

Biographical Sketch
Juliette Bruce

(a) Professional Preparation

University of Michigan, Ann Arbor, MI; Mathematics & Political Science; B.S., 2014

University of Wisconsin, Madison, WI; Mathematics; M.A., 2016

University of Wisconsin, Madison, WI; Mathematics; Ph.D., 2020 (expected)

(b) Appointments

2014–present: **Graduate Student**, University of Wisconsin, Madison, WI

(c) Products most closely related to proposal

1. J. Bruce and D. Erman. A probabilistic approach to systems of parameters and Noether normalization. *Algebra and Number Theory*, To appear. E-print: arXiv:1604.01704.
2. J. Bruce and W. Li. Effective bounds on the dimensions of Jacobians covering abelian varieties. *Proc. Amer. Math. Soc.*, To appear. E-print: arXiv:1804.11015.
3. 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. J. Bruce. Asymptotic Syzygies in the Setting of Semi-Ample Growth. *Submitted*. E-Print: arXiv:1904.04944
5. J. Bruce. The Quantitative Behavior of Asymptotic Syzygies for Hirzebruch Surfaces. *Submitted*. E-Print: arXiv:1906.07333.

(d) Other significant products

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.
2. 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, 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.
4. J. Bruce, D. Erman, S. Goldstein, and J. Yang. The SchurVeronese package in Macaulay2. *Submitted*. E-print: arXiv:1905.12661.
5. A. Almousa, J. Bruce, M. Loper, and M. Sayrafi. The Virtual Resolutions Package for Macaulay2. *Submitted*. E-print: arXiv:1905.07022.

(e) Synergistic Activities

1. **Conference Organizing:** (i) Organizer for *Special Session in Combinatorial Algebraic Geometry* at AMS Fall Central Sectional. (ii) Organizer for *Graduate Workshop in Commutative Algebra for Women and Mathematicians of Minority Genders* (35 participants), (iii) Organizer for *Geometry & Arithmetic of Surfaces Workshop* (40 participants) (iv) Organizer

for *Macaulay2* at Wisconsin (50 participants) (v) Organizer for *Spectra Panel: Supporting Transgender and Non-binary Students* at the 2020 Joint Math Meetings

2. **Community Outreach:** (i) Organizer of the Madison Math Circle 2016–2018. Lead creation of new program with the Madison Math Circle that directly visits high schools around the state of Wisconsin to better serve students from underrepresented groups. Increased reach to over 250 students per year. (ii) Volunteered at the Madison Math Circle 2015–2016. (iii) Student organizer of the Michigan Math Circle 2013–2014.
3. **Mentoring:** (i) Mentoring two undergraduate women through AWM's Mentoring Network program. (ii) Mentored 6 first year graduate students (all women or non-binary students). (iii) Lead two semester long and one year long undergraduate reading courses, providing mentorship on applying to graduate school. (iv) Mentored two girls in high school on semester long project exploring RSA cryptography.
4. **Department Service:** (i) Lead creation of Committee on Inclusivity and Diversity at University of Wisconsin - Madison, and (ii) As member of the Committee on Teaching Assistant Performance and Pay at University of Wisconsin - Madison, lead initiative to develop less biased and more transparent teaching evaluations. (iii) Organized one day professional development conference, *Math Careers Beyond Academia* focused on careers for math students outside of academia (50 participants).
5. **Work on Inclusion & Diversity:** (i) Organizer of *qGrads*, the campus social organization for LGBTQ+ graduate students (350 members). (ii) Founder and former organizer of *oSTEM@UW*, the campus organization for LGBTQ+ students in STEM (50 members). Organized and secured funding for 11 members – including undergraduates – to attend national oSTEM Inc. conference. (iii) Panelist on *Out in Math: Professional Issues Facing LGBTQ Mathematicians* at 2018 Joint Math Meetings.