

## PREFACE

In continuation of previous meetings on the same topic the 4th German-Japanese Symposium

### Infinite Dimensional Harmonic Analysis

was held from September 10th to September 14th, 2007 at Graduate School of Mathematical Sciences of The University of Tokyo. It brought together experts in harmonic analysis, operator algebras and probability theory. Their discussions proved to be very fruitful and showed the great potential of combining these areas in future research. This is reflected in the topics of the presentations, many of which were given by young researchers. They mostly dealt with limit and asymptotic behavior of systems with large numbers of freedom in the presence of symmetry constraints. This is a very active research field which already inspired a lot of activity in the physics community. In recent years mathematicians have taken up such questions in increasing numbers and began to build coherent mathematically rigorous theories.

This collection is also meant to illustrate the attractiveness of the new directions of research bringing together probability theory and representation theory. A particular focus of the present meeting was therefore on relations to random matrix theory, interacting particle systems, Dunkl operators, special functions in several variables, and hypergroups.

As in the previous years (Tübingen 1995 and 2003, Kyoto 1999) the 2007 meeting was held under auspices of the German-Japanese Cooperative Science Promotion Program established in 1992 by the Japan Society for the Promotion of Science (JSPS) and the German Research Society (DFG). It is a pleasure to acknowledge the generous support of the Symposium granted by JSPS and DFG. We also thank the German-Eastasian Science Forum at Tübingen for supporting the production of this volume. We also express our appreciation to World Scientific and in particular Ms Chionh for the good cooperation in publishing this volume.

All the articles in this volume have been refereed. We would like to

express our sincere gratitude to all the referees for their anonymous and invaluable efforts.

Finally, we would like to thank the local organizing committee for the perfect organization of the meeting in Tokyo, Ms Katrin Heyer for the cover design, and Herbert Heyer, the German representative of these meetings for a long time, for his support and advice.

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