

# Max (Maxim) Mornev

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Curriculum vitae, actual as of April 15, 2025.

## Contact details

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(to appear soon)

## Research area

Number theory

## Preprints and papers

Local Kummer theory for Drinfeld modules

(with Richard Pink)

arXiv:2402.08254

Local monodromy of Drinfeld modules

*Compositio Mathematica* **160** (2024), no. 11, 2656–2683

Tate modules of isocrystals and good reduction of Drinfeld modules

*Algebra & Number Theory* **15** (2021), no. 4, 909–970

Shtuka cohomology and special values of Goss  $L$ -functions

arXiv:1808.00839

(This is my PhD thesis with minor updates.)

Tannakian properties of unit Frobenius-modules

*J. Number Theory* **166** (2016), 19–30

## Employment

2025 ICMAT, post-doc in the group of Daniel Macias.

2021 EPFL, SNSF Ambizione post-doc in the group of Maryna Viazovska.

2018 ETH Zürich, post-doc in the group of Richard Pink.

**Education**

- 2018 PhD, Universiteit Leiden, Università degli Studi di Milano  
ALGANT program
- Advisors: Lenny Taelman (Amsterdam), Fabrizio Andreatta (Milano) and Bas Edixhoven (Leiden).  
Thesis: Shtuka cohomology and special values of Goss  $L$ -functions  
<https://hdl.handle.net/1887/61145>
- 2013 MSc, Universiteit Leiden (1st year), Université Paris-Sud (2nd year)  
ALGANT program
- Advisor: François Charles  
Thesis: Zero-cycles on surfaces  
<http://algant.eu/documents/theses/mornev.pdf>
- 2011 MSc degree in "Mathematics. Computer Science", Ural Federal University

**Grants**

SNSF Ambizione grant, 2021 – 2025

ETH Zürich Postdoctoral Fellowship, 2019 – 2021

Leiden/Huygens Fellowship, 2013 – 2017  
There are three such fellowships per year for the entire faculty of science.

ALGANT Doctoral Scholarship, 2013 – 2017

ALGANT Master Scholarship, 2011 – 2013

**Lecture series**

- 2020 Arithmetic of function fields  
ICMAT, Universidad Autónoma de Madrid
- 2019 Shtuka cohomology and special values of Goss  $L$ -functions  
Université Claude Bernard Lyon 1
- 2018 Arithmetic of shtukas  
Arithmétique et géométrie des chtoucas  
Université de Caen

**Teaching**

Riemann surfaces (MATH-410)

EPFL, Fall 2023 and Fall 2024, master course, lecturer.

Elliptic curves

ETH Zürich, Spring 2020, reading course for master students, lecturer.

$p$ -adic Galois representations

ETH Zürich, Fall 2019, graduate course, lecturer.

Étale cohomology seminar

ETH Zürich, 2018 – 2019, co-organized with Richard Pink.

<https://max-mornev.github.io/etale.html>

Galois Representations and Automorphic Forms

Universiteit van Amsterdam, Fall 2016, national graduate level course, teaching assistant.

**Talks**

2024 Local Kummer theory for Drinfeld modules  
ICMAT, Universidad Autónoma de Madrid

Local Kummer theory for Drinfeld modules  
2nd AMS-UMI International Joint Meeting

Local Kummer theory for Drinfeld modules  
Workshop “Alpbach 2024”

2022 Local monodromy of  $A$ -motives  
Second joint congress of AMS–EMS–SMF  
Université Grenoble Alpes

2021 An  $\infty$ -adic criterion of good reduction for Drinfeld modules  
Groups, arithmetic and algebraic geometry seminar  
EPFL

What is a shtuka?  
Groups, arithmetic and algebraic geometry seminar  
EPFL

What is a shtuka?  
Zürich Graduate Colloquium  
ETH Zürich

Local monodromy of Drinfeld modules  
Universität Münster

- 2020 Local monodromy of Drinfeld modules  
Number Theory Seminar  
University of California San Diego
- Local monodromy of Drinfeld modules  
AMS Fall Eastern Virtual Sectional Meeting
- Local monodromy of Drinfeld modules  
Oberseminar Algebraische Geometrie  
Universität Zürich
- Tate conjectures in function field arithmetic  
Upstate New York Online Number Theory Colloquium
- 2019 An  $\infty$ -adic criterion of good reduction for Drinfeld modules  
Arithmetic of Function Fields and Diophantine Geometry  
National Center for Theoretical Sciences, Taipei
- Shtuka cohomology and special values of Goss  $L$ -functions  
AMS Spring Central and Western Joint Sectional Meeting  
University of Hawai'i at Mānoa
- An  $\infty$ -adic criterion of good reduction for Drinfeld modules  
Hawai'i Number Theory Conference  
University of Hawai'i at Mānoa
- 2018 Shtuka cohomology and special values of Goss  $L$ -functions  
Seminar der Forschergruppe 'Symmetrie, Geometrie und Arithmetik'  
Universität Heidelberg
- Regulator theory for elliptic shtukas  
Arithmetic and algebraic geometry seminar  
Universiteit van Amsterdam
- Formulas of Tamagawa type in positive characteristic  
This Week's Discoveries (Faculty of Science colloquium)  
Universiteit Leiden
- 2017 Shtuka cohomology and special values of Goss  $L$ -functions  
Conference "Arithmetic of Function Fields"  
Universität Münster
- Shtuka cohomology and special values of Goss  $L$ -functions  
Intercity number theory seminar  
Universiteit van Amsterdam
- 2016 Shtuka cohomology and special values of Drinfeld modules  
Seminar Zahlentheorie  
ETH Zürich

- 2015 Tannakian properties of Frobenius-invariant sheaves  
Workshop on function fields, zeta functions and Drinfeld modular forms  
Imperial College London

**Organizational experience**

- 2011 School on algebra and algebraic geometry (Yekaterinburg)  
<https://marina-p.info/school-on-algebra-and-algebraic-geometry>
- In 2015 Pavel Solomatin and I organized a seminar on Drinfeld modules:  
<https://max-mornev.github.io/dm.html>

**Service**

Reviewed a grant application, a book and numerous papers.