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**Institute of Mathematics, Polish Academy of Sciences
Faculty of Mathematics, Informatics and Mechanics, Warsaw University**

School and Conference

COMPLEX DIFFERENTIAL AND DIFFERENCE EQUATIONS

September 2 – 15, 2018

Mathematical Research and Conference Center, Będlewo

Scientific Committee

Yoshishige Haraoka (Kumamoto University),
Stefan Hilger (Catholic University of Eichstaett),
Masatake Miyake (Nagoya University),
Reinhard Schäfke (Strasbourg University),
Hidetoshi Tahara (Sophia University),
Masafumi Yoshino (Hiroshima University)

Organizing Committee

Galina Filipuk (Warsaw University),
Alberto Lastra (University of Alcalà),
Grzegorz Łysik (Jan Kochanowski University in Kielce),
Sławomir Michalik (Cardinal Stefan Wyszyński University),
Yoshitsugu Takei (Doshisha University),
Henryk Żołądek (Warsaw University).

Program of the School

Monday, September 3

9.00–9.10 OPENING

Chairman: GRZEGORZ ŁYSIK

9.10–10.10 SHINGO KAMIMOTO (Hiroshima University) **Resurgent structures in differential equations I**

10.10–10.30 Coffee break

10.30–11.30 JORGE MOZO FERNÁNDEZ (Universidad de Valladolid) **Some aspects of summability I**

11.40–12.40 FRANZ WINKLER (J. Kepler University Linz) **Algebraic-geometric method for algebraic differential equations I. Basics of differential algebra**

13.00 Lunch

Chairman: GALINA FILIPUK

15.00–16.00 JAN DEREZIŃSKI (Warsaw University) **From the conformal group to symmetries of hypergeometric type equations I**

16.00–16.20 Coffee break

16.20–17.20 MASAFUMI YOSHINO (Hiroshima University) **Movable singularity of some Hamiltonian system and blowup of semilinear wave equation I**

17.30–18.30 STEPHANE MALEK (University of Lille) **On parametric Borel summability for linear singularly perturbed Cauchy problems with linear fractional transforms**

19.00 Dinner

Tuesday, September 4

Chairman: **YOSHISHIGE HARAOKA**

9.10–10.10 MASAFUMI YOSHINO (Hiroshima University) **Movable singularity of some Hamiltonian system and blowup of semilinear wave equation II**

10.10–10.30 Coffee break

10.30–11.30 SHINGO KAMIMOTO (Hiroshima University) **Resurgent structures in differential equations II**

11.40–12.40 JORGE MOZO FERNÁNDEZ (Universidad de Valladolid) **Some aspects of summability II**

13.00 Lunch

Chairman: **STEPHANE MALEK**

15.00–16.00 JUAN RAFAEL SENDRA (University of Alcalá) **Algebro-geometric method for algebraic differential equations II. Rational algebraic varieties**

16.00–16.20 Coffee break

16.20–17.20 JAN DEREZIŃSKI (Warsaw University) **From the conformal group to symmetries of hypergeometric type equations II**

19.00 School Dinner

Wednesday, September 5

Chairman: **YOSHITSUGU TAKEI**

9.10–10.10 JAN DEREZIŃSKI (Warsaw University) **From the conformal group to symmetries of hypergeometric type equations III**

10.10–10.30 Coffee break

10.30–11.30 MASAFUMI YOSHINO (Hiroshima University) **Movable singularity of some Hamiltonian system and blowup of semilinear wave equation III**

11.40–12.40 SHINGO KAMIMOTO (Hiroshima University) **Resurgent structures in differential equations III**

13.00 Lunch

Chairman: **SŁAWOMIR MICHALIK**

15.00–16.00 JORGE MOZO FERNÁNDEZ (Universidad de Valladolid) **Some aspects of summability III**

16.00–16.20 Coffee break

16.20–16.50 FRANZ WINKLER (J. Kepler University Linz) **Algebro-geometric method for algebraic differential equations IIIa. The algorithm of Feng and Gao for autonomous AODEs**

