



東京理科大学  
TOKYO UNIVERSITY OF SCIENCE



創域理工学部  
Faculty of Science and Technology

# 2025 International workshop on mathematical science at TUS-Noda

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

Date: January 17th (Fri.) 2025

Venue: Room 7407 (Bldg. 7), Faculty of Science and Technology,  
Tokyo University of Science, Noda, Chiba, JAPAN.

**Jan. 17 (Fri.) 13:30 – 14:00**

宮本 怜里 (東京理科大学) Reiri Miyamoto (Tokyo University of Science)

**“The critical Fujita exponent for some one-dimensional semilinear heat equations”**

The concept of critical Fujita exponents, which are the thresholds dividing the existence/nonexistence of nontrivial global-in-time solutions, was first introduced by Fujita in 1966, and they have been studied by many mathematicians. In this talk, we briefly explain the critical phenomenon for the standard case and then discuss the critical phenomenon for our case. The aim is to determine the critical Fujita exponent for some one-dimensional semilinear heat equations and to clarify the local critical phenomenon inherent in these equations. This talk is based on the joint work with prof. Sobajima.

**Jan. 17 (Fri.) 14:00 – 14:30**

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

**“Lattices of type  $A_n, D_n, E_n$  and codes”**

We propose a construction of lattices from codes corresponding to lattices of type  $A_n, D_n$  and  $E_n$ . This construction is a generalization of construction A of lattices from  $p$ -ary codes corresponding to a lattice of type  $A_{p-1}$ . Moreover, we introduce some examples of application of lattices from the construction to Hilbert modular form.

**Jan. 17 (Fri.) 14:45 – 15:45**

小島 教知 (一橋大学) Noritomo Kozima (Hitotsubashi University)

**“About the mathematics of temperament theory”**

In music theory, the term “temperament” means a relative system for different pitches. And historically, temperament theory was a branch of mathematics. However, music and mathematics currently exist as separate fields. As a result, inaccurate descriptions of temperament are often found. In this talk, I will correct this inaccuracy and logically explain temperament theory.

**Jan. 17 (Fri.) 16:00 – 17:00**

Siegfried Böcherer (マンハイム大学) Siegfried Böcherer (University of Mannheim)

**“On  $p$ -adic limits of Siegel-Eisenstein series”**

Let  $p$  be an odd prime and  $k$  a fixed even natural number.

We put  $k_m = k + (p - 1)p^{m-1}$  and we want to study the  $p$ -adic limit of the Siegel-Eisenstein series  $E_{k_m}$  (which means the  $p$ -adic uniform limit of its Fourier coefficients). We discuss several ways to prove that under certain conditions this limit equals a classical modular form of level  $p$ . In particular, we describe how to “guess” what this limit should be and why it will always be a (distinguished) Siegel Eisenstein series for  $\Gamma_0(p)$ .

(based on joint work with T.Kikuta)

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・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 新7号館4階 7407 教室

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 特定推進研究「数理連携プロジェクト」

(共催) 東京理科大学 総合研究院 先端的代数学融合研究部門

(共催) 東京理科大学 総合研究院 数理解析連携研究部門

(共催) 東京理科大学 創域理工学部 数理科学科 談話会 (後半の2講演)