

CV

Eric Ahlqvist

Date of birth: 1989-08-12

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MAIN MATHEMATICAL INTERESTS

Algebraic geometry and number theory such as:

- Multiplicative structure of the étale cohomology of arithmetic curves and applications to number theory such as class field tower problems or Galois representations,
- (Derived) Algebraic stacks, Reconstructing/understanding stacks from building data.

CURRENT POSITION

University of Edinburgh, Edinburgh, United Kingdom 2022 - 2024
Postdoctoral researcher, sponsored by the Knut and Alice Wallenberg foundation

EDUCATION

KTH Royal Institute of Technology, Stockholm, Sweden 2016 - 2022
PhD in Mathematics

Thesis Title: *Stacky Modifications and Operations in the Étale Cohomology of Number Fields*

Supervisor: *David Rydh*

KTH Royal Institute of Technology, Stockholm, Sweden 2016 - 2020
Licentiate in Mathematics

Thesis Title: *Building Data for Stacky Covers and the Étale Cohomology Ring of an Arithmetic Curve*

Supervisor: *David Rydh*

University of California, Berkeley, California, USA Jan 2019 - May 2019
Visiting Student Researcher

Contact/Supervisor: *Martin Olsson*

KTH Royal Institute of Technology, Stockholm, Sweden 2014 - 2016
M.Sc in Mathematics

Thesis Title: *Operations on Étale Sheaves of Sets*

Advisor: *David Rydh*

GPA: 4.88/5.0 ¹

ETH Swiss Federal Institute of Technology, Zürich, Switzerland Fall 2015
Exchange program one semester, M.Sc in Mathematics²

KTH Royal Institute of Technology, Stockholm, Sweden 2011 - 2014
B.Sc in Engineering Physics

¹weighted grade point average

²as part of the M.Sc. in Mathematics at KTH

Thesis title: *Fusion Systems On Finite Groups and Alperin's Theorem*

Advisor: *Tilman Bauer*

RESEARCH PAPERS

Published:

[AC1] (with Magnus Carlson) *The étale cohomology ring of the ring of integers of a number field*, Res. Number Theory 9 (2023), no.3, Paper No. 58,

[A2] *Building data for stacky covers*, Sel. Math., New Ser. 30, No. 3, Paper No. 50, (2024),

Submitted:

[AC4] (with Magnus Carlson) *Massey products in the étale cohomology of number fields*, arXiv:2207.06353 (2022),

Preprints:

[AC3] (with Magnus Carlson) *The étale cohomology ring of a punctured arithmetic curve*, arXiv:2110.01597 (2021),

[AHPS6] (with Jeroen Hekking, Michele Pernice, Michail Savvas) *Good moduli spaces in derived algebraic geometry*, arXiv:2309.16574 (2023).

In preparation:

[AR5] (with David Rydh) *Artin–Schreier stacks*.

SCHOLARSHIPS

- 2022 - from *the Knut and Alice Wallenberg Foundation* for a postdoctoral position at the University of Edinburgh.
- 2018 - from *SVeFUM Stiftelsen för Vetenskaplig Forskning och Utbildning i Matematik* for attending the program at MSRI Berkeley in fall 2019.
- 2017 - from *Stiftelsen G S Magnusons fond* for attending a workshop on stacks in Michigan.
- 2015 and 2016 - from two foundations affiliated with KTH for achieving excellent academic records (*The Henrik Göransson Sandviken Scholarship Foundation*, and *KTHs allmänna donationsstiftelser för studerande*).

TEACHING

During my postdoc in Edinburgh, I gave the following lectures as part of the SMSTC course on homological algebra:

- **Group Cohomology**, Spring 2024
- **Spectral Sequences**, Spring 2024

During my PhD at KTH, I have been a teaching assistant in the following courses:

- **Differential Topology**, Fall 2020
- **Linear Algebra, Advanced Course**, Fall 2020
- **Linear Algebra, Advanced Course**, Fall 2019
- **Mathematics, Basic course, with Discrete Mathematics** Fall 2019
- **Algebraic Geometry and Commutative Algebra**, Fall 2019