17.00–17.30 JUAN RAFAEL SENDRA (University of Alcalá) **Algebro-geometric method for algebraic differential equations IIIb. 1-dimensional systems of autonomous AODEs**

19.00 Dinner

Thursday, September 6

Chairman: HENRYK ŻOŁĄDEK

9.10–10.10 JUAN RAFAEL SENDRA (University of Alcalá) **Algebro-geometric method for algebraic differential equations IV. Formal power series solutions to autonomous AODEs**

10.10–10.30 Coffee break

10.30–11.30 JAN DEREZIŃSKI (Warsaw University) **From the conformal group to symmetries of hypergeometric type equations IV**

11.40–12.40 MASAFUMI YOSHINO (Hiroshima University) **Movable singularity of some Hamiltonian system and blowup of semilinear wave equation IV**

13.00 Lunch

Chairman: HIDEAKI IZUMI

15.00–16.00 SHINGO KAMIMOTO (Hiroshima University) **Resurgent structures in differential equations IV**

16.00–16.20 Coffee break

16.20–17.20 JORGE MOZO FERNÁNDEZ (Universidad de Valladolid) **Some aspects of summability IV**

17.30–18.00 PAWEŁ Wójcicki (Warsaw University of Technology) **The weighted Bergman kernel and the Green's function**

19.00 BBQ/Bonfire

Friday, September 7**Chairman:** SAIEI-JAEYEONG MATSUBARA-HEO9.10–10.10 JORGE MOZO FERNÁNDEZ (Universidad de Valladolid) **Some aspects of summability V**

10.10–10.30 Coffee break

10.30–11.30 FRANZ WINKLER (J. Kepler University Linz) **Algebro-geometric method for algebraic differential equations V, Generalization to non-autonomous AODEs**11.40–12.40 JAN DEREZIŃSKI (Warsaw University) **From the conformal group to symmetries of hypergeometric type equations V**

13.00 Lunch

Chairman: STEPHANE MALEK15.00–16.00 MASAFUMI YOSHINO (Hiroshima University) **Movable singularity of some Hamiltonian system and blowup of semilinear wave equation V**

16.00–16.20 Coffee break

16.20–17.20 SHINGO KAMIMOTO (Hiroshima University) **Resurgent structures in differential equations V**

17.30–19.00 Walk to the Lake

19.00 Dinner

Program of the Conference

Monday, September 10

9.00–9.10 OPENING CEREMONY

Chairman: THOMAS KECKER

9.10–10.10 DAVIDE GUZZETTI (SISSA) **Non-generic isomonodromy deformations**

10.10–10.30 Coffee break

10.30–11.30 TOSHIYUKI MANO (University of the Ryukyus) **Analytic representation of potential vector fields and isomonodromic τ functions**

11.40–12.40 YOSHISHIGE HARAOKA (Kumamoto University) **Asymptotic analysis for a confluent KZ equation in two variables**

13.00 Lunch

Chairman: DAVIDE GUZZETTI

15.00–15.35 MIKA TANDA (Kwansei Gakuin University) **The asymptotic expansions of the hypergeometric function with respect to a parameter**

15.40–16.15 HUBERT GRZEBUŁA (Cardinal Stefan Wyszyński University) **The Dirichlet type problem for complex polyharmonic functions**

16.15–16.40 Coffee break

Chairman: KOUICHI TAKEMURA

16.40–17.15 EWA CIECHANOWICZ (University of Szczecin) **Value distribution and growth of solutions of certain nonlinear ODEs**

17.20–17.55 TANUJA ADAVISWAMY (Siddaganga Institute of Technology) **Meromorphic solution of Ginzburg-Landau family of equations with variable coefficients using Nevanlinna theory (video talk)**

19.00 Dinner

Tuesday, September 11

Chairman: HENRYK ŻOŁĄDEK

9.10–10.10 JIRO SEKIGUCHI (Tokyo University of Agriculture and Technology) **Solutions to extended WDVV equations and Painlevé VI equation**

10.10–10.30 Coffee break

10.30–11.30 PILAR R. GORDOA (Universidad Rey Juan Carlos) **Matrix Painlevé hierarchies**

