

# RICCARDO PENGO

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## PERSONAL INFORMATION

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**Personal details:** Born in Milan (Italy) on the 21<sup>st</sup> of December, 1993. Unmarried, no children.

**Languages:** Italian (mother tongue), English, French (current), Spanish (intermediate), German (basic)

**Software:** PARI/GP, SageMath (intermediate), Macaulay2, MAGMA (basic)

## EDUCATION

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<b>BSc. in Mathematics</b> University of Milan (Italy)	2012-2015 <a href="#">Website</a>
<b>MSc. in Mathematics</b> ALGANT Master, University of Milan (Italy) & Leiden University (The Netherlands)	2015-2017 <a href="#">Website</a>
<b>PhD in Mathematics</b> University of Copenhagen (Denmark), advised by <a href="#">Ian Kiming</a> and <a href="#">Fabien Pazuki</a> .	2017-2020 <a href="#">Website</a>

## WORKING EXPERIENCE

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<b>MILYON Postdoc</b> École normale supérieure de Lyon (France), mentored by <a href="#">François Brunault</a> . Member of the ANR project “ <a href="#">Motivic homotopy, quadratic invariants and diagonal classes</a> ”	2020-2022 <a href="#">Website</a>
<b>Postdoctoral fellow</b> Max Planck Institute for Mathematics (Germany), mentored by <a href="#">Pieter Moree</a> .	2022-2023 <a href="#">Website</a>
<b>Postdoc</b> Leibnitz University Hannover (Germany), mentored by <a href="#">Ziyang Gao</a> . Member of the ERC project “ <a href="#">Unlikely Intersection and Uniform Bounds for Points</a> ”	2023-2024 <a href="#">Website</a>
<b>Tenure track researcher</b> University of Messina (Italy)	2024-2030 <a href="#">Website</a>

## RESEARCH INTERESTS

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### General introduction

I work in arithmetic geometry. I am particularly interested in the arithmetic of  $L$ -functions, and in the connections between their special values and periods of various sorts, with an emphasis on Mahler’s measure. From the study of  $L$ -functions, I got interested in Galois representations and their images, especially in the context of abelian varieties with complex multiplication. On the other hand, to understand better the notion of height, I got interested in Arakelov geometry, especially in the context of toric varieties and Grassmannians. Starting from this geometric perspective, I got interested in the Diophantine geometry of abelian varieties, and in questions revolving around unlikely intersections.

### Research areas (according to the Mathematics Subject Classification)

[11F67](#), [11G15](#), [11G40](#), [11G50](#), [11G55](#), [11R06](#), [11R42](#), [11S40](#), [14F42](#), [14G10](#), [14G40](#), [14K22](#), [14M25](#), [19F27](#)

### Research topics

Mahler measures and  $L$ -values (Deninger’s program); Entanglement of Galois representations (Mazur’s program B); Topology of Mahler measures (Boyd’s conjecture); Arakelov geometry of toric varieties and Grassmannians (Gillet and Soulé’s arithmetic standard conjectures); Iwasawa theory of graphs (Morishita’s program); Unlikely intersections in abelian varieties (Bombieri, Masser and Zannier’s torsion anomalous conjecture).

