Sophia University Mathematics Colloquium

Date: Tuesday, February 28, 2023

Time: 15:00 – 17:30

Place: Room No. 398, Bldg.4, Yotsuya-Campus
(hybrid with Zoom Meeting)

- 15:00 – 16:00

Speaker: Professor Min Lee (University of Bristol)

Title: Frobenius numbers and rational points on horospheres

abstract: Fix a finite set R of positive integers bigger than one with no common factors. The Frobenius number for R is the largest number that cannot be written as a linear combination of the integers in R with non-negative integral coefficients.

In general, Frobenius numbers fluctuate. To study such things, we search for structures. Here, the given set of positive integers R can be a point in the lattices studied in the dynamics and number theory crossover. We study the behaviour of these rational points on expanding closed horospheres in the space of lattices. The equidistribution of these rational points is proved by Einsiedler, Mozes, Shah and Shapira (2016). Their proof uses techniques from homogeneous dynamics and relies particularly on measure-classification theorems, due to Ratner. We pursue an alternative strategy based on Fourier analysis, Weil's bound for Kloosterman sums, recently proved bounds (by M. Erdélyi and Á. Tóth) for matrix Kloosterman sums, Roger's formula, and the spectral theory of automorphic functions.

This is a joint work with D. El-Baz, B. Huang, J. Marklof and A. Strömbergsson.

- 16:30 – 17:30

Speaker: Professor Gautami Bhowmik (Université de Lille)

Title: Products of L-functions

Abstract: Among the analytic properties of L-functions, we are interested in their mean values called moments. We will mention classical results and then treat moments of products of two or more different L-functions on GL_2 and GL_3.

(This colloquium is co-hosted by Department of Information and Communication Sciences.)

Sophia University Mathematics Colloquium Website:
`https://dept.sophia.ac.jp/g/st/math/colloquium/`
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