

RIMS Joint Research

# Algebraic analytic methods in complex partial differential equations



Organizers: Yasunori Okada, Naofumi Honda, and Hiroshi Yamazawa

December 8(Tue) ~ 11(Fri), 2015  
Room No. 111, RIMS, Kyoto University

## Program

### December 8, Tuesday

- 10:00 - 10:50 Naofumi Honda (Hokkaido University)  
Apparent parameter technique and vanishing of cohomology groups with Whitney holomorphic functions
- 11:10 - 12:00 Luca Prelli (Universidade de Lisboa)  
Generalization of multi-specializations and multi-asymptotics
- 13:30 - 14:20 Kohei Umeta (Hokkaido University)  
On the theory of Laplace hyperfunctions in several variables  
(a joint work with Naofumi Honda)
- 14:40 - 15:30 Giovanni Morando (Augsburg University)  
Enhanced sheaves, direct images and Fourier transform of D-modules
- 15:50 - 16:40 Masatake Miyake (Nagoya University)  
A counterexample for Barkatou's conjecture on the exponential growth of solutions for Mose irreducible system and surgery operations of system transformations

### December 9, Wednesday

- 10:00 - 10:50 Hiroshi Yamazawa (Shibaura Institute of Technology)  
Summability of formal solutions for  $\epsilon t^{r+1} \frac{\partial}{\partial t} u = f(t, u)$
- 11:10 - 12:00 Stéphane Malek (University of Lille)  
Parametric multisummable formal solutions to nonlinear PDEs
- 13:30 - 14:20 Sunao Ōuchi (Sophia University)  
Functional equations with solutions of irregular singular type

14:40 - 15:30 Jose Ernie C. Lope (University of the Philippines Diliman)  
A Nagumo-type theorem on nonlinear Fuchsian partial differential equations

15:50 - 16:40 Hidetoshi Tahara (Sophia University)  
On singular solutions of nonlinear singular partial differential equations in a sectorial domain

### **December 10, Thursday**

09:00 - 09:50 Alberto Lastra (University of Alcalá)  
Parametric multilevel  $q$ -Gevrey asymptotics for some linear Cauchy problem

10:00 - 10:50 Yasunori Okada (Chiba University)  
Coupling transforms and the reversibility

11:10 - 12:00 Kunio Ichinobe (Aichi University of Education)  
 $k$ -summability of formal solutions for certain partial differential equations and the method of successive approximation

13:30 - 14:20 Jorge Mozo Fernández (University of Valladolid)  
Application of monomial summability to singularly perturbed Pfaffian systems

14:40 - 15:30 Yoshishige Haraoka (Kumamoto University)  
Connection problem for regular holonomic systems

15:50 - 16:40 Toshio Oshima (Josai University)  
Reducibility of hypergeometric equations

### **December 11, Friday**

10:00 - 10:50 Yoko Umeta (Yamaguchi University)  
Instanton-type solutions for a unified family of  $(P_J)_m$  ( $J = I, II, IV, 34$ )

11:10 - 12:00 Javier Sanz (Universidad de Valladolid)  
Multisummability in ultraholomorphic classes associated to strongly regular sequences

13:30 - 14:20 Free discussion

14:40 - 15:30 Masafumi Yoshino (Hiroshima University)  
Semi-global non integrability of Hamiltonian system and Borel summability

15:50 - 16:40 Susumu Yamazaki (Nihon University)  
Boundary value problem for hyperfunction solutions to Fuchsian systems

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