## RESEARCH WORK

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- Mahler's measure and elliptic curves with potential complex multiplication** 2020  
Preprint under revision, arXiv:2005.04159 PDF
- Entanglement in the family of division fields of elliptic curves with complex multiplication** 2020  
joint with [Francesco Campagna](#), arXiv:2006.00883. PDF  
Pacific Journal of Mathematics, Vol. 317, No. 1, pp. 21–66, 2022. doi: [10.2140/pjm.2022.317.21](#).
- On the Northcott property for special values of  $L$ -functions** 2020  
joint with [Fabien Pazuki](#), arXiv:2012.00542. PDF  
Revista Matemática Iberoamericana, vol. 40, no. 1, pp. 1–42, 2024. doi:[10.4171/rmi/1454](#).
- How big is the image of the Galois representation attached to a CM elliptic curve?** 2022  
joint with [Francesco Campagna](#), arXiv:2201.04046. PDF  
Contemporary Mathematics, Vol. 779. pp. 41–56, 2022. doi:[10.1090/conm/779/15670](#).
- Limits of Mahler measures in multiple variables** 2022  
joint with [François Brunault](#), [Antonin Guilloux](#) and [Mahya Mehrabdollahei](#), arXiv:2203.12259. PDF  
Annales de l'Institut Fourier, vol. 74, no. 4, pp. 1407–1450, 2024. doi:[10.5802/aif.3611](#).
- Spanning trees in  $\mathbb{Z}$ -covers of a finite graph and Mahler measures** 2023  
joint with [Daniel Vallières](#), arXiv:2310.15619 PDF  
Journal of the Australian Mathematical Society, vol. 118, no. 1, pp. 108–144, 2025. doi: [10.1017/S1446788724000144](#).
- Irreducibility criteria for the preimages of a transverse variety under endomorphisms of products of elliptic curves** 2023  
joint with [Evelina Viada](#), arXiv:2310.20665 PDF  
Accepted for publication in the Kyoto Journal of Mathematics.
- On Diophantine properties for values of Dedekind zeta functions** 2025  
joint with [Jerson Caro](#) and [Fabien Pazuki](#), arXiv:2502.20910 PDF  
Submitted for publication.

## THESES

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- An adelic description of modular curves** 2017  
MSc. thesis, supervised by [Peter Bruin](#). handle:[1887/3597049](#) PDF
- Mahler measures, special values of  $L$ -functions and complex multiplication** 2020  
PhD thesis, supervised by [Ian Kiming](#) and [Fabien Pazuki](#). tel:[03037598](#) PDF

## TEACHING: CURRICULAR COURSES

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- Mathematics for statisticians** 2016  
MSc. in Statistical Science for the Life and Behavioural Sciences, Leiden University (The Netherlands)  
Teaching assistant of [Sanne Willems](#).
- Topics in Algebra and Number theory** 2018  
MSc. in Mathematics, University of Copenhagen (Denmark) Course notes  
Main instructor, together with [Fabien Pazuki](#) and [Asbjørn Nordentoft](#).
- Topics in Algebra and Number theory** 2018/19  
MSc. in Mathematics, University of Copenhagen (Denmark) Course notes  
Teaching assistant of [Linda Frey](#) and [Fabien Pazuki](#).
- Algebraic number theory** 2019  
MSc. in Mathematics, University of Copenhagen (Denmark)  
Teaching assistant of [Ian Kiming](#).
- English reading seminar** 2021  
Master 2 in Number theory, École normale supérieure de Lyon (France) List of papers  
Group leader.

<b>Refresher course</b> Master 2 in $p$ -adic geometry and representations, École normale supérieure de Lyon (France) Main instructor.	2022 <a href="#">Slides</a>
<b>Mathematics with elements of statistics</b> BSc. in Biology, University of Messina (Italy) Main instructor.	2024
<b>Algebraic topology</b> MSc. in Mathematics, University of Messina (Italy) Main instructor.	2025 <a href="#">Course notes</a>

## TEACHING: ADVANCED MINI-COURSES

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<b>Big problems for small heights: an introduction to Mahler's measure</b> MSc. and PhD in Mathematics, Stellenbosch University (South Africa). Six hours.	2022 <a href="#">Program</a>
<b>Galois representations and their entanglements</b> MSc. and PhD in Mathematics, Stellenbosch University (South Africa). Eight hours.	2023 <a href="#">Course notes</a>
<b>Mahler measures: from small heights to big conjectures</b> Spring School "Zeta functions, dynamics and analytic number theory". University of Göttingen (Germany). Eight hours.	2024 <a href="#">Course notes</a>
<b>Mahler measures: from small heights to big conjectures</b> MSc. and PhD in Mathematics, Pontificia Universidad Católica (Chile). Six hours.	2024

## MENTORSHIP AND SUPERVISION

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<b>Mara Ragusa</b> MSc. in Mathematics, University of Messina (Italy) MSc. thesis topic: <i>Knots and primes, between algebraic topology and number theory</i> .	2026
<b>Francesco Irrera</b> MSc. in Mathematics, University of Messina (Italy) MSc. thesis topic: <i>The Brill-Noether algorithm and Goppa codes</i>	2025
<b>Boldizsar Mann, Samuel Meyer and Yannick Sommer</b> Internship, Max Planck Institute for Mathematics (Germany) Topic: <i>Pierce-Lehmer sequences, and a generalization of the Lenstra-Pomerance-Wagstaff conjecture</i>	2023

