

Juliette Bruce

Curriculum Vitae

Department of Mathematics
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Education

- **University of Wisconsin** Madison, WI
Ph.D. Mathematics 2014 – Present
– Advisor: Daniel Erman
- **University of Wisconsin** Madison, WI
M.A. Mathematics 2014 – 2016
- **University of Michigan** Ann Arbor, MI
B.S. in Mathematics & Political Science 2010 – 2014
– With High Honors and Distinction

Publications

10. J. Bruce. The Quantitative Behavior of Asymptotic Syzygies for Hirzebruch Surfaces. *Submitted*. E-Print: [arXiv:1906.07333](https://arxiv.org/abs/1906.07333).
9. J. Bruce, D. Erman, S. Goldstein, and J. Yang. The SchurVeronese package in Macaulay2. *Submitted*. E-print: [arXiv:1905.12661](https://arxiv.org/abs/1905.12661).
8. A. Almousa, J. Bruce, M. Loper, and M. Sayrafi. The Virtual Resolutions Package for Macaulay2. *Submitted*. E-print: [arXiv:1905.07022](https://arxiv.org/abs/1905.07022).
7. J. Bruce. Asymptotic Syzygies in the Setting of Semi-Ample Growth. *Submitted*. E-Print: [arXiv:1904.04944](https://arxiv.org/abs/1904.04944)
6. J. Bruce and W. Li. Effective bounds on the dimensions of Jacobians covering abelian varieties. *Proc. Amer. Math. Soc.*, Accepted. E-print: [arXiv:1804.11015](https://arxiv.org/abs/1804.11015).
5. J. Bruce, D. Erman, S. Goldstein, and J. Yang. Conjectures and computations about Veronese syzygies. *Experimental Mathematics*, To Appear. E-print: [arXiv:1711.03513](https://arxiv.org/abs/1711.03513).
4. M. Brandt, J. Bruce, T. Brysiewicz, R. Krone, and E. Robeva. The degree of $SO(n)$. *Combinatorial Algebraic Geometry*, 207-224, Fields Inst. Commun. **80**, (2017). E-print: [arXiv:1701.03200](https://arxiv.org/abs/1701.03200).
3. J. Bruce and D. Erman. A probabilistic approach to systems of parameters and Noether normalization. *Algebra and Number Theory*, Accepted. E-print: [arXiv:1604.01704](https://arxiv.org/abs/1604.01704).

2. J. Bruce, M. Logue, and R. Walker. Monomial valuations, cusp singularities, and continued fractions. *Journal of Commutative Algebra*, **7** (2015) no. 4, 495-522. E-print: [arXiv:1311.6493](https://arxiv.org/abs/1311.6493).
1. J. Bruce, P. Kao, E. Nash, B. Perez, and P. Vermeire. Betti tables of reducible algebraic curves. *Proc. Amer. Math. Soc.* **142** (2014) 4039-4051. E-print: [arXiv:1210.3064](https://arxiv.org/abs/1210.3064).

Grants

- **Conference Grant DMS-1908799 – \$15,000** March 2019
National Science Foundation
- **Graduate Research Fellowship** 2015 – 2018
National Science Foundation
- **Conference Grant DMS-1812462 – \$15,000** February 2018
National Science Foundation
- **Professional Development Grant – \$1000** December 2016
Graduate School – University of Wisconsin

Awards, Grants & Honors

- **Elizabeth Hirschfelder Prize** October 2018
Dept. of Mathematics - University of Wisconsin
- **Mathematics TA Service Award** April 2018
Dept. of Mathematics - University of Wisconsin
- **Teaching Assistant Award for Exceptional Service** February 2018
University of Wisconsin (Campus Wide)
- **Outstanding Achievement in Mathematics** May 2014
Dept. of Mathematics – University of Michigan
- **Phi Beta Kappa** April 2014
University of Michigan
- **Chancellor's Opportunity Award** April 2014
University of Wisconsin

Research Presentations

- **Semi-Ample Asymptotic Syzygies** Stanford University
Algebraic Geometry Seminar May 2019
- **Asymptotic Syzygies for Products of Projective Space** University of Kentucky
Algebra Seminar April 2019
- **Semi-Ample Asymptotic Syzygies** University of Minnesota
Commutative Algebra Seminar April 2019

