Integrating Research and Illustration in Number Theory
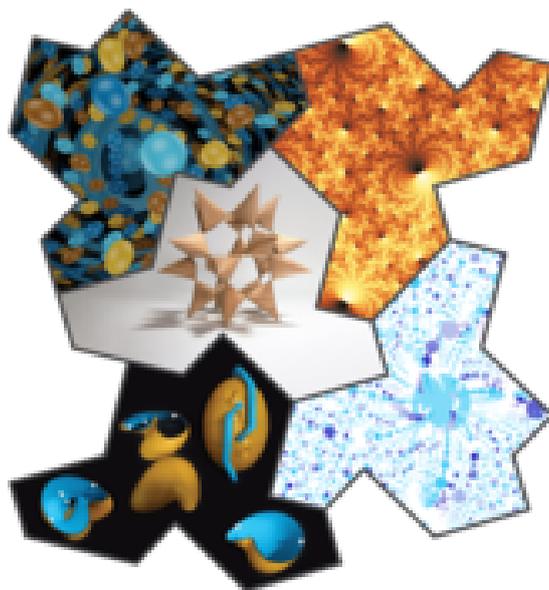
Rapport sur les contributions

ID de Contribution: **1** Type: **Non spécifié**

TBA

lundi 23 mars 2026 10:00 (25 minutes)

Orateur: SUTHERLAND, Andrew (Massachusetts Institute of Technology)

ID de Contribution: **2**

Type: **Non spécifié**

What Color Should This Pixel Be?

lundi 23 mars 2026 11:30 (25 minutes)

Often mathematical illustration boils down to drawing digital images, which itself is ultimately setting colors of individual pixels. I'm going to share escapades in the context of this reductionistic perspective. We'll discuss how the particular color choice for a pixel can have big effects, how much image sizes limit us, and weirder questions like choosing pixel shapes. Technology really wants pixels to be Gaussian integers!

Orateur: NELSON, Roice

ID de Contribution: **3**   Type: **Non spécifié**

TBA

lundi 23 mars 2026 10:30 (25 minutes)

Orateur: CHÉRITAT, Arnaud (CNRS/Institut de Mathéamtiques de Toulouse)

ID de Contribution: **4** Type: **Non spécifié**

TBA

lundi 23 mars 2026 12:00 (25 minutes)

Orateur: RASSKIN, Iván (Aix-Marseille Université)

ID de Contribution: **5** Type: **Non spécifié**

TBA

mardi 24 mars 2026 09:30 (25 minutes)

Orateur: GODAR, Cruz (Yale University)

ID de Contribution: **6** Type: **Non spécifié**

TBA

mardi 24 mars 2026 10:00 (25 minutes)

Orateur: TRETTEL, Stephen (University of San Francisco)

ID de Contribution: **7** Type: **Non spécifié**

TBA

mardi 24 mars 2026 10:30 (25 minutes)

Orateur: LOVE, Jonathan (Leiden University)

ID de Contribution: **8** Type: **Non spécifié**

Rational points on the sphere

mardi 24 mars 2026 11:30 (25 minutes)

I will discuss some recent work on the distribution of rational points on the unit sphere and related conjectures.

Orateur: BURRIN, Claire

ID de Contribution: **9** Type: **Non spécifié**

TBA

mardi 24 mars 2026 14:30 (25 minutes)

Orateur: MARTIN, Daniel (Clemson University)

ID de Contribution: **10**   Type: **Non spécifié**

Dots and Laurent Series

mercredi 25 mars 2026 09:30 (25 minutes)

We'll describe some ongoing discussions and visuals around a beautiful example of Francois Ledrappier, known as the 3-dots example. We'll explain the connection between this example and Laurent series over finite fields, which we learned from Doug Lind, and explain some ongoing work on understanding periodic objects with Aaron Abrams, Edmund Harriss, and Glen Whitney.

