

# Travis Morrison

University of Waterloo	<code>travis.morrison@uwaterloo.ca</code>
Institute for Quantum Computing	<code>https://travismo/github.io</code>
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## EMPLOYMENT

2018 – Postdoctoral fellow, University of Waterloo, The Institute for Quantum Computing

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## EDUCATION

2018 05 Ph.D. Mathematics, Pennsylvania State University  
(Advisor: Kirsten Eisenträger)

2012 06 B.A. Mathematics, University of California, Santa Cruz

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## RESEARCH INTERESTS

Number theory, arithmetic geometry, and applications to cryptography

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## PUBLICATIONS

1. Diophantine definability of nonnorms of cyclic extensions of global fields. *To appear in Transactions of the AMS*. `arXiv:1710.07357`, 24 pages.
2. Cycles in the supersingular isogeny graph and corresponding endomorphisms. (with Efrat Bank, Catalina Camacho-Navarro, Kirsten Eisenträger, and Jennifer Park. *To appear in Research Directions in Number Theory: Women in Numbers 4*. `arxiv:1804.04063`, 22 pages.
3. Supersingular isogeny graphs and endomorphism rings: reductions and solutions (with Kirsten Eisenträger and Sean Hallgren and Kristin Lauter and Christophe Petit). *EUROCRYPT 2018*. 40 pages.
4. Universally and existentially definable subsets of global fields (with Kirsten Eisenträger). *Mathematical Research Letters, Volume 25, No. 4 (2018)*. `arXiv:1609.09787`, 21 pages.

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## INVITED RESEARCH TALKS

2019 06 Microsoft Research, Cryptography colloquium

05 “49th John H. Barrett Memorial Lectures”, University of Tennessee, Knoxville, TN

03 “AMS Spring Central and Western Sectional Meeting, Special Session on Emerging Connections in Number Theory” Honolu, HI

03 “AMS Spring Central and Western Sectional Meeting, Special Session on The Mathematics of Cryptography” Honolu, HI

- 01 “Joint Mathematics Meetings, AMS special session on Definability and decidability problems in number theor”, Baltimore, MD
- 2018 11 “Elliptic Curve Cryptography 2018” Osaka
- 5 Korean Institute for Advanced Study, Number theory seminar
- 4 Cornell University, Number theory seminar
- 3 Tufts University, Algebra, geometry, and number theory seminar
- 2017 12 University of Michigan, Ann Arbor, Group, Lie, and number theory seminar
- 11 “Rutgers-Newark Junior Number Theory Days” Newark, NJ
- 09 Pennsylvania State University, Algebra and number theory seminar
- 03 “Southeastern AMS Sectional Meeting, Special Session on Computability in Algebra and Number Theory” Charleston, SC
- 2016 10 “Definability and Decidability Problems in Number Theory” Oberwolfach
- 10 Pennsylvania State University, Algebra and number theory seminar

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### CONTRIBUTED TALKS

- 2018 4 “Upstate Number Theory 2018” SUNY Buffalo
- 1 “Joint Mathematical Meetings, MAA General Contributed Paper Session on Number Theory II” San Diego, CA
- 2017 05 “Upstate Number Theory 2017” Binghamton University

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### VISITING APPOINTMENTS

- 2017 05 Intern, Microsoft Research, Cryptography group. (Mentor: Kristin Lauter)

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### ACADEMIC HONORS

- 2018 Ayoub Award in Algebra and Number Theory, Pennsylvania State Mathematics Department
- Global Programs Graduate Student Travel Grant, Pennsylvania State University (Declined)
- 2017 Mathematics department nominee for university-wide Penn State Alumni Association Dissertation Award, 2017
- 2011 Merit Fellowship, Outstanding project in Geometry, and Outstanding Project in Algebra, MASS 2011

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### COMPUTER EXPERIENCE

- Languages: Python
- Packages: Sage, Magma, Octave, Matlab

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### TEACHING EXPERIENCE

#### PENN STATE UNIVERSITY, UNIVERSITY PARK

- 2018 01 Math 231: Multivariable Calculus, *Instructor*
- 2015 – 2017 Ritner Experience, *Tutor*

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2015	08	Math 231: Multivariable Calculus, <i>Instructor</i>
		Math 232: Integral and Vector Calculus, <i>Instructor</i>
2015	01	Math 36: Insights into Mathematics <i>Instructor</i>
2014	08	Math 36: Insights into Mathematics <i>Instructor</i>
	01	Math 21: College Algebra II <i>Instructor</i>
2013	08	Math 36: Insights into Mathematics <i>Instructor</i>
2013	08	Math 110: Business Calculus <i>Teaching Assistant</i>
	06	Math 251: Ordinary Differential Equations <i>Instructor</i>
	01	Math 313a: Concepts of Geometry <i>Teaching Assistant</i>

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## SERVICES

2017 – 2019	Reviewer or referee for: PQCrypto 2018, manuscripta mathematica, Crypto 2019, Number-Theoretic Methods in Cryptography 2019, Selected Areas in Cryptography 2019.
2013 – 2017	Penn State, Climate and Diversity Workshop, <i>Organizer, Lead organizer in 2015, nominated for Eberly College of Science Climate and Diversity Award in 2015.</i>
2013 – 2015	Penn State, Graduate Student Number Theory Seminar, <i>Organizer</i>
2015 – 2016	Penn State, Expand Your Horizons Workshop, Cryptography course, <i>Teaching Assistant</i>