- **Asymptotic Syzygies for Products of Projective Space (Poster)**
2019 AWM Research Symposium Poster Session Rice University
April 2019
- **Asymptotic Syzygies for Products of Projective Space**
KUMUNUjr. University of Nebraska
March 2019
- **Asymptotic Syzygies for Products of Projective Space**
Spring AMS Southeastern Sectional Auburn University
March 2019
- **Asymptotic Syzygies for Products of Projective Space**
Joint Math Meetings Baltimore, MD
January 2019
- **Covering Abelian Varieties and Effective Bertini**
Algebra and Algebraic Geometry Seminar University of Wisconsin
November 2018
- **Asymptotic Syzygies for Products of Projective Space**
Fall AMS Central Sectional University of Michigan
October 2018
- **Asymptotic Syzygies in the Semi-Ample Setting (Poster)**
AGNES Poster Session Brown University
September 2018
- **Covering Abelian Varieties and Effective Bertini**
Algebraic Geometry and Number Theory Seminar Rice University
September 2018
- **Syzygies of Surfaces via Distributed Computing**
Algebra Seminar DePaul University
March 2018
- **Asymptotic Syzygies in the Semi-Ample Setting**
Algebra and Algebraic Geometry Seminar University of Wisconsin
February 2018
- **Asymptotic Syzygies in the Semi-Ample Setting (Poster)**
Joint Math Meetings AWM Poster Session San Diego, CA
January 2018
- **Asymptotic Syzygies in the Semi-Ample Setting**
Commutative Algebra Seminar University of Michigan
December 2017
- **Asymptotic Syzygies in the Semi-Ample Setting**
Structures on Free Resolutions Texas Tech University
October 2017
- **A Distributed Numerical Approach to Syzygies of \mathbb{P}^2 (Poster)**
Free Resolutions and Computations UC - Berkeley
July 2017
- **The Degree of $SO(n)$ and Low-rank SDP**
Applied Algebra Seminar University of Wisconsin
March 2017
- **A Probabilistic Approach to Noether Normalization (Poster)**
Lectures on Arithmetic Geometry Rice University
February 2017
- **A Probabilistic Approach to Noether Normalization (Poster)**
Introductory Workshop: Combinatorial Algebraic Geometry Fields Institute
August 2016
- **A Probabilistic Approach to Noether Normalization (Poster)**
Commutative Algebra and Its Interactions with Algebraic Geometry University of Michigan
July 2016
- **A Probabilistic Approach to Noether Normalization (Poster)**
Midwest Commutative Algebra and Algebraic Geometry Conference University of Notre Dame
May 2016
- **Noether Normalization in Families**
Algebraic Geometry Seminar University of Wisconsin
April 2016
- **Betti Tables of Graph Curves**
Midwest Algebraic Geometry Graduate Conference University of Illinois - Chicago
April 2015
- **Betti Diagrams of Graph Curves**
Algebraic Geometry Seminar University of Wisconsin
December 2014

Teaching Experience

- **Math 228: Wisconsin Emerging Scholars**
Instructor University of Wisconsin
Fall 2018
- **Math 221: Calculus and Analytic Geometry I**
Teaching Assistant & Course Coordinator University of Wisconsin
Fall 2018
- **Math 132: Problem Solving in Algebra, Statistics, & Probability**
Instructor University of Wisconsin
Spring 2015
- **Math 221: Calculus and Analytic Geometry I**
Teaching Assistant University of Wisconsin
Fall 2014
- **Math 310: Explorations in Randomness**
Course Assistant University of Michigan
Winter 2014
- **Math 490: Introduction to Topology**
Course Assistant University of Michigan
Fall 2013
- **Math 351: Principals of Analysis**
Course Assistant University of Michigan
Winter 2013
- **Math 105: Data, Functions, and Graphs**
Course Assistant University of Michigan
Fall 2012

Conference Organizing

- **GWCAWMMG**
April 12 - April 14, 2019 University of Minnesota
- **Geometry & Arithmetic of Surfaces**
February 9 - February 10, 2019 University of Wisconsin
- **M2@UW**
April 14-17, 2018 University of Wisconsin
- **Math Careers Beyond Academia**
April 14, 2017 University of Wisconsin

Outreach Activities

- **Undergrad Directed Reading Program**
Mentor University of Wisconsin
January 2018 – Present
- **Graduate Peer Mentoringt**
Mentor University of Wisconsin
September 2018 – December 2018
- **Girls Math Night Out**
Mentor University of Wisconsin
September 2018 – December 2018
- **Madison Math Circle**
Student Volunteer University of Wisconsin
January 2015 – December 2018

- **Madison Math Circle**
Lead Organizer University of Wisconsin
January 2016 – December 2018
- **Out in STEM (oSTEM) @ UW-Madison**
co-Founder University of Wisconsin
July 2017 – Math 2018
- **Out in Math: Professional Issues Facing LGBTQ Mathematicians**
Panelist MAA Panel at the JMM
January 2018
- **Michigan Math Circle**
Organizer University of Michigan
January 2013 – June 2014

Service

- **AMS Graduate Student Blog**
Editor American Mathematical Society
September 2015 – September 2018
- **Committee on Inclusivity and Diversity**
Member UW Dept. of Mathematics
November 2016 – August 2017
- **Committee on TA Pay and Performance**
Member UW Dept. of Mathematics
September 2015 – August 2017
- **Instructor Excellence Program**
Teaching Mentor UW Dept. of Mathematics
September 2015 – May 2016
- **Society of Undergraduate Math Students**
President and Founder University of Michigan
December 2012 – June 2014

Memberships

- **Society of Industrial and Applied Mathematics** January 2017 – Present
- **Association for Women in Mathematics** January 2016 – Present
- **American Mathematical Society** September 2014 – Present