Exponential analysis of differential equations and related topics

October 15 (Tue) – October 18 (Fri), 2013
Lecture Hall (Room No. 420) of RIMS, Kyoto University

Program

October 15, Tuesday

10:00 – 11:00 Daniele C. Struppa (Chapman Univ., USA)
Propagation of superoscillations as solutions to the Cauchy problem for generalized Schrödinger equations

11:15 – 12:15 Naofumi Honda (Hokkaido Univ.) and Takahiro Kawai (RIMS, Kyoto Univ.)
Sato's postulates on the S-matrix revisited through the Borel resummation of the perturbation series (a joint work with Henry P. Stapp)

14:00 – 15:00 Reinhard Schäfke (Strasbourg, France)
Loray's reduction of a vector field with nilpotent linear part and polynomial asymptotics

15:15 – 16:15 Tatsuya Koike (Kobe Univ.)
On the computation of Voros coefficients via middle convolutions (joint work with K. Iwaki)

16:30 – 17:10 Mika Tanda (Kinki Univ.)
Parametric Stokes phenomena of the Gauss hypergeometric differential equation with a large parameter (joint work with T. Aoki)

17:20 – 18:00 Toshinori Takahashi (Kinki Univ.)
On the WKB theoretic structure of a Schrödinger operator with a Stokes curve of loop type

October 16, Wednesday

10:00 – 11:00 Yutaka Matsui (Kinki Univ.)
Topological Radon transforms and their applications

11:15 – 12:15 Ahmed Sebbar (Bordeaux, France)
Folding paper, theta function and eta function

14:00 – 15:00 Shingo Kamimoto (RIMS, Kyoto Univ.),
Takahiro Kawai (RIMS, Kyoto Univ.) and Tatsuya Koike (Kobe Univ.)
A happy marriage of resurgent functions and linear differential operators of infinite order in exact WKB analysis

15:15 – 16:15 André Voros (Saclay, France)
Zeta functions over zeros of zeta functions, and an exponential-asymptotic view of the Riemann Hypothesis

16:30 – 17:30 Takashi Aoki (Kinki Univ.)
Exact WKB analysis of confluent hypergeometric equations (joint work with T. Takahashi and M. Tanda)

19:00 – $< Party >$

October 17, Thursday

10:00 – 11:00 Yousuke Ohyama (Osaka Univ.)
The q-Painlevé equations and Riemann-Hilbert-Birkhoff problem

11:15 – 12:15 Stephane Malek (Lille, France)
On Gevrey asymptotics for difference-differential nonlinear PDE

14:00 – 15:00 Shinichi Tajima (Univ. of Tsukuba)
b-functions and algebraic local cohomology classes attached to Lê cycles

15:15 – 16:15 Susumu Yamazaki (Nihon Univ.)
Kernel functions and symbols of pseudodifferential operators of infinite order with an apparent parameter (joint work with T. Aoki and N. Honda)

16:30 – 17:10 Kohei Umeta (Hokkaido Univ.)
On the sheaf of Laplace hyperfunctions in several variables (joint work with Naofumi Honda)

17:20 – 18:00 Daisuke Tarama (Kyoto Univ.)
Analytic extension of Birkhoff normal forms for Hamiltonian systems of one degree of freedom

October 18, Friday

10:00 – 11:00 Grzegorz Lysik (Polish Academy of Sciences, Poland)
Summability of formal solutions to partial differential equations

11:15 – 12:15 Masafumi Yoshino (Hiroshima Univ.)
Connection problem for non integrable Hamiltonian system

14:00 – 15:00 Akira Shudo (Tokyo Metropolitan Univ.)
Toward pruning theory of the Stokes geometry for the quantum Henon map

15:15 – 16:15 Youko Umeta (Tokyo Univ. of Science)
Instanton-type solutions of Painlevé hierarchies $(P_J)_m$ $(J = \mathrm{I}, \mathrm{II}, 34, \mathrm{IV})$

16:30 – 17:30 Yoshitsugu Takei (RIMS, Kyoto Univ.)
The fourth-order PI equation and coalescing phenomena of nonlinear turning points