4th Number Theory Portuguese Meeting
Aveiro Summer School 2025

by **Ariel Pacetti*** and **António Machiavelo****

Number Theory is one of the oldest areas of mathematics, but is still, unfortunately, an underrepresented research area in Portugal. During the previous three years a series of anual meetings have been organized as a concrete action for reverting this problem, aiming in the long run to make Number Theory an active and productive research area in Portugal.

The overall goal of the present Summer School was to gather together young students interested in the area, mostly from the Iberian Peninsula, and provide an introduction to some fundamentals of modern Number Theory.

The Summer School was held at the University of Aveiro, on 1–5 of September, 2025, and was organized around 5 courses:

- Local Fields, by **Rachel Newton** (King's College)
- p-adic L-functions, by **Oscar Rivero** (University of Santiago de Compostela)
- Galois Representations, by **Luis Dieulefait** (University of Barcelona)
- Arithmetic Statistics, by **Alex Bartel** (Glasgow University)
- Expanders Graphs, with perspectives to the Theory of Numbers, by **Harald Helfgott** (CNRS—Institut Mathématique de Jussieu)

Each course consisted of 3 lectures of 90 minutes long each, and included a list of problems that were discussed with the attending students.

Thirty applications were received for financial support from different countries. We funded all the applicants whose mathematical interests were related to Number Theory, including all female students who applied to the school.

There were 25 students attending the school: 11 from Spain, 2 from Italy, 2 from Germany, and 10 from Portugal, with a gender balance of 8 female students and 17 male students. There were another 14 faculty attending the school, including speakers, organizers and other young professors. The lodging costs of all students (but 3 local ones) were cover by the school.

More information can be found at the web page https://sweet.ua.pt/apacetti/EPTN/2025.

Organizers

Paulo Almeida (University of Aveiro)
Nuno Freitas (ICMAT, Madrid)
António Machiavelo (University of Porto)
Ariel Pacetti (University of Aveiro)

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