RIMS Kôkyûroku Bessatsu B88

Harmonic Analysis and Nonlinear Partial Differential Equations

July 1 ∼3, 2019

edited by Satoshi Masaki and Hideo Takaoka

December, 2021

Research Institute for Mathematical Sciences

Kyoto University, Kyoto, Japan

The papers presented in this volume of RIMS Kôkyûroku Bessatsu are in final form and refereed. ©2021 by the Research Institute for Mathematical Sciences, an International Joint Usage/Research Center located in Kyoto University. All rights reserved. Printed in Japan.

Preface

This volume collects research papers, announcements, and survey articles written by the speakers and the participants of the RIMS Symposium "Harmonic Analysis and Nonlinear Partial Differential Equations", held at Research Institute for Mathematical Sciences, Kyoto University, from July 1st to July 3rd, 2019. The conference was successfully completed. We would like to thank the speakers and all participants. Financial support by the RIMS and JSPS KAKENHI Grant Numbers 16H06339, 17H02851, 17H02854, 17K14219, and 19H01796, for the conference, is gratefully acknowledged.

The symposium "Harmonic Analysis and Nonlinear Partial Differential Equations," held annually since 1997, is a conference aiming for an opportunity for exchanging ideas and recent progress in various fields in harmonic analysis and nonlinear partial differential equations.

All papers in this volume have been reviewed and in their final form. The anonymous referees have taken much time for giving valuable and constructive comments. We deeply appreciate their effort. We also would like to thank the authors and secretaries in RIMS for their patience in our slow progress.

We believe that this volume will be a valuable resource for researchers in harmonic analysis and partial differential equations.

December, 2021

Satoshi Masaki Hideo Takaoka

CONTENTS

Preface i
Tsukasa Iwabuchi
Function spaces associated with the Dirichlet Laplacian
Tomoya Kato
A remark on bilinear pseudo-differential operators with symbols in the Sjöstrand class
Joonil Kim
Averages over annuli or tubes on the moving planes
Noriyoshi Fukaya · · · · · 45
Stability of standing waves for L^2 -critical nonlinear Schrödinger equations with attractive inverse-power potential
Shohei Nakamura
Weighted norm inequalities for the Fourier extension operator via the X-ray tomography
Jonathan Bennett and Neal Bez · · · · · · · · · · · · · · · · · · ·
Higher order transversality in harmonic analysis
Nobu Kishimoto
Gevrey well-posedness and ill-posedness of third-order nonlinear Schrödinger equations of the torus
Jason Murphy
A review of modified scattering for the $1d$ cubic NLS
Jishan Fan and Tohru Ozawa · · · · · · 147
A note on hilinear estimates in the homogeneous Triebel-Lizorkin spaces

RIMS Kôkyûroku Bessatsu

- B 7 3 The study of the history of mathematics 2018
- B 7 4 Harmonic Analysis and Nonlinear Partial Differential Equations
- B 7 5 New development of microlocal analysis and singular perturbation theory
- B 7 6 On the examination and further development of inter-universal Teichmüller theory
- B 7 7 Algebraic Number Theory and Related Topics 2016
- B 7 8 Mathematical structures of integrable systems and their applications
- B 7 9 Stochastic Analysis on Large Scale Interacting Systems
- B 8 0 Regularity, singularity and long time behavior for partial differential equations with conservation law
- B 8 1 Study of the History of Mathematics 2019
- B 8 2 Regularity and Asymptotic Analysis for Critical Cases of Partial Differential Equations
- B 8 3 Algebraic Number Theory and Related Topics 2017
- B 8 4 Inter-universal Teichmüller Theory Summit 2016
- B 8 5 Study of the History of Mathematics 2020
- B 8 6 Algebraic Number Theory and Related Topics 2018
- B 8 7 Mathematical structures of integrable systems, its deepening and expansion

RIMS Kôkyûroku Bessatsu Vol. B88

2021年12月発行

発行所 京都大学数理解析研究所 印刷所 明文舎印刷株式会社