

Education

- 2016–present **Ph.D. Mathematics**, *Texas A&M University*, (Expected graduation May 2022).
Advisor: Frank Sottile
- May 2016 **B.S. Mathematics**, *Utah State University*, Logan, Utah.
College of Science Valedictorian

Publications and Preprints

- Polyhedral homotopies in Cox coordinates*, T. Duff, S. Telen, **E. Walker**, T. Yahl. (In preparation.)
- Numerical homotopies from Khovanskii bases*, M. Burr, F. Sottile, **E. Walker**. Preprint: arXiv:2008.13055 [math.AG]
- Jacobian elliptic Kummer surfaces and special function identities*, **E. Griffin**, A. Malmendier. *Communications in Number Theory and Physics*, Volume 12, Number 1, 97-125, 2018.
- Numerical assessment of CaOx renal calculi development in space using PBE coupled to urinary flow and species transport*, M. Kassemi, **E. Griffin**, D. Thompson. *International Journal of Heat and Mass Transfer* 121, 1146-1158, 2018.
- Bayesian analysis for risk assessment of selected medical events in support of the Integrated Medical Model effort*, K. Gilkey, M. McRae, **E. Griffin**, A. Kalluri, and J. Myers. NASA Technical Publication TP-2012-217120, 2012.
- Bayesian Analysis for Risk Assessment of Selected Medical Events in Support of the Integrated Medical Model Effort*, K. Gilkey, M. McRae, **E. Griffin**, J. Myers. NASA Technical Memorandum. NASA/TM-2011-217120, Internal #E-17809, 2011.

Presentations

- Oct 17, 2020 *Toric degenerations and homotopy methods from finite Khovanskii bases*, M. Burr, F. Sottile, **E. Walker**. SIAM TX-LA Section Meeting, Texas A&M University.
- Jan 30, 2020 *Toric degenerations and homotopy methods from finite Khovanskii bases*, M. Burr, F. Sottile, **E. Walker**. Discrete Geometry Seminar, Freie Universität.
- Jan 29, 2020 *Toric degenerations and homotopy methods from finite Khovanskii bases*, M. Burr, F. Sottile, **E. Walker**. Seminar on Nonlinear Algebra, Max Planck Institute for Mathematics in the Sciences, Leipzig, Germany.
- Jan 15, 2020 *Toric degenerations and homotopy methods from finite Khovanskii bases*, M. Burr, F. Sottile, **E. Walker**. Colloquium on Algorithmic Algebra, Technische Universität Berlin.
- Nov 2, 2019 *Toric degenerations and the Khovanskii homotopy*, M. Burr, F. Sottile, **E. Walker**. SIAM Texas-Louisiana Section Meeting, Southern Methodist University.
- Sep 16, 2019 *A deeper look at polynomials*, **E. Walker**. Lecture in Mathematics, Lawrence University.
- Sep 15, 2019 *Toric degenerations, finite Khovanskii bases, and the Khovanskii homotopy*, M. Burr, F. Sottile, **E. Walker**. AMS Fall Central Sectional Meeting, University of Wisconsin.
- Jul 12, 2019 *Numerical homotopy methods from Khovanskii bases*, M. Burr, F. Sottile, **E. Walker**. SIAM Conference on Applied Algebraic Geometry, University of Bern.

- Apr 13, 2019 *Numerical homotopy methods from finite Khovanskii bases*, M. Burr, F. Sottile, **E. Walker**. (Poster) Meeting on Applied Algebraic Geometry, Georgia Institute of Technology.
- Oct. 25, 2018 *SAGBI Bases and the SAGBI Homotopy*, **E. Walker**, Combinatorial Algebraic Geometry Seminar, Texas A&M University.
- Aug 16, 2018 *Plücker Equations for the Grassmannian*, **E. Walker**, Combinatorial Algebraic Geometry Seminar, Texas A&M University.
- Apr 6, 2018 *The polyhedral homotopy*, **E. Walker**, Newton-Okounkov Bodies Seminar, Texas A&M University.
- Sep 8, 2016 *Kummer Surfaces from extremal rational elliptic surfaces*, Malmendier A., **E. Walker**, Mathematics Undergraduate Research Expo, Texas A&M University. (Poster)
- Feb 20, 2016 *Kummer Surfaces from extremal rational elliptic surfaces*, **E. Griffin**, Southwest Undergraduate Mathematics Research Conference, Tempe, AZ.
- Aug 22, 2015 *Branching types of rational functions and functional decomposition*, **E. Griffin**, H. Zhu. Young Mathematicians Conference, Columbus, OH.
- 2015 *Effect of gravitational field and countermeasures on renal calculi development & size distributions in the nephron*, M. Kassemi, **E. Griffin**, D. Thompson. NASA Human Research Program Investigator's Workshop, Galveston, TX.
- 2014 *Effect of nucleation, growth, and agglomeration on size distributions of renal calculi in 1G and microgravity*, M. Kassemi, **E. Griffin**, and I. Iskovitz. 44th International Conference on Environmental Systems, ICES 2014-45, Tucson, AZ.
- 2014 *Nucleation, growth, and agglomeration of renal calculi in 1G and microgravity*, M. Kassemi, **E. Griffin**, and I. Iskovitz. NASA Human Research Program Investigator's Workshop, Galveston, TX.
- Jul 2013 *Prediction of Renal Stone Development and Size Distribution in Microgravity Using Population Balance Equation*, M. Kassemi, **E. Griffin**, I. Iskovitz. AIAA Paper-1574858, Session: ICES513, Computational Modeling for Human Health and Performance Analysis, presented at 43rd AIAA International Conference Environmental Systems, Vail, CO.
- Feb 2011 *A Transport-Kinetics Model For Simulation of Renal Stone Growth In 1g And Microgravity*, M. Kassemi, I. Iskovitz, **E. Griffin**. Presented in HRP & NSBRI Investigator's Working Group Conference, Houston, TX.

