



TITLE:

Cover & Contents

AUTHOR(S):

CITATION:

Cover & Contents. 数理解析研究所講究録別冊 2013, B40

ISSUE DATE:

2013-04

URL:

<http://hdl.handle.net/2433/207849>

RIGHT:

RIMS Kôkyûroku Bessatsu B40

**Recent development of
micro-local analysis
for the theory of asymptotic analysis**

edited by Naofumi Honda, Yasunori Okada and Motoo Uchida

April, 2013

Research Institute for Mathematical Sciences
Kyoto University

RIMS Kôkyûroku Bessatsu B40

*Recent development of micro-local analysis
for the theory of asymptotic analysis*

November 15 ~18, 2011

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Research Institute for Mathematical Sciences

Kyoto University, Kyoto, Japan

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PREFACE

This volume presents a collection of research and survey articles which were contributed by invited speakers in the RIMS workshop “Recent development of micro-local analysis for the theory of asymptotic analysis” held at Research Institute for Mathematical Sciences (RIMS), Kyoto University from 15 through 18 November, 2011, in which experts from many areas of mathematics participated.

NAOFUMI HONDA

YASUNORI OKADA

MOTOO UCHIDA

PROGRAM

RIMS Workshop on

Recent development of micro-local analysis for the theory of asymptotic analysis

Organizers: NAOFUMI HONDA (Hokkaido Univ.),
YASUNORI OKADA (Chiba Univ.) and MOTOO UCHIDA (Osaka Univ.)

November 15 (Tue.)–18 (Fri.), 2011, Room No. 110 of RIMS, Kyoto University

November 15, Tuesday

- 10:00 - 11:00 Yasunori Okada (Chiba Univ.)
Massera type theorems in hyperfunctions with reflexive Banach values
- 11:15 - 12:15 Hideshi Yamane (Kwansei Gakuin Univ.)
Local existence for nonlinear Cauchy problems with small analytic data
- 13:30 - 14:30 Keisuke Uchikoshi (National Defense Academy of Japan)
Singularity propagation of compressible perfect fluid
- 14:45 - 15:45 Joe KAMIMOTO (Kyushu Univ.) and Toshihiro Nose (Kyushu Univ.)
Newton polyhedra and oscillatory integrals
- 16:00 - 17:00 Shinichi Tajima (Tsukuba Univ.)
Polar varieties and holonomic \mathcal{D}_X module

November 16, Wednesday

- 9:00 - 10:00 Naofumi Honda (Hokkaido Univ.) and Luca PRELLI (Univ. Padova)
Multi-specialization and multi-asymptotic expansions
- 10:15 - 11:15 Susumu Yamazaki (Nihon Univ.)
Boundary Values of Ultradistribution Solutions to Regular-Specializable Systems
- 11:30 - 12:00 Dennis Bacani (Sophia Univ.)
Existence and uniqueness theorem for a class of singular nonlinear partial differential equations
- 13:30 - 14:30 Kunio Ichinobe (Aichi Univ. of Education)
Summability of formal solution of Cauchy problem for some PDE with variable coefficients
- 14:45 - 15:45 Kiyoomi KATAOKA (Univ. Tokyo) and Nobuko Takeuchi (Tokyo Gakugei Univ.)

The non-integrability of some system of fifth-order partial differential equations describing surfaces containing 6 families of circles

November 17, Thursday

- 10:00 - 11:00 Hidetoshi Tahara (Sophia Univ.)
Maillet type theorem and Gevrey regularity in time of solutions to nonlinear partial differential equations
- 11:15 - 12:15 Naofumi Honda (Hokkaido Univ.) and Kouhei UMETA (Hokkaido Univ.)
Vanishing theorem for holomorphic functions of exponential type and Laplace hyperfunctions
- 13:30 - 14:30 Takashi Aoki (Kinki Univ.) and Mika TANDA (Kinki Univ.)
Voros coefficients of hypergeometric differential equations with a large parameter
- 14:45 - 15:45 Hiroshi Yamazawa (Caritas Junior College)
Borel summability of a formal solution for Cauchy problem of some linear partial differential equations
- 16:00 - 17:00 Masafumi Yoshino (Hiroshima Univ.)
Singular integrability and monodromy property of a resonant Hamiltonian system

November 18, Friday

- 10:00 - 11:00 Shingo KAMIMOTO (Univ. Tokyo) and Tatsuya Koike (Kobe Univ.)
On the Borel summability of 0-parameter solutions of nonlinear ordinary differential equations
- 11:15 - 12:15 Youko Umeta (Hokkaido Univ.)
On a construction of instanton-type solutions for the second Painlevé hierarchy
- 13:30 - 14:30 Kouhei Iwaki (RIMS, Kyoto Univ.)
Parametric Stokes phenomena for Painlevé equations
- 14:45 - 15:45 Sampei Hirose (RIMS, Kyoto Univ.)
On the Stokes geometry for the hypergeometric system of type (1,4)
- 16:00 - 17:00 Tatsuya Koike (Kobe Univ.) and Yoshitsugu TAKEI (RIMS, Kyoto Univ.)
Exact WKB analysis of second-order non-homogeneous linear differential equations — Bifurcated integral and Borel summability —

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