

Rencontre ANR DAG Arts

mercredi 29 octobre 2025 - vendredi 31 octobre 2025

Angers - LAREMA

Programme Scientifique

La rencontre comportera un mini-cours de Federico Binda sur la log-géométrie et des exposés de

- Niels Feld
- Dragoș Frățilă
- Jiaqi Fu
- Lie Fu
- Alice Hedenlund
- Enrico Lampetti
- Elsa Maneval

The meeting will consists in a minicourse by Federico Binda on log-geometry as well as talks by

- Niels Feld
- Dragoș Frățilă
- Jiaqi Fu
- Lie Fu
- Alice Hedenlund
- Enrico Lampetti
- Elsa Maneval

Titles and abstracts:

Federico Binda

Title: Introduction to logarithmic DAG

Abstract: In this mini-course I will try to present some of the key ideas in logarithmic geometry, recast in the derived context. After discussing the most common examples of logarithmic structures in (derived) algebraic geometry and arithmetic, I will explain how deformation theory for log ring (spectra) works. After that, I will introduce a derived version of Olsson's stack of logarithmic structures, and discuss some of its properties, and then I will explain the approach to log geometry due to Talpo and Vistoli using the ∞ -root stack. If time permits, I will discuss a descent method, originally introduced by Kato and Niziol, to reduce computations of (p-adic) log invariants to the non-log counterpart.

Niels Feld

Title: Quadratic ramification formula with defect

Abstract: Milnor-Witt K-theory provides a quadratic refinement of classical Milnor K-theory, capturing both the arithmetic and quadratic structure underlying motivic homotopy theory. After a brief overview of its basic properties and relevance, I will present a ramification formula in this setting, where residues are valued in quadratic forms rather than integers. The formula exhibits a defect term reflecting subtle quadratic contributions. I will also describe applications to the construction of Gysin morphisms (pullbacks) for flat morphisms. This is joint work with Frédéric Déglise and Fangzhou Jin.

Dragoș Frățilă

Title: Ramified periods and field of definition

Abstract: For L/K an extension of number fields ramified over p we give a new obstruction to the descent to K of smooth projective varieties defined over L . The obstruction is a matrix of p -adic numbers that we call "ramified periods" arising from the comparison isomorphism between de Rham cohomology and crystalline cohomology. As an application, we give simple examples of hyperelliptic curves over $\mathbb{Q}[\sqrt{p}]$ that are isomorphic to their Galois conjugates but such that their Jacobians do not descend to \mathbb{Q} even up to isogeny. (Joint work with Giuseppe Ancona and Alberto Vezzani)

Jiaqi Fu

Title: Can we count sheaves when $p = 0$?

Abstract: Donaldson--Thomas theory provides a virtual counting of coherent sheaves over complex Calabi--Yau 3-folds. From the deformation-theoretic perspective, DT invariants are shadow of derived critical locus structures. One can be easily tempted to extend this picture to positive characteristic. However, the Cartier isomorphism breaks our dream, since there are too many cycles in de Rham cohomology in the mod p case. I will talk about the notion of infinitesimal shifted symplectic forms, suggested by Toën and Robalo, and a work in preparation on it. We hope this work can contribute to pursuing a DT theory in positive characteristics.

Lie Fu

Title: Hochschild-Kostant-Rosenberg theorems for orbifolds

Abstract: The Hochschild homology and cohomology are basic invariants in non-commutative geometry. The Hochschild-Kostant-Rosenberg (HKR) theorem allows us to compute the Hochschild (co)homology of a variety in terms of some coherent cohomology. Arinkin, Căldăraru and Hablicsek proved an HKR theorem for global quotient smooth Deligne-Mumford stacks. I will report a recent joint work with Porta, Sibilla, Scherotzke which establishes such an HKR theorem for all derived Deligne-Mumford stacks, allowing computations of the Hochschild (co)homology in many new cases.

Alice Hedenlund

Title: Twisted spectra and Floer homotopy theory

Abstract: In the 90s, Cohen- Jones, and Segal asked the question of whether various types of Floer homology theories could be upgraded to the homotopy level by constructing stable homotopy types encoding Floer data. They also sketched how one could construct these Floer homotopy types as (pro)spectra in the situation that the flow category involved is framed and when there is no bubbling. It has since been realized that the correct home for Floer homotopy types, in the non-frameable

situation, is twisted spectra. This is a generalization of parametrized spectra that one can roughly think of as sections of bundles of categories whose fibre is the category of spectra. The aim of this talk is to give an introduction to twisted spectra and sketch how they show up naturally in Floer homotopy theory. This involves several separate, but related projects: joint work with T. Moulinos on the six-functor formalism of twisted spectra, joint work in progress with S. Behrens and T. Kragh on constructing twisted spectra from Seiberg-Witten Floer theory, and joint work in progress with T. Poppe on the relationship between structured flow categories and twisted spectra.

Enrico Lampetti

Title: Good moduli for moduli of objects

Abstract: In this talk we will discuss the existence of a good moduli space for moduli of objects of a category of finite type, in the sense of Töen-Vaquié.

As an application we will construct the perverse character variety, that is, a good moduli space for the moduli of perverse sheaves.

Elsa Maneval

Title: Mirror symmetry for Higgs bundles

Abstract: I will first introduce the moduli spaces of Higgs bundles that appear in the Hausel-Thaddeus topological mirror symmetry conjecture, present its different proofs and generalisations. In particular I will explain the p-adic integration approach of Groechenig, Wyss and Ziegler. Finally, I will present my result, which is a generalisation beyond the original coprime case of the key intermediate step of this approach, which we call a non-archimedean topological mirror symmetry.