Workshop on Accessory Parameters 2026

RIMS room 111, Kyoto University

February 16–20, 2026

Day 1: Monday, February 16

10:00 – 11:00 Takao Suzuki (Kindai University)

Drinfeld-Sokolov hierarchies and isomonodromy deformation equations

11:30 – 12:30 Ayato Shukuta (University of Tokyo)

The accessory parameters of confluent Heun's equations and irregular conformal blocks

12:30 – 14:20 Lunch Break

14:20 – 15:20 Yoshishige Haraoka (Josai University)

TBA

15:50 – 16:50 Raoul Santachiara (Université de Paris-Sud)

The probabilistic approach to two-dimensional conformal field theory and its role in understanding timelike Liouville theory

Day 2: Tuesday, February 17

10:00 – 11:00 Akihito Ebisu (Chiba Institute of Technology)

${}_3F_2(1)$ expressed in terms of ${}_2F_1(1/2)$

11:30 – 12:30 Yumiko Takei (Nihon University Junior College)

On the exact WKB analysis of a difference equation satisfied by the Gauss hypergeometric function

12:30 – 14:20 Lunch Break

14:20 – 15:20 Seiji Nishioka (Yamagata University)

Difference-differential fields of continuous functions

~~15:50 – 16:50 Lucia Di Visio (Université de Versailles-St Quentin)~~ Cancelled

Day 3: Wednesday, February 18

9:00 – 10:00 Satoshi Tsuchimi (Kindai University)

A degeneration of the generalized μ-function and the Rogers-Ramanujan continued fraction

10:30 – 11:30 Yuichi Sakai (Kurume Institute of Technology)

Modular linear differential operators and generalized Rankin-Cohen brackets

12:00 – 13:00 Arata Komyo (University of Hyogo)

Derivation of Painlevé VI equation and Garnier system by applying Kodaira–Spencer theory

13:00 – 19:00 Free Discussion

19:00 – Conference Dinner

Day 4: Thursday, February 19

10:00 – 11:00 Shoya Motonaga (Ritsumeikan University)

Solutions of a class of linear ordinary differential equations derived from integrable dynamical systems

11:30 – 12:30 Shinji Sasaki (Osaka Metropolitan University)

Transformation theory and connection problems in the exact WKB analysis of Painlevé equations

12:30 – 14:20 Lunch Break

14:20 – 15:20 Kohei Iwaki (University of Tokyo)

Many-faced Painlevé I: irregular conformal blocks, topological recursion, and holomorphic anomaly approaches

15:50 – 16:50 Toshio Oshima (University of Tokyo)

Transformation of linear Pfaffian systems and their singularities

Day 5: Friday, February 20

10:00 – 11:00 Yohei Ito (Aoyama Gakuin University)

Equivariant irregular Riemann-Hilbert correspondence and enhanced subanalytic sheaves

11:30 – 12:30 Yota Shamoto (Yamato University)

Stokes structure of summable isomorphisms

Abstracts

Day 1: Monday, February 16

10:00 – 11:00 Takao Suzuki

Drinfeld-Sokolov hierarchies and isomonodromy deformation equations

TBA

11:30 – 12:30 Ayato Shukuta

The accessory parameters of confluent Heun's equations and irregular conformal blocks

It is conjectured that a relationship exists between the accessory parameters of (confluent) Heun's equation and the classical limit of conformal blocks. In this talk, we propose a method to obtain a formal power series expansion of the accessory parameter with respect to the time variable by considering deformations of the Heun equation that preserve a certain Voros period. We will then provide a computational verification of the agreement between the accessory parameter and the classical conformal block for the first several orders, illustrated with several examples which may have irregular singularities. This talk is based on ongoing joint work with Kohei Iwaki (University of Tokyo) and Hajime Nagoya (Kanazawa University).

14:20 – 15:20 Yoshishige Haraoka

TBA

TBA

15:50 – 16:50 Raoul Santachiara

The probabilistic approach to two-dimensional conformal field theory and its role in understanding timelike Liouville theory

Conformal field theories (CFTs) are interacting quantum field theories that, thanks to the richness of conformal transformations in two dimensions, can often be solved exactly. In particular, the fact that certain correlation functions satisfy Fuchsian differential equations has provided powerful methods to compute them explicitly.
In this talk, we revisit a long-standing open problem: the definition of a consistent timelike Liouville theory. This theory is a close relative of the more familiar spacelike Liouville field theory, one of the best-known and most studied examples of a two-dimensional CFT. We will show how a new perspective on analytic continuation, based on the the so-called complex multiplicative chaos, sheds light on the structure of timelike Liouville theory.

