Charlotte Ure
Curriculum Vitæ
Last updated: March 28, 2024

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EMPLOYMENT

- **Assistant Professor** — August 2023 – Present
  Department of Mathematics, Illinois State University
- **Research Associate and Lecturer** — August 2019 – May 2023
  Department of Mathematics, University of Virginia

EDUCATION

- **Ph.D., Mathematics, Michigan State University** — 2013 – 2019
  Advisor: Prof. Rajesh S. Kulkarni
  Thesis title: Prime Torsion in the Brauer Group of an Elliptic Curve
- **B.S., Mathematics, Heidelberg University** — 2010 – 2013
  Thesis Advisor: Prof. Gebhard Böckle

RESEARCH

Research Interest

Arithmetic geometry, non-commutative algebra, Brauer groups, local-to-global principles, Clifford algebras, Witt-invariants, deformation theory, and quantum groups

Publications

1. *Tensor products of cyclic algebras of degree 4 and their Kummer subspaces.* joint with Adam Chapman. Communications in Algebra **45** (2017), no. 3, 1218–1226. 16K20 (05C38 12J20)
2. *Twisting of graded quantum groups and solutions to the quantum Yang-Baxter equation.* joint with Hongdi Huang, Van C. Nguyen, Kent B. Vashaw, Padmini Veerapen, and Xingting Wang. Transformation Groups (2022) 16S37 (16S80 16T05 16W50 17B37)
3. *Symbol length in Brauer groups of elliptic curves.* joint with Mateo Attanasio, Caroline Choi, and Andrei Mandelshtam. Proceedings of the American Mathematical Society **151** (2023), pp. 5031-5046. 11G05 (14H52 14F22)
4. *Prime torsion in the Brauer group of an elliptic curve.* Transactions of the American Mathematical Society **377** (2024), no. 4, 2413-2437. 16K50 (14F22 14H52)
5. *A cogroupoid associated to preregular forms.* joint with Hongdi Huang, Van C. Nguyen, Kent B. Vashaw, Padmini Veerapen, and Xingting Wang. Journal of Noncommutative Geometry (2024), pp. 1-31.
6. *Twisting Manin's universal quantum groups and comodule algebras.* joint with Hongdi Huang, Van C. Nguyen, Kent B. Vashaw, Padmini Veerapen, and Xingting Wang. Advances in Mathematics (accepted in 2024).

Preprints

7. *A moduli interpretation of untwisted binary cubic forms.* joint with Rajesh Kulkarni. arXiv:2103.16691 (2021)
8. *Period-index in top cohomology over semiglobal fields.* joint with Sarah Dijols, Raman Parimala, and Ramdorai Sujatha. arXiv:2312.03934 (2023)

In Preparation

- *Witt-Type Invariants for Groups of Exceptional Type.* joint with Andrei Rapinchuk.
- *The Period Index Problem for Brauer groups of Elliptic Curves.*
- *The generic Clifford algebra.* joint with Rajesh S. Kulkarni.
- *Twisting of Coalgebra Structures and Drinfeld Twists.* joint with Hongdi Huang, Van C. Nguyen, Kent B. Vashaw, Padmini Veerapen, and Xingting Wang.

