
EMPLOYMENT

National Science Foundation Postdoctoral Fellow

University of Utah
NSF Grant #2103271

2021 - current
SALT LAKE CITY, UT

Assistant Professor (Lecturer)

University of Utah
Supported by NSF RTG Grant #1840190

2020 - 2021
SALT LAKE CITY, UT

EDUCATION

University of South Carolina

Ph.D. in Mathematics
Advised by Dr. Matthew Ballard

COLUMBIA, SC
2015 - 2020

Shippensburg University of Pennsylvania

Bachelor of Science in Mathematics, minor in Computer Science

SHIPPENSBURG, PA
2013 - 2015

RESEARCH & PUBLICATIONS

In Preparation.

1. *On the wonderful compactification of $SO(2n + 1)$* with A. Bertram
2. *Derived categories of toric varieties constructed from root systems* with A. Bertram
3. *A survey of properties of the toric variety associated to the root system of type E_6* with J. Strong
4. *Derived categories for Fano schemes of lines on intersections of two quadrics* with P. Belmans, J. Bose, S. Frei, B. Gould, J. Hotchkiss, J. Petok, C. Rodriguez Avilia, and S. Shah

Preprints in preparation are available upon request.

Submitted & Preprints.

1. *On derived categories and rational points for a class of toric Fano varieties* with M.R. Ballard (2023)
2. *Separable algebras and coflasque resolutions* with M.R. Ballard, A. Duncan, and P.K. McFaddin ([arXiv](#)) (2020). *Submitted.*
3. *Consequences of the existence of exceptional collections in arithmetic and rationality* with M.R. Ballard, A. Duncan, and P.K. McFaddin, ([arXiv](#)) (2020). *Submitted.*

Published.

1. C. Hacon, A. Lamarche and K. Schwede, *Global generation of test ideals in mixed characteristic and applications.* ([arXiv](#)) (2023) to appear in *Algebraic Geometry*
2. Sean P. Yee, N. Papalia, J. Deshler, K. C. Rogers, A. Lamarche, and R. Petrusis (2023) *Graduate Student Instructor Peer-Mentoring: Design and Impact*, PRIMUS

3. S. Hashimoto, K. Honigs, A. Lamarche and I. Vogt, appendix by N. Addington, *A transcendental Brauer-Manin obstruction to weak approximation on a Calabi-Yau threefold*. Research in Number Theory 8 (2022), no. 1, Paper No. 12. ([arXiv](#))
4. K. Bresz, L. Jones, A. Lamarche and M. Markovich, *A problem related to a conjecture of Polignac*, Integers **16** (2016), Paper No. A43, 8 pp. MR3512873 ([pdf](#))
5. J. Harrington, L. Jones and A. Lamarche, *Characterizing finite groups using the sum of the orders of the elements*, Int. J. Comb. **2014**, Art. ID 835125, 8 pp. MR3280890 ([pdf](#))
6. J. Harrington, L. Jones and A. Lamarche, *Representing integers as the sum of two squares in the ring \mathbb{Z}_n* , J. Integer Seq. **17** (2014), no. 7, Article 14.7.4, 10 pp. MR3238121 ([arXiv](#))
7. L. Jones and A. Lamarche, *Generating d -composite sandwich numbers*, Integers **15A** (2015), Paper No. A10, 21 pp. MR3361819 ([pdf](#))
8. L. Jones and A. Lamarche, *The irreducibility of polynomials related to a question of Schur*, Involve **9** (2016), no. 3, 453–464. MR3509338

For more information, please visit <http://alicialamarche.com/research>.