## ORGANIZATIONAL ACTIVITIES

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<b>Mahler measures and special values of L-functions</b> University of Copenhagen (Denmark), with <a href="#">Fabien Pazuki</a> .	2018 <a href="#">Website</a>
<b>RSVP: Rendez-vous on special values and periods</b> École normale supérieure de Lyon (France), with <a href="#">Giada Grossi</a> .	2021 <a href="#">Website</a>
<b>Séminaire d'arithmétique à Lyon</b> École normale supérieure de Lyon (France), with <a href="#">Gabriel Dospinescu</a> .	2021-2022 <a href="#">Website</a>
<b>ALGANT Alumni Network Welcome Day</b> Online, with <a href="#">Riccardo Gilblas</a> and <a href="#">Stevell Müller</a> .	2022, 2023 <a href="#">Website</a>
<b>Kimingala: celebrating Ian Kiming's mathematics</b> University of Copenhagen (Denmark), with <a href="#">Brian William Advocaat</a> and <a href="#">Fabien Pazuki</a> .	2023 <a href="#">Website</a>
<b>Spring school in Arithmetic Statistics</b> CIRM (France), with <a href="#">Samuele Anni</a> , <a href="#">Nirvana Coppola</a> , <a href="#">Eugenia Rosu</a> and <a href="#">Peter Stevenhagen</a> .	2023 <a href="#">Website</a>
<b>Oberseminar in Diophantine Geometry</b> University of Göttingen (Germany), with <a href="#">Evelina Viada</a> .	2023-2025 <a href="#">Schedule</a>

## COMMITTEES

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<b>Joint faculty and students committee</b> MIFT, University of Messina (Italy)	<i>2024-present</i> <a href="#">Website</a>
<b>Orientation and tutoring committee</b> MIFT, University of Messina (Italy)	<i>2024-present</i> <a href="#">Website</a>
<b>Department Board</b> MIFT, University of Messina (Italy)	<i>2025-present</i> <a href="#">Website</a>

## INVITED TALKS

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<b>An adelic description of modular curves</b> Number Theory Seminar, University of Copenhagen (Denmark)	<i>November 10th, 2017</i>
<b>Mahler's measure, reciprocity and special values of <math>L</math>-functions</b> Une petite journée GANDA, Institut de Mathématiques de Bordeaux (France)	<i>April 3rd, 2019</i>
<b>Arithmetic geometry and toric varieties: the example of Mahler's measure</b> Discrete Mathematics seminar, TU Eindhoven (The Netherlands)	<i>August 15th, 2019</i>
<b>Mahler's measure and elliptic curves with complex multiplication</b> Intercity Number Theory Seminar, RU Nijmegen (The Netherlands)	<i>September 6th, 2019</i>
<b>Mahler's measure and elliptic curves with complex multiplication</b> Séminaire d'arithmétique à Lyon, ENS Lyon (France)	<i>December 12th, 2019</i>
<b>Mahler measure: from small numbers to big conjectures</b> Number Theory Seminar, University of Copenhagen (Denmark).	<i>May 8th, 2020</i> <a href="#">Notes</a>
<b>From <math>L</math>-functions to Mahler measures and back</b> Algebra, geometry and number theory seminar, Leiden University (The Netherlands)	<i>June 8th, 2020</i> <a href="#">Slides</a>
<b>Mahler measures and special values of <math>L</math>-functions: complex multiplication and exactness</b> Séminaire Arithmétique et géométrie algébrique, IRMA Strasbourg (France)	<i>December 3rd, 2020</i> <a href="#">Slides</a> , <a href="#">Video</a>
<b>Entanglement in the family of division fields of a CM elliptic curve</b> Number Theory Seminar, University of Luxembourg	<i>April 13th, 2021</i> <a href="#">Slides</a>
<b>Entanglement in the family of division fields of a CM elliptic curve</b> Webinar in Number Theory, French-Korean IRL in Mathematics	<i>May 17th, 2021</i> <a href="#">Slides</a>
<b>Entanglement in the family of division fields of a CM elliptic curve</b> Formes modulaires et théorie des représentations, Université de Sfax (Tunisia)	<i>June 24th, 2021</i> <a href="#">Slides</a>
<b>Mahler measure of successively exact polynomials</b> Number theory day (in honor of Vincent Pilloni), ENS Lyon (France)	<i>July 1st, 2021</i> <a href="#">Notes</a>
<b>Entanglement in the family of division fields of a CM elliptic curve</b> Rencontre théorie des nombres, Université Clermont-Auvergne (France)	<i>July 8th, 2021</i>
<b>Mahler measures, special values and exactness: a periodic journey</b> Geometry, Arithmetic and Differential Equations of Periods, IMPA (Brasil)	<i>August 27th, 2021</i> <a href="#">Slides</a> , <a href="#">Video</a>
<b>Open varieties and quadratic forms for special values of <math>L</math>-functions</b> Singularités, perversité et calculs quadratiques, IMB Dijon (France)	<i>November 9th, 2021</i> <a href="#">Notes</a>
<b>Limits of Mahler measures, and (successively) exact polynomials</b> Number theory seminar, University of Udine (Italy)	<i>January 18th, 2022</i> <a href="#">Notes</a>
<b>Limits of Mahler measures, and (successively) exact polynomials</b> Linfoot Number Theory Seminar, University of Bristol (United Kingdom)	<i>February 16th, 2022</i> <a href="#">Slides</a>
<b>Limits of Mahler measures, and (successively) exact polynomials</b> Number theory seminar, University of Padova (Italy)	<i>March 17th, 2022</i> <a href="#">Slides</a>