Orateur: ATHREYA, Jayadev (University of Washington)

ID de Contribution: **11** Type: **Non spécifié**

TBA

mercredi 25 mars 2026 10:00 (25 minutes)

Orateur: HARRISS, Edmund

ID de Contribution: **12**

Type: **Non spécifié**

A dichotomy in the tail behaviour of quadratic Weyl sums

mercredi 25 mars 2026 10:30 (25 minutes)

Jointly with Tariq Osman, we completed the classification of the tail behaviour of the limiting distributions of all quadratic Weyl sums of the form $1/\sqrt{N} \sum_{n=1}^N e(((1/2)n^2+\beta n)x+\alpha n)$.

When \alpha and \beta are both rational, while trying to understand the contribution of certain orbits to the heavy tails, we discovered that some pairs actually lead to a compactly supported limiting distribution. I will especially emphasise the role of mathematical illustration in our understanding of the geometry of the relevant orbits, as well the importance of numerical simulations to validate our results and prompt new questions.

Orateurs: CELLAROSI, Francesco (Queen's University); CELLAROSI, Francesco (Queen's University)

ID de Contribution: **13**   Type: **Non spécifié**

A Few Attempts at Visualizing Shimura Varieties

mercredi 25 mars 2026 11:30 (25 minutes)

Shimura varieties are notoriously complex objects; the very definition of a Shimura variety is typically avoided in a research presentation, lest the entire talk is eaten up by the details. In this talk, I will share some of my attempts at visualizing Shimura varieties, ranging from the modular curve to higher dimensional Shimura varieties in characteristic p. Prior exposure to Shimura varieties is not required.

Orateur: GONZALES, Sean (UC Berkeley)

ID de Contribution: **14** Type: **Non spécifié**

TBA

jeudi 26 mars 2026 10:30 (25 minutes)

Orateur: LABBÉ, Sébastien

ID de Contribution: **15** Type: **Non spécifié**

TBA

jeudi 26 mars 2026 10:00 (25 minutes)

Orateur: CORLESS, Robert (Western University)

ID de Contribution: **16** Type: **Non spécifié**

TBA

jeudi 26 mars 2026 09:30 (25 minutes)

Orateur: M. ARNOUX, PIERRE (Université d'Aix-Marseille)

ID de Contribution: **17**   Type: **Non spécifié**

Classifying integer hypertilings

jeudi 26 mars 2026 11:30 (25 minutes)

In 2018 Demonet et al observed that there is essentially only one three-dimensional positive integer tiling with the property that each cross-section is an SL2-tiling (in which all squares have determinant 1). Inspired by Bhargava's work on binary quadratic forms, we describe a model for the more general class of three-dimensional integer tilings, which we call hypertilings, with the property that each cross-section is a two-dimensional integer tiling (in which all squares have the same determinant). This model comprises a Bhargava cube and a triple of paths in the weighted Farey graph. The hypertiling entries are encoded geometrically by lambda lengths between horocycles or arithmetically by data from the weighted Farey graph. This is joint work with Oleg Karpenkov, Matty van Son, and Andrei Zabolotskii.

Orateur: SHORT, Ian (The Open University)

ID de Contribution: **18** Type: **Non spécifié**

TBA

jeudi 26 mars 2026 14:30 (25 minutes)

Orateur: KOUTSOLIOTAS, Sally (Bucknell University)

ID de Contribution: **19**   Type: **Non spécifié**

TBA

vendredi 27 mars 2026 09:30 (25 minutes)

Orateur: FRECHETTE, Claire

ID de Contribution: **20**   Type: **Non spécifié**

Unintentional illustration

vendredi 27 mars 2026 10:30 (25 minutes)

I will report on two stories when illustration happened without my conscious participation. The first story is elementary and concerns tilings on the plane. The second one is about friezes on surfaces (a generalization of Conway-Coxeter's frieze patterns) and hyperbolic geometry. This second story is based on the joined work with Pavel Tumarkin (see arXiv:2410.13511).

Orateur: FELIKSON, Anna (Durham University)

ID de Contribution: **21** Type: **Non spécifié**

TBA

vendredi 27 mars 2026 10:00 (25 minutes)

Orateur: ESPIGULE, Bernat (Universitat de Girona)

ID de Contribution: **22** Type: **Non spécifié**

TBA

vendredi 27 mars 2026 11:30 (25 minutes)

Orateur: DORFSMAN-HOPKINS, Gabriel (St. Lawrence University)