Day 2: Tuesday, February 17

10:00 – 11:00 Akihito Ebisu

${}_3F_2(1)$ expressed in terms of ${}_2F_1(1/2)$

TBA

11:30 – 12:30 Yumiko Takei

On the exact WKB analysis of a difference equation satisfied by the Gauss hypergeometric function

TBA

14:20 – 15:20 Seiji Nishioka

Difference-differential fields of continuous functions

The set of complex-valued continuous functions on $x \geq 0$ is a ring by the addition and the convolution. It has the quotient field, by which J. Mikusinski developed his operational calculus. In this talk, I will introduce derivations and transforming operators defined on the field.

~~15:50 – 16:50 Lucia Di Visio~~ Cancelled

Day 3: Wednesday, February 18

9:00 – 10:00 Satoshi Tsuchimi

A degeneration of the generalized μ-function and the Rogers-Ramanujan continued fraction

TBA

10:30 – 11:30 Yuichi Sakai

Modular linear differential operators and generalized Rankin-Cohen brackets

The purpose of this talk is to give expressions for modular linear differential operators(MLDOs) of any order. In particular, we show that they can all be described in terms of Rankin-Cohen brackets and a modified Rankin-Cohen bracket by Kaneko and Koike. We also give more uniform descriptions of MLDOs in terms of canonically defined higher Serre derivatives and an extension of Rankin-Cohen brackets, as well as in terms of quasimodular forms and almost holomorphic modular forms. This is a joint work with K. Nagatomo and D. Zagier.

12:00 – 13:00 Arata Komyo

Derivation of Painlevé VI equation and Garnier system by applying Kodaira–Spencer theory

In this talk we will derive Okamoto's Hamiltonian expression of the Garnier systems from an algebro-geometric point of view. The Garnier systems are completely integrable systems of nonlinear partial differential equations. These are generalizations of the Painlevé VI equation. The Garnier systems are derived as isomonodromic deformations of rank 2 linear differential equations with regular singular points over the Riemann sphere. We will derive the Garnier systems from this perspective.
The independent variables of the Garnier systems come from the location of the regular singular points of linear differential equations. That is, the space of independent variables is the space of pairwise distinct points on the Riemann sphere normalized by Möbius transformations. So those isomonodromic deformations are infinitesimal deformations of linear differential equations induced by tangents on the space of pairwise distinct points. We may describe tangents of the space of pairwise distinct points by Kodaira–Spencer theory. We will use this description for derivation of the Garnier systems directly.

Day 4: Thursday, February 19

10:00 – 11:00 Shoya Motonaga

Solutions of a class of linear ordinary differential equations derived from integrable dynamical systems

TBA

11:30 – 12:30 Shinji Sasaki

Transformation theory and connection problems in the exact WKB analysis of Painlevé equations

TBA

14:20 – 15:20 Kohei Iwaki

Many-faced Painlevé I: irregular conformal blocks, topological recursion,and holomorphic anomaly approaches

In recent years, the Fourier series (Zak transform) structure of the Painlevé I tau function has emerged in multiple contexts. Its main building block admits several conjectural interpretations, such as the partition function of an Argyres-Douglas gauge theory, the topological recursion partition function for the Weierstrass elliptic curve, and a 1-point conformal block on the Riemann sphere with an irregular insertion of rank 5/2. We review and further develop a mathematical framework for these constructions, and formulate conjectures on their equivalence. This talk is based on joint work with N. Iorgov, O. Lisovyy, and Y. Zhuravlov (arXiv:2505.16803).

15:50 – 16:50 Toshio Oshima

Transformation of linear Pfaffian systems and their singularities

TBA

Day 5: Friday, February 20

10:00 – 11:00 Yohei Ito

Equivariant Irregular Riemann-Hilbert Correspondence and Enhanced Subanalytic Sheaves

In 1984, Professor Masaki Kashiwara solved Hilbert's 21st problem, also known as the Riemann-Hilbert problem, for regular holonomic D-modules. He proved that there exists an equivalence of categories between the triangulated category of regular holonomic D-modules and that of C-constructible sheaves. Nowadays, this is called the regular Riemann-Hilbert correspondence and has been extended further to irregular holonomic D-modules as the irregular Riemann-Hilbert correspondence. In this talk, I would like to introduce an equivariant version of the algebraic irregular Riemann-Hilbert correspondence and its application. This is based on a joint work with Taito Tauchi (Aoyama Gakuin University).

11:30 – 12:30 Yota Shamoto

Stokes structure of summable isomorphisms

Inspired by the work of Kontsevich-Soibelman on the comparison isomorphism for closed one forms, we formulate a kind of Riemann-Hilbert correspondence of Deligne-Malgrange type. It generalizes the Riemann-Hilbert correspondences for stalks of meromorphic connections of unramified exponential types. In the talk, we will mainly focus on the first non-trivial motivating example related to the gamma function and the digamma function, concerning applications to the comparison isomorphism conjecture and an equivariant analog of the gamma conjecture. This talk is partly based on the joint work in progress with F. Sanda.