<b>Limits of Mahler measures and exactness of polynomials</b> Special Values of $L$ -functions, Periods, and Fundamental Groups, Oxford (United Kingdom)	<i>June 27th, 2022</i> <a href="#">Slides</a>
<b>Limits of Mahler measures in multiple variables</b> 28th Nordic Congress of Mathematicians, Aalto University (Finland)	<i>August 19th, 2022</i> <a href="#">Slides</a>
<b>Northcott properties for special values of <math>L</math>-functions</b> Séminaire de théorie de nombres, Institut de Mathématiques de Toulouse (France)	<i>October 20th, 2022</i> <a href="#">Notes</a>
<b>On the Northcott property for special values of <math>L</math>-functions</b> Humboldt Arithmetic Geometry Seminar, HU Berlin (Germany)	<i>November 8th, 2022</i> <a href="#">Notes</a>
<b>On the Northcott property for special values of <math>L</math>-functions</b> Luxembourg Number Theory Seminar, Université du Luxembourg (Luxembourg)	<i>November 24th, 2022</i> <a href="#">Slides</a>
<b>Limits of Mahler measures and successively exact polynomials</b> Number Theory Lunch seminar, MPI Bonn (Germany)	<i>December 14th, 2022</i> <a href="#">Slides</a>
<b>Entanglement and indices for CM elliptic curves</b> Oberseminar in Diophantine Geometry, Georg-August-Universität Göttingen (Germany)	<i>January 24th, 2023</i> <a href="#">Notes</a>
<b>On the Northcott property for special values of <math>L</math>-functions</b> Séminaire de Théorie de Nombres, LMBP Clermont-Ferrand (France)	<i>February 7th, 2023</i> <a href="#">Notes</a>
<b>Limits of Mahler measures and successively exact polynomials</b> Séminaire de Théorie de Nombres, IF Grenoble (France)	<i>February 9th, 2023</i> <a href="#">Notes</a>
<b>Entanglement and indices for CM elliptic curves</b> Density problems in arithmetics, CIRM (France)	<i>April 3rd, 2023</i> <a href="#">Notes</a>
<b>Limits of Mahler measures and successively exact polynomials</b> Number Theory Seminar, University of Basel (Switzerland)	<i>April 13th, 2023</i> <a href="#">Notes</a>
<b>Uniform homotheties and rational points</b> Oberseminar on Diophantine Geometry, Georg-August-Universität Göttingen (Germany)	<i>June 13th, 2023</i> <a href="#">Notes</a>
<b>Standard conjectures in Arakelov geometry: from the projective space to Grassmannians</b> Arakelov geometry on Shimura varieties, University of Copenhagen (Denmark)	<i>August 29th, 2023</i> <a href="#">Notes</a>
<b>Iwasawa theory for graphs and <math>p</math>-adic Mahler measures</b> Séminaire de théorie des nombres de Bordeaux, IMB (France)	<i>October 13th, 2023</i> <a href="#">Slides</a>
<b>Limits of Mahler measures and successively exact polynomials</b> Research Seminar Number Theory and Arithmetic Geometry, Leibniz Universität Hannover (Germany)	<i>October 20th, 2023</i> <a href="#">Notes</a>
<b>Mahler measures of successively exact polynomials</b> $MM(P)$ : Mahler Measures of Polynomials, Radboud Universiteit Nijmegen (The Netherlands)	<i>October 24th, 2023</i> <a href="#">Slides</a>
<b>Standard conjectures in Arakelov geometry: from the projective space to Grassmannians</b> The Bielefeld Algebraic and Arithmetic Geometry Seminar, Bielefeld University (Germany)	<i>November 8th, 2023</i> <a href="#">Notes</a>
<b>Iwasawa theory: climbing up towers, from numbers to graphs</b> Colloquium, Stellenbosch University (South Africa)	<i>November 22nd, 2023</i> <a href="#">Slides</a>
<b>Limits of Mahler measures and successively exact polynomials</b> Number Theory Seminar, University of Genova (Italy)	<i>December 12th, 2023</i> <a href="#">Slides</a>
<b>Limits of Mahler measures and successively exact polynomials</b> Séminaire d'algèbre et géométrie, Laboratoire de Mathématiques de Versailles (France)	<i>January 9th, 2024</i> <a href="#">Slides</a>
<b>From Mahler measures to <math>L</math>-values, and back</b> Séminaire de théorie des nombres, IF Grenoble (France)	<i>February 8th, 2024</i> <a href="#">Notes</a>
<b>Standard conjectures in Arakelov geometry: from the projective space to Grassmannians</b> Number theory seminar, University of Milan (Italy)	<i>February 12th, 2024</i> <a href="#">Notes</a>

