

# Preface

This issue of Publications of RIMS contains the papers written by the speakers of the RIMS workshop “Thirty Years of the Double Exponential Transforms”, which was held at RIMS from September 1st to 3rd, 2004. It aimed at a comprehensive and up-to-date presentation of the double exponential transform and related topics in numerical integration.

The double exponential transforms are now firmly established as a tool for numerical integrations of high precision. The reader of the present issue will see how their foundation is rigorously studied and how widely they are now applied in many branches of sciences. This treasure of mathematical science was first published by the late Professor Hidetosi Takahasi and Professor Masatake Mori, former Director of RIMS, in the volume 9 of Publications of RIMS in 1974, precisely thirty years before. In order to commemorate the 30th anniversary, RIMS kindly awarded us a workshop as one of the special projects (Tokubetsu Keikaku) of RIMS, and the 30th anniversary was enthusiastically celebrated by the participants of the workshop.

It is our pleasure to thank Director of RIMS and the members of the editorial board of Publications of RIMS for giving us an opportunity to organize the workshop and for the invitation to publish the proceedings as a special issue. Our sincere thanks go to the speakers for their excellent jobs of preparing the manuscripts so that as general readers as possible can access them. The last paper is a translation of a paper written in Japanese by Professor Takahasi. This paper has been little referred but we believe that it clearly shows his pioneering spirit and has a merit of suggesting further studies as well as a historical merit.

Last but not least, we would like to express our gratitude to the financial support by the 21st Century COE Program “Formation of an International Center of Excellence in the Frontiers of Mathematics and Fostering of Researchers in Future Generations”, whose generous offer was used for inviting foreign speakers.

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