

Preface

The workshop “Noncommutative Geometry and Physics 2005” was organized by mathematicians and physicists from Keio University, Tohoku University and Beijing University in cooperation.

The first part of this workshop was held at Tohoku University in Sendai on November 1-4, and the second part was held at Beijing University in Beijing on November 7-11. This workshop was the fifth in a series of joint workshops for mathematicians and physicists working in noncommutative geometry, deformation quantization and related topics, with the aim to stimulate discussions and the exchange of new ideas between both disciplines.

Since the subject of noncommutative geometry has undergone rapid developments in the past few years, one of the important functions of our meetings is to elucidate these recent advances and the current status of research projects from mathematical point of view as well as from the physics’ side.

In physical applications of noncommutative geometry, many key results have emerged on solutions of field theory on noncommutative spaces. Therefore, this was naturally one of the main subjects of the workshop. This volume includes discussions of solitons such as monopoles and instantons in noncommutative spaces as well as in non-anticommutative superspaces.

All contributions in this volume were submitted by conference speakers and participants, and were duly refereed. The articles contain presentations of new results which have not appeared yet in professional journals, or comprehensive reviews including an original part of the present developments in those topics. Effort was to provide comprehensive introductions to each subject such that the volume becomes accessible to researchers and graduate students interested in mathematical areas related to noncommutative geometry and its impact on modern theoretical physics.

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