Juliette Bruce

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Curriculum Vitae

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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

9. J. Bruce, D. Erman, S. Goldstein, and J. Yang. The SchurVeronese package in Macaulay2. *Submitted.* E-print: arXiv:1905.12661.

8. A. Almousa, J. Bruce, M. Loper, and M. Sayrafi. The Virtual Resolutions Package for Macaulay2. *Submitted.* E-print: arXiv:1905.07022.

7. J. Bruce. Asymptotic Syzygies in the Setting of Semi-Ample Growth. *Submitted.* E-Print: arXiv:1904.04944

6. J. Bruce and W. Li. Effective bounds on the dimensions of Jacobians covering abelian varieties. *Submitted.* E-print: arXiv: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.

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.

3. J. Bruce and D. Erman. A probabilistic approach to systems of parameters and Noether normalization. *Submitted.* E-print: arXiv: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.

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.

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)**   Rice University
  2019 AWM Research Symposium Poster Session   *April 2019*
- **Asymptotic Syzygies for Products of Projective Space**   University of Nebraska
  KUMUNUjr.   *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** University of Wisconsin
  Instructor *Fall 2018*
- **Math 221: Calculus and Analytic Geometry I** University of Wisconsin
  Teaching Assistant & Course Coordinator *Fall 2018*
- **Math 132: Problem Solving in Algebra, Statistics, & Probability** University of Wisconsin
  Instructor *Spring 2015*
- **Math 221: Calculus and Analytic Geometry I** University of Wisconsin
  Teaching Assistant *Fall 2014*
- **Math 310: Explorations in Randomness** University of Michigan
  Course Assistant *Winter 2014*
- **Math 490: Introduction to Topology** University of Michigan
  Course Assistant *Fall 2013*
- **Math 351: Principals of Analysis** University of Michigan
  Course Assistant *Winter 2013*
- **Math 105: Data, Functions, and Graphs** University of Michigan
  Course Assistant *Fall 2012*

Conference Organizing

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

Outreach Activities

- **Undergrad Directed Reading Program** University of Wisconsin
  Mentor *January 2018 – Present*
- **Graduate Peer Mentoringt** University of Wisconsin
  Mentor *September 2018 – December 2018*
- **Girls Math Night Out** University of Wisconsin
  Mentor *September 2018 – December 2018*
- **Madison Math Circle** University of Wisconsin
  Student Volunteer *January 2015 – December 2018*
- **Madison Math Circle** University of Wisconsin
  Lead Organizer *January 2016 – December 2018*
- **Out in STEM (oSTEM) @ UW-Madison** University of Wisconsin
  co-Founder *July 2017 – Math 2018*

- **Out in Math: Professional Issues Facing LGBTQ Mathematicians**   MAA Panel at the JMM
  Panelist   *January 2018*
- **Michigan Math Circle**   University of Michigan
  Organizer   *January 2013 – June 2014*

Service

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