

Juliette Bruce

September 20, 2021

Department of Mathematics
University of California, Berkeley

juliette.bruce@berkeley.edu
juliettebruce.github.io

Employment

- **University of California, Berkeley** Berkeley, CA
NSF Postdoctoral Fellow 2020– Present
- **Mathematical Sciences Research Institute** Berkeley, CA
Postdoctoral Fellow 2020– 2021

Education

- **University of Wisconsin** Madison, WI
Ph.D. Mathematics (Advisor: Daniel Erman) 2014 – 2020
- **University of Michigan** Ann Arbor, MI
B.S. in Mathematics & Political Science 2010 – 2014

Publications

12. J. Bruce, D. Corey, D. Erman, S. Goldstein, R. Laudone, and J. Yang. Syzygies of $\mathbb{P}^1 \times \mathbb{P}^1$: Data and Conjectures. *pre-print*. [arXiv:2104.14598](https://arxiv.org/abs/2104.14598)
11. M. Brandt, J. Bruce, M. Chan, M. Melo, G. Moreland, C. Wolfe. On the Top-weight Cohomology of \mathcal{A}_g . *Submitted*. [arXiv:2012.02892](https://arxiv.org/abs/2012.02892)
10. J. Bruce, D. Erman, S. Goldstein, and J. Yang. The SchurVeronese package in Macaulay2. *Journal of Software for Algebra and Geometry*, To Appear. [arXiv:1905.12661](https://arxiv.org/abs/1905.12661).
9. J. Bruce. Asymptotic Syzygies in the Setting of Semi-Ample Growth. *Submitted*. [arXiv:1904.04944](https://arxiv.org/abs/1904.04944)
8. J. Bruce. The Quantitative Behavior of Asymptotic Syzygies for Hirzebruch Surfaces. *Journal of Commutative Algebra*, To appear. [arXiv:1906.07333](https://arxiv.org/abs/1906.07333).
7. A. Almousa, J. Bruce, M. Loper, and M. Sayrafi. The Virtual Resolutions Package for Macaulay2. *Journal of Software for Algebra and Geometry*, To Appear. [arXiv:1905.07022](https://arxiv.org/abs/1905.07022).
6. J. Bruce and D. Erman. A probabilistic approach to systems of parameters and Noether normalization. *Algebra and Number Theory*, **13** (2019), no. 9, 2081–2102. [arXiv:1604.01704](https://arxiv.org/abs/1604.01704).
5. J. Bruce and W. Li. Effective bounds on the dimensions of Jacobians covering abelian varieties. *Proc. Amer. Math. Soc.*, **148** (2020), no. 2, 535–551. [arXiv:1804.11015](https://arxiv.org/abs/1804.11015).
4. J. Bruce, D. Erman, S. Goldstein, and J. Yang. Conjectures and computations about Veronese syzygies. *Experimental Mathematics*, To Appear. [arXiv:1711.03513](https://arxiv.org/abs/1711.03513).
3. 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). [arXiv:1701.03200](https://arxiv.org/abs/1701.03200).
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. [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. [arXiv:1210.3064](https://arxiv.org/abs/1210.3064).

Software

4. SchurVeronese, (with D. Erman, S. Goldstein, and J. Yang). Submitted for distribution with future releases of Macaulay2.
3. VirtualResolutions, (with A. Almousa, M. Loper, and M. Sayrafi). Distributed with version 1.14 of Macaulay2 (2019).
2. FrobeniusThresholds, (with D. Hernández, K. Schwede, D. Smolkin, P. Teixeira, and E. Witt). Distributed with version 1.14 of Macaulay2 (2019).
1. TestIdeals, (with E. Bela, A. Boix, D. Ellingson, D. Hernández, Z. Kadyrsizova, M. Katzman, S. Malec, M. Mastroeni, M. Mostafazadehfard, M. Robinson, K. Schwede, D. Smolkin, P. Teixeira, and E. Witt). Distributed with version 1.14 of Macaulay2 (2019).