11.40–12.40 SAI EI-JAEYEONG MATSUBARA-HEO (Kobe University) **Intersection theory for Euler integral representations of GKZ hypergeometric functions**

13.00 Lunch

Chairman: MASAFUMI YOSHINO

15.00–15.35 YUMIKO TAKEI (Kobe University) **Voros coefficients for hypergeometric differential equations and Eynard-Orantin's topological recursion**

15.40–16.15 THOMAS KECKER (University of Portsmouth) **Complex differential equations with movable algebraic singularities**

16.15–16.40 Coffee break

Chairman: HIROSHI YAMAZAWA

16.40–17.15 GALINA FILIPUK (Warsaw University) **Orthogonal polynomials on non-uniform lattices**

17.20–17.55 YULIA BIBILO (Concordia University) **Application of the Painlevé 3 equation to the Josephson effect** (wideo talk)

19.00 Conference Dinner

Wednesday, September 12

Chairman: **YOSHISHIGE HARAOKA**

9.10–10.10 KOUICHI TAKEMURA (Chuo University) **On q -deformations of the Heun equation**

10.10–10.30 Coffee break

10.30–11.30 HENRYK ŻOŁĄDEK (Warsaw University) **Invariants of group representations, dimension/degree duality and normal forms of vector fields**

11.40–12.15 EWA STRÓŻYNA (Warsaw University of Technology) **Normal forms for vector fields with quadratic leading part**

12.30 Lunch

13.30–19.00 Excursion

19.00 Dinner

Thursday, September 13

Chairman: **PILAR R. GORDOA**

9.10–10.10 YOSHITSUGU TAKEI (Doshisha University) **On the instanton-type expansions for Painlevé transcendents and elliptic functions**

10.10–10.30 Coffee break

10.30–11.30 PIOTR KOKOCKI (Nicolaus Copernicus University) **The Riemann-Hilbert problem and singularity formation in the localized induction approximation**

11.40–12.40 MASAFUMI YOSHINO (Hiroshima University) **The linearization problem for holomorphic vector fields and parametric Borel summability**

13.00 Lunch

Chairman: **KUNIO ICHINOBE**

15.00–15.35 FEDERICO ZULLO (Università di Brescia) **On the solutions of the Airy equation**

15.40–16.15 HIDEAKI IZUMI (Chiba Institute of Technology) **Dimensioned numbers and differential equations**

16.15–16.40 Coffee break

Chairman: **HIDETOSHI TAHARA**

16.40–17.15 HIROSHI YAMAZAWA (Shibaura Institute of Technology) **Gevrey and q -Gevrey asymptotic for some linear q -difference differential equations**

17.20–17.55 KUNIO ICHINOBE (Aichi University of Education) **A necessary condition for k -summability of formal solutions to some linear q -difference-differential equations**

18.00–18.35 MARK PHILIP ONA (University of the Philippines) **A Nagumo-type theorem on a class of singular first order equations** (wideo talk)

19.00 BBQ/Bonfire

Friday, September 14

Chairman: **JIRO SEKIGUCHI**

9.10–10.10 HIDETOSHI TAHARA (Sophia University) **Maillet type theorem for nonlinear totally characteristic PDEs**

10.10–10.30 Coffee break

10.30–11.30 SHINGO KAMIMOTO (Hiroshima University) **Multisummability and strongly regular sequences**

11.40–12.40 GRZEGORZ ŁYSIK (Jan Kochanowski University) **Mean values and heat type equations**

13.00 Lunch

Chairman: **FEDERICO ZULLO**

15.00–15.35 SŁAWOMIR MICHALIK (Cardinal Stefan Wyszyński University) **Gevrey estimate and summability for some moment partial differential equations**

15.40–16.15 BOŻENA TKACZ (Cardinal Stefan Wyszyński University) **The Stokes phenomenon for some moment partial differential equations**

16.20–16.55 MARIA SUWIŃSKA (Cardinal Stefan Wyszyński University) **Hyperasymptotic solutions for the heat equation**

17.00–17.20 Coffee break

17.30–19.00 Walk to the Lake

19.00 Dinner