

Mathematics and Physics Unit “Multiscale Analysis, Modelling and Simulation”
Top Global University Project, Waseda University

International Workshop on “Fundamental Problems in Mathematical and Theoretical Physics”

Date: September 28 – October 3, 2015

Venue: Large Meeting Room, 1st Floor, 55 Bldg., 早稲田大学 西早稲田キャンパス 55号館 N棟 1階大会議室

Part I. Quantum Physics

September 28, Monday

10:30 – 12:30 Paolo Facchi (Università di Bari, Italy) **Minicourse**
C* Algebra for Quantum Physics: I

14:30 – 16:00 Saverio Pascazio (Università di Bari, Italy) **Minicourse**
Quantum Typicality: I

16:30 – 18:00 Paolo Facchi (Università di Bari, Italy) **Minicourse**
C* Algebra for Quantum Physics: II

September 29, Tuesday

10:30 – 12:30 Saverio Pascazio (Università di Bari, Italy) **Minicourse**
Quantum Typicality: II

14:30 – 16:00 Paolo Facchi (Università di Bari, Italy) **Minicourse**
C* Algebra for Quantum Physics: III

16:30 – 18:00 Saverio Pascazio (Università di Bari, Italy) **Minicourse**
Quantum Typicality: III

September 30, Wednesday

10:30 – 11:30 Giancarlo Garnero (Università di Bari, Italy)
Moving Walls and Geometric Phases in the Dynamics of
a Quantum Particle in a 1D Box

11:30 – 12:30 Tohru Tanaka (Waseda University, Tokyo)
Model-Based Analysis of Asymptotically Disturbance-Free
Measurement and Its Application to Deriving a New Quantum
Bayes' Rule

Part II. Mathematical Physics

September 30, Wednesday

15:00 – 16:30 Tadahiro Oh (The University of Edinburgh), **Minicourse I**
Invariant and quasi-invariant measures for Hamiltonian PDEs

16:45 – 17:45 Tetsu Mizumachi (Hiroshima University)
On stability of line solitons of the KP-II equation

October 1, Thursday

10:30 – 12:00 Tadahiro Oh (The University of Edinburgh), **Minicourse II**
Invariant and quasi-invariant measures for Hamiltonian PDEs

13:30 – 14:00 Gaku Hoshino (Waseda University)
Space-time analytic smoothing effect for pseudo-conformally invariant Schrödinger equations

14:00 – 14:30 Kazumasa Fujiwara (Waseda University)
Remark on local solvability of the Cauchy problem for semirelativistic equations

14:30 – 15:00 Kota Uriya (Tohoku University)
Final state problem for a system of nonlinear Schrödinger equations with mass resonance

15:30 – 17:00 Neal Bez (Saitama University), **Minicourse I**
Recent developments in the heat-flow semigroup interpolation method

October 2, Friday

- 10:30 – 12:00 Tadahiro Oh (The University of Edinburgh), **Minicourse III**
Invariant and quasi-invariant measures for Hamiltonian PDEs
- 13:30 – 14:15 Oana Pocovnicu (Heriot-Watt University)
A modulated two-soliton with transient turbulent regime for
a focusing cubic nonlinear half-wave equation on the real line
- 14:20 – 15:05 Takamori Kato (Saga University)
A cancellation property and well-posedness of fifth order
KdV type equations on the torus
- 15:30 – 16:15 Chris Jeavons (University of Birmingham)
Sharp bilinear estimates for linear dispersive equations
- 16:20 – 17:50 Neal Bez (Saitama University), **Minicourse I**
Recent developments in the heat-flow semigroup
interpolation method
- 18:00 – Reception at Takeuchi Lounge

October 3, Saturday

- 11:00 – 12:00 Kenji Nakanishi (Osaka University)
Scattering for the Gross-Pitaevskii equation in the energy space
- 13:30 – 15:00 Neal Bez (Saitama University), **Minicourse III**
Recent developments in the heat-flow semigroup
interpolation method
- *15:30 – 16:30 Vladimir Georgiev (University of Pisa)
Some biomedical models and their relation with
Schrödinger equations

*609th Applied Analysis Seminar

Organized by Hiromichi Nakazato · Tohru Ozawa · Kazuya Yuasa

Supported by Top Global University Project, Waseda University / Institute of Mathematical Fluid Dynamics, Waseda University