

Week 2 of the Workshop on
“Algebraicity and Transcendence for Singular Differential Equations”

October 14 - 18, 2024

organized by

Alin Bostan (INRIA Paris), Francis Brown (U Oxford), Herwig Hauser (U of Vienna), Shihoko Ishii (U Tokyo), Hiraku Kawanoue (Chubu U, Kasugai City), Michael Singer (NC State U, Raleigh)

• **Monday, October 14th, 2024**

09:00 – 09:30 **Registration & Welcome**

09:30 – 11:00 **Javier Fresán (Sorbonne U)**

On G -functions of differential order 2

11:00 – 12:30 **Frits Beukers (Utrecht U)**

Picard-Fuchs equations and modular forms - with some applications

12:30 – 14:00 **Lunch Break**

14:00 – 15:30 **Yoshishige Haraoka (Josai U)**

Higher dimensional Katz theory

15:30 – 16:45 **Andrea Pulita (U Grenoble Alpes)**

p -adic differential equations over Berkovich curves

• **Tuesday, October 15th, 2024**

09:00 – 11:00 **Marius van der Put (U Groningen)**

First order differential equations in characteristic zero and characteristic p .

11:00 – 12:30 **Hiraku Kawanoue (Chubu U)**

The exponential function in characteristic p

12:30 – 14:00 **Lunch Break**

14:00 – 15:30 **Francis Brown (U Oxford)**

Mellin transforms and P -recurrences, point counts over finite fields and invariants of graphs

15:30 – 16:45 **Masaaki Yoshida (Fukuoka U)**

Fuchsian differential equations of order 3 and 6 with three singular points and with one accessory parameter

• **Wednesday, October 16th, 2024**

09:00 – 10:45 **Jean-Benoît Bost (U Paris Sud)**

Arithmetic algebraization theorems and the analogy between number fields and function fields

11:00 – 12:30 **Maxim Kontsevich (IHES, Bures-sur-Yvette)**

On Katz' nilpotence conjecture, p -determinants, and q -generalization

13:00 – 14:00 **Lunch Break**

15:00 – 16:30 **Vesselin Dimitrov (Caltech U)**

Arithmetic holonomy bounds

via zoom

- **Thursday, October 17th, 2024**

09:00 – 11:00 **Yunqing Tang (California I of Technology)**

The arithmetic of power series and applications to periods

11:00 – 12:30 **Éric Delaygue (I Camille Jordan)**

On Abel's problem and Gauss congruences

12:30 – 14:00 **Lunch Break**

14:00 – 15:30 **Masahiko Yoshinaga (Osaka U)**

Towards a Kontsevich-Zagier type conjecture for holonomic series

15:30 – 16:45 **Vasily Golyshev (Abdus Salam ICTP)**

Beyond Complex Multiplication

- **Friday, October 18th, 2024**

09:00 – 11:00 **Charlotte Hardouin (IMT, Toulouse)**

Extending Hölder's result on the differential transcendence of the Gamma function

11:00 – 12:30 **Alin Bostan (INRIA Paris)**

How to decide in practice if a D-finite power series is algebraic?

12:30 – 14:30 **Lunch Break**

14:30 – 15:00 **Coffee Break & Outlook Discussion**

All talks take place at ESI Boltzmann Lecture Hall!