

# Max (Maxim) Mornev

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Curriculum vitae, actual as of December 6, 2024.

## Contact details

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Unfortunately physical mail does not reliably reach my EPFL office. In case of necessity please request my private postal address by e-mail.

## 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](#)

Tannakian properties of unit Frobenius-modules

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

## Employment

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://openaccess.leidenuniv.nl/handle/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.

<http://sma.epfl.ch/~mornev/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  
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 research seminar on Drinfeld modules:  
<https://sma.epfl.ch/~mornev/dm.html>

### **Service**

Reviewed a grant application, a book and numerous papers.