<b>Limits of Mahler measures and successively exact polynomials</b> SANTAS Seminar, Santiago de Chile (Chile)	<i>April 8th, 2024</i> <a href="#">Slides</a>
<b>Diophantine properties for special values of <math>L</math>-functions</b> 22nd Göttingen-Hannover Number Theory Workshop, Universität Göttingen (Germany)	<i>July 2nd, 2024</i> <a href="#">Slides</a>
<b>Galois representations and elliptic curves with complex multiplication</b> University of Messina (Italy)	<i>October 24th, 2024</i> <a href="#">Slides</a>
<b>Mahler measures are everywhere</b> SFB Lecture, University of Regensburg (Germany)	<i>January 21st, 2025</i> <a href="#">Slides</a>
<b>Small heights and where to find them</b> New researchers in mathematics, University of Messina (Italy)	<i>March 6th, 2025</i> <a href="#">Slides</a>
<b>Diophantine properties for special values of <math>L</math>-functions</b> Arithmetic Geometry, Cabourg (France)	<i>May 12th, 2025</i> <a href="#">Slides</a>

## CONTRIBUTED TALKS

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<b>Mahler's measure and special values of <math>L</math>-functions</b> $\mathbb{N}^3$ -Cube Days X, Åbo Akademi (Finland)	<i>May 20th, 2019</i>
<b>Mahler measure of successively exact polynomials</b> Japan-Europe Number Theory Exchange Seminar, Online	<i>June 8th, 2021</i> <a href="#">Slides</a>
<b>Entanglement in the family of division fields of a CM elliptic curve</b> Young Researchers in Algebraic Number Theory, University of Bristol (United Kingdom)	<i>August 17th, 2021</i> <a href="#">Slides</a>
<b>Mahler measure of successively exact polynomials</b> Intercity Seminar on Arakelov Geometry, Universität Regensburg (Germany)	<i>September 10th, 2021</i>
<b>Constructing CM elliptic curves with minimal Galois image</b> 16th Atelier PARI/GP, LMB Besançon (France)	<i>January 12th, 2022</i> <a href="#">Slides</a> , <a href="#">Video</a>
<b>Entanglement and indices for CM elliptic curves</b> Séminaire d'arithmétique à Lyon, ENS Lyon (France)	<i>February 10th, 2022</i> <a href="#">Notes</a>
<b>Mahler measures and exactness: a periodic stroll</b> Motives and arithmetic groups, IRMA Strasbourg (France)	<i>June 16th, 2022</i> <a href="#">Slides</a>
<b>Standard conjectures for arithmetic Grassmannians, and a new description of their Arakelov Chow ring</b> Intercity Seminar on Arakelov Geometry, Madrid (Spain)	<i>September 12th, 2022</i> <a href="#">Notes</a>
<b>Standard conjectures in Arakelov geometry: the example of Grassmannians</b> Séminaire d'arithmétique à Lyon, ENS Lyon (France)	<i>October 13th, 2022</i> <a href="#">Notes</a>
<b>Mahler measures of exact polynomials and Eisenstein series</b> Motives and automorphic forms, MPI Bonn (Germany)	<i>March 8th, 2023</i> <a href="#">Slides</a>
<b><math>p</math>-adic Mahler measures and Iwasawa invariants of towers of graphs</b> 7 <sup>th</sup> mini symposium of the Roman Number Theory Association (Italy)	<i>May 4th, 2023</i> <a href="#">Slides</a>
<b>Mahler measures of successively exact polynomials</b> XXXIIèmes Journées arithmétiques, Nancy (France)	<i>July 6th, 2023</i> <a href="#">Slides</a>
<b>Standard conjectures in Arakelov geometry: from the projective space to Grassmannians</b> Global Invariants of Arithmetic Varieties, CIRM (France)	<i>October 12th, 2023</i> <a href="#">Slides</a>
<b>Standard Conjectures in Arakelov Geometry and Combinatorial Hodge Theory</b> Students' and young researchers' conference in non-Archimedean, tropical and Arakelov geometry Universität Regensburg (Germany)	<i>July 23rd, 2024</i> <a href="#">Slides</a>

