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Spectral and Scattering Theory and Related Topics

edited by Setsuro Fujiie and Tomio Umeda

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Research Institute for Mathematical Sciences
Kyoto University

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December 3～5, 2008

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Research Institute for Mathematical Sciences

Kyoto University, Kyoto, Japan

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Preface

This volume of RIMS Kôkyûroku Bessatsu is collecting several research papers and survey articles contributed by invited speakers of the RIMS workshop

"Spectral and Scattering Theory and Related Topics"

which was held at RIMS (Research Institute for Mathematical Sciences), Kyoto University from December 3 through December 5 in 2008.

This workshop was a continuation of a series of workshops held every year since 1989. The main purpose of the workshop was, as usual, to provide a forum for the discussion of recent developments in the spectral and scattering theory and related fields.

The series has its origin in the two workshops in 1970 and 1982 organized by Teruo Ikebe and those in 1972 and 1975 by S.T.Kuroda. Kenji Yajima made it annual in 1989.

At the present workshop, 12 lectures were given by specialists on operator theory, linear and nonlinear Schrödinger equations, wave equations, Dirac equations and quantum field theory. In particular, various problems, such as diagonalization modulo norm ideals, structure of spectrum, inverse scattering, long time asymptotics or singularities of the solutions, time operators, etc. were discussed.

The workshop was supported by RIMS. We would like to express our gratitude to the secretarial staff of RIMS for her help in the editing process.

Himeji in January, 2010

Setsuro FUJIIE, Tomio UMEDA
University of Hyogo

Program

Spectral and Scattering Theory and Related Topics

December 3 (Wed) - December 5 (Fri), 2008

Lecture Hall (Room No. 115) of RIMS, Kyoto University

December 3rd (Wednesday)

13:30–14:30 Yuji NOMURA (Ehime University)
Takuya MINE (Kyoto Institute of Technology)

The spectrum of Schrödinger operators with periodic Aharonov-Bohm magnetic fields

14:45–15:45 S.T. KURODA (University of Tokyo and Gakushuin University, emeritus)

Diagonalization modulo norm ideals, a review and some remarks

16:00–17:00 Hisashi NISHIYAMA (Osaka University)

Polynomial decay for the damped wave equation on partially rectangular domains

December 4th (Thursday)

9:30–10:30 Asao ARAI (Hokkaido University)

Time operators in quantum field theory

10:45–11:45 Yasumichi MATSUZAWA (Hokkaido University)

Canonical Commutation Relations and Time Operators

13:30–14:30 Hiroshi ISOZAKI (Tsukuba University)

Inverse scattering on noncompact manifolds

14:45–15:45 Michiyuki WATANABE (Tokyo University of Science)

Two-dimensional inverse problems for Schrödinger equations with a complex coefficient

16:00–17:00 Kenichi ITO (Tsukuba University)

Schrödinger equations on scattering manifolds and microlocal singularities

December 5th (Friday)

9:30–10:30 Pavel NAUMKIN (Universidad Nacional Autónoma de México)

Large time asymptotics for cubic nonlinear Schrödinger equations

10:45–11:45 Tetsuo TSUCHIDA (Meijo University)

Long-time asymptotics of heat kernels for one-dimensional elliptic operators with periodic coefficients

13:30–14:30 Haruya MIZUTANI (University of Tokyo)

Dispersive estimates for Schrödinger equations in dimension one

14:45–15:45 Hiroshi ITO (Ehime University)
Osanobu YAMADA (Ritsumeikan University)

On the nonrelativistic limit of Dirac operators with potentials diverging at infinity

List of Participants

Tadayoshi ADACHI
Asao ARAI
Shin-ichi DOI
Masao HIROKAWA
Toshihiko HOSHIRO
Wataru ICHINOSE
Hiroshi ITO
Shinichiro ITOZAKI
Akira IWATSUKA
S.T. KURODA
Yasumichi MATSUZAWA
Haruya MIZUTANI
Shu NAKAMURA
Kenji NAKANISHI
Pavel NAUMKIN
Hiroaki NIIKUNI
Hisashi NISHIYAMA
Takashi OKAJI
Hideo TAMURA
Tetsuo TSUCHIDA
Tomio UMEDA
Kazuo WATANABE
Takuya WATANABE
Kazushi YOSHITOMI
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Tatsuo NISHITANI
Yuji NOMURA
Yoshitsugu TAKEI
Masaru TANIGUCHI
Jun UCHIYAMA
Seiichiro WAKABAYASHI
Michiyuki WATANABE
Osanobu YAMADA

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