

Preface

In 2007, Professor Akihiro Tsuchiya of Nagoya University reached the retirement age of sixty-three. He has played a significant role in mathematical physics over the decades, most particularly in the foundation of conformal field theory, which was the first nontrivial example of a mathematically rigorous quantum field theory.

Upon the occasion of his retirement, an international conference entitled

“Exploration of New Structures and Natural Constructions
in Mathematical Physics” (March 5–8, 2007)

was held at Nagoya University, to which distinguished researchers in the field were invited to overview the current developments in conformal field theories and related topics such as solvable statistical models, representation theory of affine algebras, monodromy preserving deformations, and string theories.

This volume contains the contributed papers of the speakers, where, in addition to their own primary achievements, they introduce the problems in their fields and the principles of the theories.

We hope that readers interested in topics such as integrable systems, similarities between knot theory and number theory, topological fields, etc, will find exciting and stimulating insights and questions in these articles.

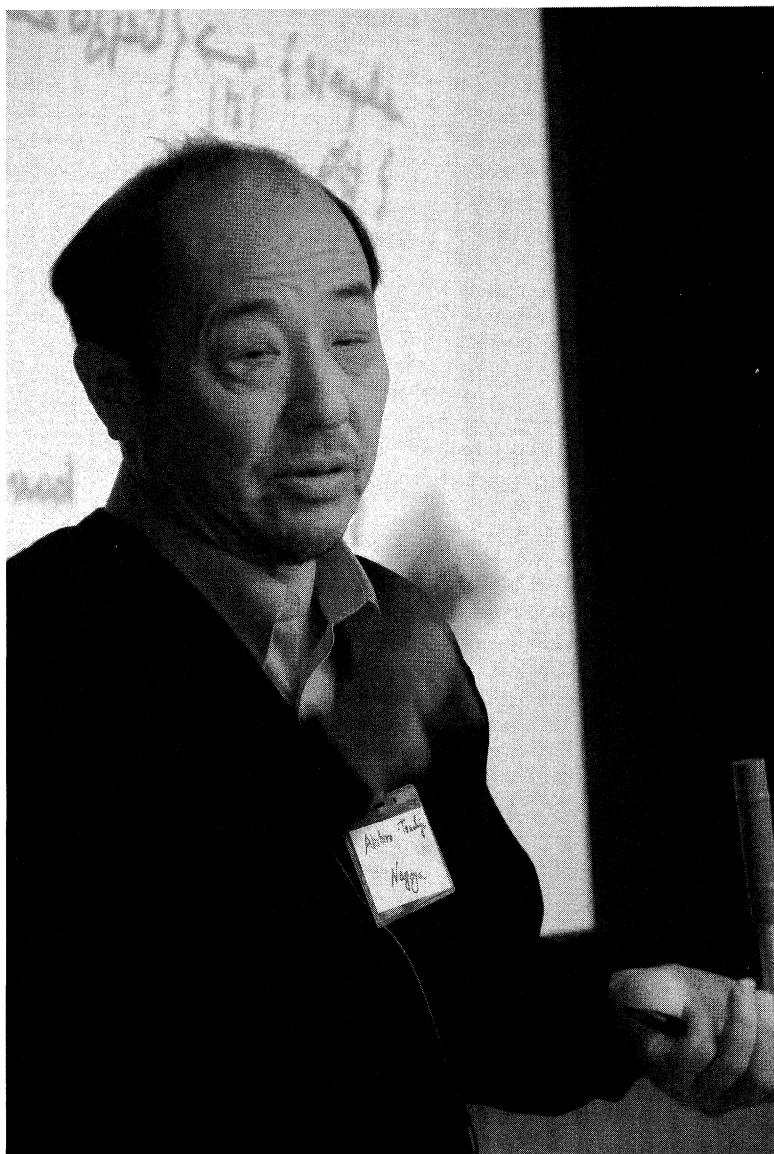
The conference was supported by Grants-in-Aid from the Ministry of Education, Science, Sports and Culture, which made it possible to invite researchers from overseas. We are grateful to Professor Kenji Ueno (grant number 14102001) and Professor Kazumitsu Sakai (17740248) on their financial supports.

We also thank all those who assisted with running this conference and a satellite workshop on integrable systems that was held at Kyoto University. We give our special thanks to Ms. Kazuko Kozaki and others at the Graduate School of Mathematics, Nagoya University, who helped us with the organization, and also to Ms. Noriko Tanaka at Kyoto University, and Ms. Haruhi Hata at Ochanomizu University.

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Organizers / Editors

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Professor Akihiro Tsuchiya
(photo: K. H.)

*All papers in this volume have been refereed and are in final form.
No version of any of them will be submitted for publication elsewhere.*