## SURVEY TALKS

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<b>A (not quite) perfect(oid) talk</b> A Seminar on $p$ -adic whatever, University of Copenhagen (Denmark)	<i>October 12th, 2018</i> <a href="#">Notes</a>
<b>The cotangent complex</b> Topics in topology, University of Copenhagen (Denmark)	<i>November 28th, 2018</i> <a href="#">Notes</a>
<b>On Lubin-Tate theory</b> Topics in topology, University of Copenhagen (Denmark)	<i>December 12th, 2018</i> <a href="#">Notes</a>
<b>Chern classes and two counterexamples</b> Study group on prismaticization, University of Copenhagen (Denmark)	<i>February 7th, 2020</i> <a href="#">Notes</a>
<b>Hodge theory for non-compact Riemannian manifolds I</b> Study group on the stable real homology of arithmetic groups, ENS Lyon (France)	<i>November 2nd, 2020</i> <a href="#">Notes</a>
<b>Hodge theory for non-compact Riemannian manifolds II</b> Study group on the stable real homology of arithmetic groups, ENS Lyon (France)	<i>November 9th, 2020</i> <a href="#">Notes</a>
<b>The theorem of Matsushima</b> Study group on the stable real homology of arithmetic groups, ENS Lyon (France)	<i>November 30th, 2020</i> <a href="#">Notes</a>
<b>Locally analytic vectors</b> Study group on the locally analytic vectors of the completed cohomology of the modular curve, ENS Lyon (France)	<i>March 9th, 2021</i> <a href="#">Notes</a>
<b>Derived functors of locally analytic vectors</b> Study group on the locally analytic vectors of the completed cohomology of the modular curve, ENS Lyon (France)	<i>March 16th, 2021</i> <a href="#">Notes</a>
<b>Mixed coefficients and essentially quasi-projective schemes</b> Study group on adelic line bundles, University of Basel (Switzerland)	<i>October 29th, 2021</i> <a href="#">Notes</a>
<b>Rational points and period maps I</b> Study group on Diophantine problems and $p$ -adic period mappings, ENS Lyon (France)	<i>December 2nd, 2021</i>
<b>Rational points and period maps II</b> Study group on Diophantine problems and $p$ -adic period mappings, ENS Lyon (France)	<i>December 9th, 2021</i>
<b>Rational points and period maps III</b> Study group on Diophantine problems and $p$ -adic period mappings, ENS Lyon (France)	<i>December 16th, 2021</i>
<b>Intersection theory and Deligne pairings</b> Study group on adelic line bundles, University of Basel (Switzerland)	<i>January 7th, 2022</i> <a href="#">Notes</a>
<b>Points and limit compatibilities in the real étale site I</b> Study group on $\mathbb{A}^1$ -homotopy theory and real geometry, ENS Lyon (France)	<i>February 4th, 2022</i> <a href="#">Notes</a>
<b>Points and limit compatibilities in the real étale site II</b> Study group on $\mathbb{A}^1$ -homotopy theory and real geometry, ENS Lyon (France)	<i>February 11th, 2022</i>
<b>Exact polynomials and admissible variations of mixed Hodge structures</b> Study group on Hodge theory, ENS Lyon (France)	<i>March 23rd, 2022</i> <a href="#">Notes</a>
<b>Absolute Hodge cohomology and Deligne cohomology</b> Study group on Hodge theory, ENS Lyon (France)	<i>April 11th, 2022</i> <a href="#">Notes</a>
<b>Limits of Abel-Jacobi maps</b> Study group on Hodge theory, ENS Lyon (France)	<i>May 11th, 2022</i> <a href="#">Notes</a>
<b>Explicit regulators on normal crossing divisors</b> Study group on Hodge theory, ENS Lyon (France)	<i>May 18th, 2022</i> <a href="#">Notes</a>
<b>The Green-Griffiths approach to the Hodge conjecture</b> Study group on Hodge theory, ENS Lyon (France)	<i>October 12th, 2022</i> <a href="#">Notes</a>
<b>Ayoub's counterexamples to Morel's connectivity conjectures</b> Study group on $\mathbb{A}^1$ -connected components, ANR HQDIAG (France)	<i>May 25th, 2023</i> <a href="#">Notes</a>