- **Linear Algebra, Advanced Course**, Fall 2018
- **Mathematics, Basic course, with Discrete Mathematics** Fall 2018
- **Differential Equations and Transformations**, Fall 2017
- **Discrete Mathematics**, Fall 2017
- **Differential Equations and Transformations**, Fall 2016
- **Discrete Mathematics**, Fall 2016

INVITED TALKS

- **Bordeaux (Séminaire de Théorie Algorithmique des Nombres)**
 - 18 Jun 2024 — Massey products and class field towers
- **Edinburgh (EDGE)**
 - 8 May 2024 — Building Data for Stacky Covers
- **Edinburgh (EGRET)**
 - 30 Nov 2023 — Good Moduli Spaces in Derived Algebraic Geometry
- **Glasgow (Algebra and number theory seminar)**
 - 22 May 2023 — Massey Products and Class Field Towers
- **Stockholm (ABCDEFG... Groups)**
 - 3 May 2023 — The $K(\pi,1)$ -property
 - 26 Apr 2023 — Étale Cohomology of Number Fields
 - 19 Apr 2023 — Étale Cohomology and Class Field Towers
- **Uppsala (PhD Mathematics Conference)**
 - 6 Mar 2020 — Ramified Covers and Root Stacks
- **Stockholm (Number Theory Seminar)**
 - 4 Sep 2019 — The Étale Cohomology Ring of the Ring of Integers of a Number Field

CONFERENCES AND WORKSHOPS ORGANIZED

Gauge Fields in Arithmetic, Topology and Physics (Main organizer) ICMS, Edinburgh	2024
Young Topologists Meeting 2017 Stockholm	2017
Mini-Conference for PhD-Students in Mathematics Stockholm	2017

CONFERENCES AND WORKSHOPS ATTENDED

Gauge Fields in Arithmetic, Topology and Physics ICMS, Edinburgh	2023
Moduli and Algebraic Cycles Institut Mittag-Leffler, Stockholm	2021
Masterclass in Condensed Mathematics Copenhagen (via zoom)	2020

Stacks and Motives Essen	2019
Elliptic motives Stockholm	2019
Recent progress in Langlands Program MSRI Berkeley, California	2019
Derived algebraic geometry and its applications MSRI Berkeley, California	2019
Introductory Workshop: Derived Algebraic Geometry and Birational Geometry and Moduli Spaces MSRI Berkeley, California	2019
Connections for Women: Derived Algebraic Geometry, Birational Geometry and Moduli Spaces MSRI Berkeley, California	2019
N^3-days VII Stockholm	2017
Stacks Project Workshop Michigan	2017
Modern Moduli Theory 2017 Oxford	2017
Moduli of Curves Göteborg	2017

OTHER WORK EXPERIENCE

KTH Royal Institute of Technology <i>Teaching assistant</i>	August 2015 <i>Stockholm, Sweden</i>
Teaching assistant in the course SF0003 Introductory Course in Mathematics.	
KTH Royal Institute of Technology <i>Research Intern</i>	June 2014 - August 2014 <i>Stockholm, Sweden</i>
I wrote a chapter about <i>Topology Control in Wireless Sensor Networks</i> for a course in wireless sensor networks. The course was given by <i>Carlo Fischione</i> , who was also my advisor during the project.	
KTH Royal Institute of Technology <i>Teaching Assistant</i>	November 2014 - March 2015 <i>Stockholm, Sweden</i>
Teaching assistant in the course SF1624 Algebra and Geometry.	
KTH Royal Institute of Technology <i>Teaching Assistant</i>	August 2013 - October 2013 <i>Stockholm, Sweden</i>
Teaching assistant in the course SF1624 Algebra and Geometry.	
Studybuddy <i>Teacher</i>	2012 <i>Stockholm, Sweden</i>
Mathematics teacher for high school students.	
Grimsö Wildlife Research Station <i>Summer job as janitor</i>	2010 - 2013 <i>Riddarhyttan, Sweden</i>

Hylte Bruk, Stora Enso
Summer job at Pro Renseri

2009
Hylte Bruk, Sweden

Hylte Bruk, Stora Enso
Summer job at the Production Department

2008
Hylte Bruk, Sweden

Grimsö Wildlife Research Station
Summer job as janitor

2005 - 2007
Riddarhyttan, Sweden

LANGUAGES

Swedish (native), English (professional)