Conference Talks and Poster Presentations

- AMS Sectional Meeting – Special Session on Algebraic Groups and Local-Global Principles, Florida State Unniversity, Tallahassee, FL — March 2024
- Arithmetic Geometry & Algebraic Groups, University of Virginia, Charlottesville, VA — May 2023
- Noncommutative Geometry and Noncommutative Invariant Theory, workshop at the Banff International Research Station (BIRS), Banff, AB, Canada — September 2022
- Arithmetic Aspects of Algebraic Groups, workshop at The Banff International Research Station (BIRS), Banff, AB, Canada — June 2022
- Joint Mathematics Meetings – AMS Special Session on Interactions Between Noncommutative Algebra and Noncommutative Algebraic Geometry, Washington D.C. online — January 2021
- Madison Moduli Weekend, online (Lightning talk) — September 2020
- PAlmetto Joint Arithmetic, Modularity, and Analysis Series, online — September 2020
- Arithmetic Aspects of Algebraic Groups, online workshop hosted by The Banff International Research Station (BIRS), Banff (Canada) — September 2020
- Video Contributor to the Junior Mathematician Research Archive — September 2020
- Simons Conference on Rationality, online — July 2020
- Recent Advances and New Directions in the Interplay of Noncommutative Algebra and Geometry, University of Washington (postponed due to COVID 19) — July 2020
- 2020 Brauer Group Meeting in Israel (postponed due to COVID 19) — June 2020
- AMS Sectional Meeting – Special Session on Algebraic Groups: Arithmetic and Geometry, University of Virginia (canceled due to COVID-19) — March 2020
- PAlmetto Number Theory Series XXXIII, Clemson University — December 2019
- AMS Sectional Meeting – Special Session on Connections between Noncommutative Algebra and Algebraic Geometry, University of Wisconsin-Madison — September 2019
- Connections for Women: Derived Algebraic Geometry, Birational Geometry and Moduli Spaces, Mathematical Sciences Research Institute (Poster) — January 2019
- Joint Mathematics Meetings – AMS Contributed Paper Session on Linear Algebra and Algebraic Geometry, Baltimore — January 2019
- The 13th Brauer group conference, Pingree Park Colorado — June 2018
- AMS Sectional Meeting – Special Session on Noncommutative Algebra and Noncommutative Algebraic Geometry, Ohio State University — March 2018
- AWM Workshop at the Joint Mathematics Meetings, San Diego (Poster) — January 2018
- Algebra Extravaganza, Temple University — July 2107
- International Conference on Representations of Algebras, Syracuse University — August 2016
- AMS Sectional Meeting – Special Session on Topics in Noncommutative Algebra and Algebraic Geometry, Michigan State University — March 2015

Invited Seminar Talks

- Colloquium, Wayne State University — November 2022
- Algebra, Geometry, and Number Theory Seminar, University of South Carolina — October 2022
- Combinatorics and Algebra Seminar, The George Washington University — September 2022

- Algebraic Geometry and Number Theory Seminar, Rice University · · · · · · · · · · · · · · February 2020
- Algebra Seminar, University of Virginia · April 2019
- Algebra Seminar, Temple University · February 2019
- Colloquium, Miami University · November 2018
- Algebra Seminar, Miami University · November 2018
- Algebra and Combinatorics Seminar, Central Michigan University · · · · · · · · · · November 2016

Internal Talks

- *Illinois State University*
  - Pure and Applied Mathematics Seminar · February 2024
  - Pure and Applied Mathematics Seminar · September 2023

- *University of Virginia*
  - Ramanujan–Serre Seminar · Fall 2022
  - Galois–Grothendieck Seminar · Spring 2019 & Fall 2020
  - Algebra Seminar · Spring 2020

Honors

Foundational Funding

- AMS-Simons Travel Grant ($5,000) · 2022 – 2024
- Structured Quartet Research Ensemble (SQuaRe), American Institute of Mathematics in San Jose (AIM provides the meeting space and travel to and from the Institute). Joint with Hongdi Huang, Van C. Nguyen, Kent B. Vashaw, Padmini Veerapen, and Xingting Wang · · · · 2022 – Present
- AMS Grad Student Travel Grant to the Joint Mathematics Meetings ($500) · · · · January 2019
- Scholarship, Studienstiftung des Deutschen Volkes · 2010 - 2015

Internal Funding and Awards

- Illinois State University

  - *New Faculty Initiative Grant (NFIG)*, College of Arts and Sciences ($3,500) · · · · · 2024-2025

- Michigan State University

  - *Dissertation Completion Fellowship*, College of Natural Science · · · · · · · · · Spring 2019
  - *Dissertation Continuation Fellowship*, College of Natural Science · · · · · · · Summer 2018
  - *2017 TA Award for Excellence in Teaching*, Department of Mathematics · · · · · April 2017
  - *Dr. Paul and Wilma Dressel Endowed Scholarship Award* · · · · · · · · · · · · · · · · · April 2016
  - *Dissertation Continuation Fellowship*, College of Natural Science · · · · · · · Summer 2015

Teaching and Mentoring

- Lecturer for a minicourse at the 2020 and the 2022 REU at the University of Virginia. The topic of the minicourse was "Beyond the Mordell-Weil Theorem" · · · · · · · · · · · · · · · · · · Summer 2020
- Completion of the Certification in College Teaching at Michigan State University · · · · June 2017
- Lead Teaching Assistant with the Math Learning Center at Michigan State University (Supervisor at the Math Learning Center)
- Exam Reviewer for Trigonometry (MTH 114) and A Survey of Calculus (MTH 124) with the Math Learning Center at Michigan State University · · · · · · · · · · · · · · · · Spring 2016 & Spring 2018
- Lead Teaching Assistant with the Center for Instructional Mentoring at Michigan State University (Mentor for other Teaching Assistants) · Fall 2017

- Panelist at the 2017 Teaching and Learning Spring Conference at Michigan State University on *Sharing Strategies for Use of Student Teams in MSU* May 2017

Mentoring Experience

- As part of the 2021 REU at the Univeristy of Virginia in Number theory, I mentored a project resulting in the paper 5. listed under publications.

