdomskyy presented a new approach to preserving large cardinals after applying a wide variety of iterations with fusion. Louveau presented a major new result in dual Ramsey theory, Sinapova explained her deep work on the tree property at the successor of a singular and Sargsyan brought us up-to-date on the influence of large cardinals on the structure of HOD.

The number of new results connecting set theory with other fields of mathematics was a striking feature of this workshop, and points toward an even richer future for an already dynamic subject.

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