<b>Naive <math>\mathbb{A}^1</math>-homotopies of ruled surfaces</b> Study group on $\mathbb{A}^1$ -connected components, ANR HQDIAG (France)	<i>July 6th, 2023</i> <a href="#">Notes</a>
<b>Motivic Mahler measures, single valued periods and successively exact polynomials</b> Study group on periods, Max Planck Institute for Mathematics (Germany)	<i>July 27th, 2023</i> <a href="#">Notes</a>
<b>Real Deligne-Beilinson cohomology and arithmetic Chow groups</b> Seminar on the arithmetic deformation to the normal cone, Leiden University (The Netherlands)	<i>November 25th, 2024</i> <a href="#">Notes</a>
<b>Deformation of Green currents</b> Seminar on the arithmetic deformation to the normal cone, Leiden University (The Netherlands)	<i>December 2nd, 2024</i> <a href="#">Notes</a>
<b>Arithmetic specialization and Gysin homomorphisms</b> Seminar on the arithmetic deformation to the normal cone, Leiden University (The Netherlands)	<i>December 9th, 2024</i> <a href="#">Notes</a>
<b>A tale of two theses</b> Writing seminar on the arithmetic deformation to the normal cone, Leiden University (The Netherlands)	<i>February 27th, 2025</i> <a href="#">Notes</a>
<b>Two deformations, trying to meet</b> Writing seminar on the arithmetic deformation to the normal cone, Leiden University (The Netherlands)	<i>May 1st, 2025</i> <a href="#">Notes</a>

## OUTREACH

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<b>What is... an L-function?</b> "What is?" Seminar, University of Copenhagen (Denmark)	<i>September 27th, 2019</i>
<b>Small heights and periodic journeys: my first steps in mathematics</b> Algant Alumni Network Seminar (online)	<i>June 1st, 2022</i> <a href="#">Slides</a>
<b>Presentation of the MSc. courses in Geometry</b> Open day, MSc. in Mathematics, University of Messina (Italy)	<i>April 14th, 2025</i> <a href="#">Slides</a>
<b>An introduction to cryptography</b> IIS Verona Trento, Messina (Italy)	<i>April 28th, 2025</i> <a href="#">Slides</a>