東京理科大学
TOKYO UNIVERSITY OF SCIENCE

創域理工学部
Faculty of Science and Technology

2026 International workshop on mathematical science at TUS-Noda

Organizers: Hiroki Aoki (Tokyo University of Science)
Hiroyuki Ito (Tokyo University of Science)
Hisanori Ohashi (Tokyo University of Science)
Motohiro Sobajima (Tokyo University of Science)

Date: January 13th and 14th (Tue. and Wed.), 2026.

Venue: MA Seminar room, Faculty of Science and Technology,
Tokyo University of Science, Noda, Chiba, JAPAN.

Day 1 : Jan. 13 (Tue.)

Jan. 13 (Tue.) 13:30 – 14:00

藤村 瞳威（東京理科大学） **Toi Fujimura** (Tokyo University of Science)
"Asymptotic Rates for the 1D p-system with Time Dependent Damping"

Jan. 13 (Tue.) 14:00 – 14:30

福井 大空（東京理科大学） **Ozora Fukui** (Tokyo University of Science)
"The relation between mathematical logic and computer"

Jan. 13 (Tue.) 15:00 – 16:00

小松 尚夫（河南省科学院） **Takao Komatsu** (Henan Academy of Sciences)
"Stirling determinants"

Jan. 13 (Tue.) 16:30 – 17:30 ＊

田邊 奈生実（ボウディン大学） **Naomi Tanabe** (Bowdoin College)
"On the second moments of modular L-functions"

Day 2 : Jan. 14 (Wed.)

Jan. 14 (Wed.)　13:00 – 14:00

比嘉 陸（東京理科大学）　**Riku Higa** (Tokyo University of Science)

"Some ideal lattices of type A_n, D_n, E_n"

Jan. 14 (Wed.)　14:15 – 15:15

安藤 遼哉（東京理科大学）　**Ryoya Ando** (Tokyo University of Science)

"Weakly proregular sequences and their applications, regularity criteria, and the Cohen-Macaulay property"

Jan. 14 (Wed.)　15:30 – 16:30　＊

佐藤 信夫（国立台湾大学）　**Nobuo Sato** (National Taiwan University)

"Iterated beta integrals and its applications"

・参加申込不要、どなたでもご自由に聴講いただけます。

（会場）　東京理科大学 野田キャンパス４号館３階 数理科学科セミナー室
　　東武アーバンパークライン 運河駅下車徒歩 5 分

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（主催）　東京理科大学　特定研究推進「数理連携プロジェクト」

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（共催）　東京理科大学　総合研究院　数理モデリング研究部門

（共催）　東京理科大学　創域理工学部　数理科学科　談話会　（＊印の２講演）

Abstracts

Jan. 13 (Tue.)　　13:30 – 14:00

藤村 瞳威（東京理科大学）　　**Toi Fujimura** (Tokyo University of Science)

"Asymptotic Rates for the 1D p-system with Time Dependent Damping"

This talk concerns the Cauchy problem for the one-dimensional p-system with a time-dependent damping coefficient $b(t)$ satisfying a diffusive condition. We prove the existence of a global solution under suitable assumptions. Moreover, we establish the asymptotic profile and obtain asymptotic decay rates.

Jan. 13 (Tue.)　　14:00 – 14:30

福井 大空（東京理科大学）　　**Ozora Fukui** (Tokyo University of Science)

"The relation between mathematical logic and computer"

Mathematical logic is the genre that focuses on the "Logic" of mathematics. By using the predicate logic, that formalizes proving, constructs the ZFC to formalize the set, and so on. Related to "Logic", it is also noticed that the relation between mathematical logic and computer. For example, but this study does not refer to, Curry-Howard correspondence exists. It claims typed lambda calculus (modeling of applying functions in the programming language) and natural deduction (modeling of proving in predicate logic) are isomorphic. In this talk, I focus on the method called "encoding" in mathematical logic to study the relation between that and computer.

Jan. 13 (Tue.)　　15:00 – 16:00

小松 尚夫（河南省科学院）　　**Takao Komatsu** (Henan Academy of Sciences)

"Stirling determinants"

In 2014, Merca studied new connections between complete and elementary symmetric functions to show some determinants whose elements are Stirling numbers. This talk considers the determinants of the so-called Hessenberg matrices, in particular, Trudi's type matrices. These matrices are more applicable in inverse relations, LU decompositions, and continued fractions.

Jan. 13 (Tue.)　　16:30 – 17:30　＊

田邊 奈生実（ボウディン大学）　　**Naomi Tanabe** (Bowdoin College)

"On the second moments of modular L-functions"

In this talk, I will give an overview of recent progress on the moment problem for various families of L-functions. The talk will then focus on ongoing work concerning the second moments of Rankin-Selberg L-functions attached to modular forms. In particular, I aim to investigate their asymptotic behavior and discuss the challenges involved in establishing precise formulas.

Jan. 14 (Wed.)　　13:00 – 14:00

比嘉 陸（東京理科大学）　　**Riku Higa** (Tokyo University of Science)

"Some ideal lattices of type A_n, D_n, E_n"

In this talk, we introduce some ideal root lattices over totally real fields. From self-dual codes corresponding to these lattices, we can construct even unimodular lattices which are modules over the rings of integers in these fields. Moreover, we give connections between the theta functions of such even unimodular lattices and weight enumerators of the codes.

Jan. 14 (Wed.)　　14:15 – 15:15

安藤 遼哉（東京理科大学）　　**Ryoya Ando** (Tokyo University of Science)

"Weakly proregular sequences and their applications, regularity criteria, and the Cohen-Macaulay property"

In recent commutative ring theory, the importance of homological algebraic considerations for modules over rings that are not necessarily Noetherian has been increasing year by year. In this talk, I will introduce generalizations of concepts such as regular sequences and grade, along with their applications and associated problems.

Jan. 14 (Wed.)　　15:30 – 16:30　＊

佐藤 信夫（国立台湾大学）　　**Nobuo Sato** (National Taiwan University)

"Iterated beta integrals and its applications"

We introduce iterated beta integrals, a new class of iterated integrals on the universal abelian covering of the punctured projective line that unifies hyperlogarithms and classical beta integrals while preserving their fundamental properties. We establish various analytic properties of these integrals with respect to both the exponent parameters and the main variables. Their key feature is invariance under simultaneous translation of the exponent parameters, which generates relations between integrals over different coverings. This mechanism recovers notable identities for multiple zeta values and variants — including Zagier's $\zeta(2,\dots,2,3,2,\dots,2)$ formula, Murakami's t-value analogue, Zhao's 2-1 formula, and evaluations involving central binomial coefficients — and also yields new relations, such as a proof of an explicit Galois descent formula for multiple omega values appearing in the area expansion of a certain family of Lawson surfaces.