TEACHING EXPERIENCE

University of Utah

SALT LAKE CITY, UT

- 2200 - Discrete Mathematics *Fall 2023*
- 2270 - Linear Algebra *Fall 2022*
- 1210 - Calculus 1 *Fall 2020, Spring 2021*

University of South Carolina

COLUMBIA, SC

- 546 - Abstract Algebra *Summer 2019*
- 141 - Calculus 1 *Summer 2016, 2017*
- 122 - Business Calculus *Spring 2017, 2018*
- 115 - Precalculus *Fall 2016*
- 111 - College Algebra *Fall 2017, 2019, Spring 2020*
- 142 - *Teaching Assistant:* Calculus 2 *Fall 2015, Spring 2016*
- 141 - *Teaching Assistant:* Calculus 1 *Fall 2018*

MENTORING EXPERIENCE

- *Undergraduate Research: Toric Varieties and Mirror Symmetry* *Fall 2022 - current*
Currently working with University of Utah undergraduate Jacob Strong to study the toric variety constructed from the root system of type E_6 . Jacob has received funding through University of Utah's [UROP](#) program and the University of Utah mathematics department for this work.
- [PIMS DREAMs](#) *Instructor & Research Group Leader* *Summer 2023*
Instructed a week-long minicourse on number theory, then spent a week working alongside three high school students to explore elliptic curves.

- *Directed Reading Program Mentor* *Fall 2020, Spring 2021*
Led two independent reading projects for undergraduate students on elliptic curves and homotopy type theory at the University of Utah.
- *Graduate Student Instructor Peer Mentor* *2019*
As a graduate student at the University of South Carolina, I observed the courses of a group of three second-year graduate students throughout the semester, organized individual meetings to discuss observations, and led bi-weekly group meetings to discuss general teaching practices.

AWARDS & GRANTS

- NSF Postdoctoral Research Fellowship (Award #2103271) *2021- current*
- Outstanding Dissertation Award @ UofSC *2020*
- Dera D. Parkinson Graduate Fellowship @ UofSC *2019*
- SPARC Graduate Research Grant @ UofSC *2018*
- *Honorable Mention* - NSF Graduate Research Fellowship *2017*
- James Eldon Award in Mathematics *2015*
- Michael D. Seyfried Memorial Achievement Scholarship *2014-2015*
- Shippensburg University Undergraduate Research Grant *2014-2015*

PROFESSIONAL ACTIVITIES

- Co-Organizer, [AMS Math Research Community on Derived Categories](#) *Summer 2023*
with Matthew Ballard, Daniel Krashen, Katrina Honigs, and Emanuele Macrì
- Post-doc Involvement Representative for UofU AWM Chapter *2023*
with Emelie Arvidsson
- Co-Organizer, [iTHEM Working Group](#) *2022*
with Rebecca Hardenbrook and Thomas Hill
- Co-Organizer, [Utah Algebraic Geometry Seminar](#) *2021 - 2023*
with Leo Herr (2021) and Devlin Mallory (2022- Spring 2023)
- Co-Organizer, [Math for All SLC](#) *2023, 2024*
with Selvi Kara, Cooper Boniece, and Peter McDonald
- Graduate Student Instructor [Peer Mentor Program](#) (*Mentor*) *2019*
Supported by NSF Award #1725295
- UofSC Mathematics Tutoring Center Coordinator *2019*
- Graduate Student Instructor [Peer Mentor Program](#) (*Research Assistant*) *2018*
Supported by NSF Award #1725295
- Graduate Student Representative for the UofSC Math Graduate Council *2017-2018*
- Organizer, [Graduate Colloquium Series at UofSC](#) *2017-2018*
- Organizer, [Graduate Student Seminar on Elliptic Curves](#) *2017*

SELECTED INVITED TALKS

- Rational Points, Symmetry, and Derived Categories *October 2023*
at San Francisco State University
- Root systems, moduli spaces, and derived categories *October 2023*
at University of Washington Algebra & Algebraic Geometry Seminar
- Galois Cohomology: A Crash Course *September 2023*
at Syzygies and mirror symmetry AIM Workshop
- Root systems, moduli spaces, and derived categories *March 2023*
at Canadian Western Algebraic Geometry Symposium
- What is a Toric Variety? *April 2023*
at Bard College
- Root systems, moduli spaces, and derived categories *April 2023*
at Stony Brook Algebraic Geometry Seminar
- Mixed Characteristic Test Ideals *May 2022*
at Advances in Mixed Characteristic Commutative Algebra & Geometric Connections
Casa Matemática Oaxaca
- Derived Categories and Rational Points for a class of toric Fano varieties *February 2022*
at Princeton Algebraic Geometry Seminar

For information on work I've presented and conferences I've attended, please visit
<http://alicialamarche.com/other/>
