

Preface

This volume collects original papers written by the speakers of a RIMS Symposium “Harmonic Analysis and Nonlinear Partial Differential Equations,” held at Research Institute for Mathematical Sciences, Kyoto University, in July 6 - July 8, 2015.

The symposium “Harmonic Analysis and Nonlinear Partial Differential Equations” has been held annually at RIMS since 1997. Its purpose is to provide the opportunity for specialists in various areas of harmonic analysis and nonlinear partial differential equations to exchange ideas and the latest developments and to build networks.

Financial support from RIMS and JSPS Grant-in-Aid for Scientific Research (S) #24224003 is gratefully acknowledged.

Thanks are due to the referees for their efficient work.

October, 2016

Hideo Kubo and Mitsuru Sugimoto

CONTENTS

Sohei Ashida · · · · ·	1
Born-Oppenheimer approximation for an atom in constant magnetic fields	
Ryuichi Ashino · · · · ·	15
Multiwavelet analysis and its application to signal processing	
Daoyuan Fang · · · · ·	33
Methods and techniques in wave equation analysis	
Shinya Kinoshita · · · · ·	105
The Cauchy problem of Hartree and pure power type nonlinear Schrödinger equations	
Keiichi Kato, Masaharu Kobayashi and Shingo Ito · · · · ·	129
Estimates for Schrödinger operators on modulation spaces	
Masaya Maeda · · · · ·	145
A note on small periodic solutions of discrete nonlinear Klein-Gordon equations	
Hitoshi Tanaka · · · · ·	157
Two-weight Morrey norm inequality and the sequential testing	
Kotaro Tsugawa · · · · ·	177
Local well-posedness and parabolic smoothing effect of fifth order dispersive equations on the torus	
Kyouhei Wakasa · · · · ·	195
The lifespan of solutions to semilinear wave equations with scale invariant damping in one space dimension	