Grants

- **Fields Institute & NSF Conference Grant – \$23,000** July 2022
- **NSF Postdoctoral Research Fellowship – \$150,000** 2020 – Present
- **NSF Conference Grant DMS-1908799 – \$15,000** March 2019
- **NSF Graduate Research Fellowship** 2015 – 2018
- **NSF Conference Grant DMS-1812462 – \$15,000** February 2018
- **University of Wisconsin, Professional Development Grant – \$1000** December 2016

Awards & Honors

- **Excellence in Mathematical Research Award** October 2019
Award by the math department to a student for exceptional research in their thesis.
- **Capstone Teaching Award** October 2019
Awarded to one student for an exceptional record of teaching excellence and service.
- **Elizabeth Hirschfelder Prize** October 2018
Awarded to an outstanding female student.
- **Teaching Assistant Award for Exceptional Service** February 2018
Campus-wide award recognizing TA's who perform exceptional service

Seminar and Colloquium Talks

- Reed College - Mathematics Colloquium April 2021
- San Francisco State University - Algebra, Geometry, & Combinatorics Seminar April 2021
- Algebra, Geometry, and Combinatorics Online - Held Virtually February 2021
- MPI MiS - Non-linear Algebra Seminar Online February 2021
- Syracuse University - Algebra Seminar November 2020
- Arizona State University - Number Theory Seminar October 2020
- Louisiana State University - Algebra & Number Theory Seminar October 2020
- University of Georgia - Algebraic Geometry Seminar October 2020
- Stanford University - Algebraic Geometry Seminar October 2020
- MSRI - The Fellowship of the Ring September 2020

- University of Washington - Algebra & Algebraic Geometry Seminar May 2020[†]
- University of Nebraska - Commutative Algebra Seminar April 2020[†]
- University of Michigan - Commutative Algebra Seminar December 2019
- University of Notre Dame - Algebraic Geometry Seminar November 2019
- DePaul University - Algebra, Combinatorics, and Number Theory Seminar October 2019
- Lawrence University - Colloquium October 2019
- University of Utah - Algebraic Geometry Seminar September 2019
- Stanford University - Algebraic Geometry Seminar May 2019
- University of Kentucky - Algebra Seminar April 2019
- University of Minnesota - Commutative Algebra Seminar April 2019
- Rice University - Algebraic Geometry and Number Theory Seminar September 2018
- DePaul University - Algebra, Combinatorics, and Number Theory Seminar March 2018
- University of Michigan - Commutative Algebra Seminar December 2017

Conference Talks

- Joint Math Meetings (x2) - Seattle, WA January 2022
- CMS Winter Meetings- Held Virtually December 2021
- Fall AMS Central Sectional - Held Virtually September 2021
- SIAM Conference on Applied Algebraic Geometry 2021 August 2021
- Queer and Trans in Combinatorics June 2021
- Math Summer Program for Inclusive Excellence June 2021
- Spring AMS Western Sectional - Held Virtually May 2021
- Spring AMS Central Sectional - Held Virtually April 2021
- Bay Area Discrete (BAD) Math Day - Held Virtually April 2021
- Spring AMS Southeastern Sectional - Georgia Tech University March 2021
- LGBTQ+Math - Fields Institute November 2020
- Written Geometry: Commutative Algebra - CIRM October 2020[†]
- Early Commutative Algebra Researchers (eCARS) - Held Virtually June 2020
- Foundations of Computational Mathematics - Simon Fraser University June 2020[†]
- Western Algebraic Geometry Online (WAGON) - Held Virtually April 2020
- CA+ - Iowa State University April 2020[†]
- Joint Math Meetings - Denver, CO January 2020
- Fall AMS Central Sectional - University of Wisconsin September 2019
- SIAM Conference on Applied Algebraic Geometry 2019 July 2019
- KUMUNUjr - University of Nebraska March 2019
- Spring AMS Southeastern Sectional - Auburn University March 2019
- Joint Math Meetings - Baltimore, MD January 2019
- Fall AMS Central Sectional - University of Michigan October 2018
- Structures on Free Resolutions - Texas Tech University October 2017
- Midwest Algebraic Geometry Graduate Conference - University of Illinois, Chicago April 2015

[†]Canceled due to the COVID-19 pandemic.