Teaching Experience

- *Illinois State University*
  - Advanced Abstract Algebra (MAT 336) Instructor of record Spring 2024
  - Calculus 1 - 2 Sections (MAT 145) Instructor of record Fall 2023

- *University of Virginia*
  - Introduction to Elliptic Curves (MATH 4559) Co-instructor Spring 2023
  - Introduction to Abstract Algebra (MATH 4652) Instructor of record Spring 2023
  - Introduction to Mathematical Research (MATH 4840) Co-instructor Spring 2023
  - A Survey of Calculus - 2 Sections (Math 1210) Instructor of record Fall 2022
  - A Survey of Algebra (MATH 3354) Instructor of record Spring 2022
  - Calculus 1 (MATH 1310) Instructor of record Spring 2021
  - Calculus 1 - 2 Sections (MATH 1310) Instructor of record Fall 2020
  - Calculus 3 - 2 Sections (MATH 2310) Instructor of record Spring 2020
  - A Survey of Calculus (MATH 1210) Instructor of record Fall 2019

- *Michigan State University*
  - Transitions in Mathematics (MTH 299) Instructor of record Fall 2018
  - Algebra 2 (MTH 819) Grader Spring 2018
  - Algebra 1 (MTH 818) Grader Fall 2017
  - Algebra 2 (MTH 819) Grader Spring 2017
  - Algebra 1 (MTH 818) Grader Fall 2016
  - Calculus 1 (MTH 132) Instructor of record Fall 2016
  - Calculus 1 (MTH 132) Instructor of record Summer 2016
  - Differential Equations (MTH 235) Recitation Instructor Spring 2016
  - Transitions in Mathematics (MTH 299) Instructor of record Fall 2015
  - Differential Equations (MTH 235) Recitation Instructor Spring 2015
  - Calculus 1 (MTH 132) Instructor of record Fall 2014
  - Survey of Calculus (MTH 124) Instructor of record Spring 2014
  - Calculus 2 (MTH 133) Recitation Instructor Fall 2013

- *Deutsche SchülerAkademie (German Pupils Academy)* 2016 & 2017
  - Co-instructor for the courses "Wie teilt man einen Punkt durch 2?" (Introduction to Elliptic Curves) and "Von Tassen, Bretzeln, und deren algebraischen Invarianten" (Introduction to Topology)

- *Heidelberg University*
  - Linear Algebra 2 – Recitation Instructor Summer 2013
  - Linear Algebra 1 – Recitation Instructor Winter 2012/2013
  - LaTeX-Course – Grader Summer 2012

Academic Service

- Referee for Research in the Mathematical Sciences

- Reviewer for zbMATH and Mathematical Reviews
- Founding Member and President of the AWM MSU Student Chapter   Spring 2018
- Graduate Student Representative at the 20th Annual Nebraska Conference for Undergraduate Women in Mathematics at University of Nebraska – Lincoln   January 2017
- Graduate Student Representative for the Department of Mathematics at the Graduate Studies Committee at MSU   Fall 2017 – Spring 2018
- Graduate Student Representative for the Department of Mathematics at the Natural Science Student Advisory Council at MSU   Spring 2016

Conference and Seminar Organization

- Special session on Galois cohomology in Arithmetic Geometry at the Joint Mathematics Meetings in Washington D.C. (co-organizer)   January 2021
- New Developments in Number Theory (Contributed Talk Series by POINT – People online in Number Theory) (co-organizer)   Summer 2020 – Summer 2021
- Student Algebra Seminar at MSU (co-organizer)   Fall 2016 – Spring 2018

Outreach

- Lecture in the *Introduction to Research Seminar* for first year graduate students   Spring 2022
- Lecture in the Undergraduate Math Club at the University of Virginia   Fall 2020

Professional Memberships

- Member of the *Association for Women in Mathematics*
- Member of the *American Mathematical Society*