

## Preface

The present volume of *Advanced Studies in Pure Mathematics* consists of original survey papers written by invited lecturers in connection with a conference

Variational Methods for Evolving Objects  
July 30–August 3, 2012  
Hokkaido University, Sapporo, Japan.

The conference, organized by L. Ambrosio, Y. Giga, P. Rybka and Y. Tonegawa, featured 6 one-hour lectures and three courses, all given by world top researchers in the field of calculus of variations and non-linear partial differential equations. Each of three courses (by L. Ambrosio, Y. Brenier and R. Jerrard) consisted of four 50-minute lectures and was carefully prepared so that they served as excellent introduction for graduate students, new post-docs and non-experts. The conference was well-attended with 77 participants.

The conference was made possible by Grant-in-Aid for Scientific Research No. 21224001 (Kiban S) (Chief researcher: Y. Giga), No. 21340033 (Kiban B) (Chief researcher: Y. Tonegawa) of the Japan Society for the Promotion of Science (JSPS), and thanks to the support of a number of people, in particular, the secretaries and graduate students of the Department of Mathematics of Hokkaido University and the staff of Sapporo International Plaza. Ms. Yasuko Koganezawa helped us to edit and organize the files for this volume. The conference was also co-sponsored by the Research Center for Integrative Mathematics of Hokkaido University. The organizers are grateful to all of them for the successful and smooth organization. Finally, the organizers would like to express sincere gratitude to the authors of the papers for the excellent survey as well as the referees for their reviews.

Editors: L. Ambrosio, Y. Giga, P. Rybka, Y. Tonegawa

*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.*