Scholarships and Honors

- Aug 2016 Lechner Graduate Scholarship, Texas A&M University.
- May 2016 College of Science Valedictorian, Utah State University.
- May 2016 Outstanding Undergraduate Mathematics Award, Utah State University.
- Aug 2010 Undergraduate Research Fellowship (\$1000 per year for four years), Utah State University.
- Aug 2010 Presidential Scholarship (4 year tuition and fees), Utah State University.
- June 2010 NASA College Scholarship (\$2,000 per year for four years).

Grants

- 2019 Graduate Student Research and Presentation Travel Award, OGAPS at Texas A&M University, \$750.
- 2019 SIAM Student Travel Award, *SIAM Conference on Applied Algebraic Geometry*, \$850.
- 2019 *Participant Support for the Texas Women in Mathematics Symposium (TWIMS)*, TAMU AWM Graduate Student Chapter, NSF DMS Infrastructure, \$8000.
- 2019 *Texas Women in Mathematics Symposium 2019-2020*, TAMU AWM Graduate Student Chapter, College of Science Diversity and Equity Small Grant, \$2000.

- 2019 *Texas Women in Mathematics Symposium 2019-2020*, TAMU AWM Graduate Student Chapter, MAA Tensor Women and Mathematics Grant, \$6000.
- 2018-2019 TAMU AWM Graduate Student Chapter, College of Science Diversity and Equity Small Grant, \$1960.
- 2015-2016 Undergraduate Research & Creative Opportunity Grant, *Elliptic Surfaces over \mathbb{P}^1* , Utah State University, \$1850.

Service

- Oct 17, 2020 Co-organizer of "Applications of Algebra and Geometry" minisymposium at the 3rd Annual SIAM TX-LA Section Meeting.
- 2020-2021 Founding Chair, TAMU Math Graduate Student Diversity Committee, Texas A&M University.
- Feb 1-2, 2020 Co-organizer, Texas Women in Mathematics Symposium, Texas A&M University.
- 2018-2021 Peer Mentor, AWM Peer Mentoring Program, Texas A&M University.
- 2018-2020 Committee Member, College of Science Climate and Diversity Committee, Texas A&M University.
- 2019-2020 President, Association for Women in Mathematics Graduate Student Chapter, Texas A&M University.
- 2017-2019 Secretary, Association for Women in Mathematics Graduate Student Chapter, Texas A&M University.
- 2017-2020 Co-organizer, monthly Women in Math Mentoring Lunches, Texas A&M University.
- 2018-2020 Co-organizer, monthly Peer Mentoring Group Meetings, Texas A&M University.
- Feb 2018, 2019, 2020 Volunteer, Math & Stat Fair, Texas A&M University.
- Feb 2017 Volunteer, STEMfest, Texas A&M University.
- Oct 2016 Volunteer, Derivative Bee, Texas A&M University.

Computer skills

- Languages Julia, C++
- Software Maple, MATLAB, Macaulay2, Bertini, PHCpack, HomotopyContinuation.jl, ANSYS FLUENT, \LaTeX

Experience

- 2016-Present **Graduate Teaching Assistant**, *Department of Mathematics*, Texas A&M University.
 - *Peer Teaching Mentor*: MATH 140 and MATH 141, Summer 2020.
 - *Instructor of Record*: Mathematics for Business and Social Sciences (MATH 140), Summer 2018. Finite Mathematics (MATH 141), Fall 2019.
 - *Recitation T.A.*: Functions, Trigonometry and Linear Systems (MATH 150), Fall 2017, 2018.
 - *Help Sessions*: Finite Mathematics (MATH 141), Summer 2017.
 - *Grader*: Modern Geometry (MATH 467), Fall 2016, Spring 2017. Foundations of Mathematics (MATH 220), Spring 2018, 2019. Mathematics for Business and Social Sciences (MATH 140), Summer 2019. Mathematical Neuroscience (MATH 664), Summer 2019. History of Mathematics (MATH 629), Spring 2020.
- Summer 2015 **Undergraduate Researcher**, *Research Experience for Undergraduates*, University of Michigan. Advisor: Michael Zieve
- Summers 2011-2013 **Apprentice in Mathematical Biological Modeling**, *National Space Biomedical Research Institute Apprenticeship*, NASA Glenn Research Center. Mentor: Mohammad Kassemi
- Spring 2012 **Maple Validation**, *Department of Mathematics & Statistics*, Utah State University. Validated Maple help worksheets for the Differential Geometry package.

- 2015-2016, **Tutor**, *Academic Success Center*, Utah State University.
 2012-2013 Tutored students in college algebra, trigonometry, calculus, linear algebra, and differential equations.
 Fall 2011 **Class Leader**, *Department of Mathematics & Statistics*, Utah State University.
 Guided and tutored in-class group work for college algebra, also graded and held office hours.
 Summer 2010 **Intern in Biological Statistics**, *LERCIP Internship*, NASA Glenn Research Center.
 Mentor: Jerry Myers
 2006-2013 **Private Tutor**.
 Tutored several high school students in algebra, trigonometry, and AP Calculus.

Conferences Attended

- (virtual) **SIAM TX-LA Section Annual Meeting**, *Texas A&M University*, Oct 16-18, 2020.
 (virtual) **Monodromy and Galois groups in enumerative geometry and applications**, *ICERM*, Aug 31 - Sep 2, 2020.
 (virtual) **Symmetry, Randomness, and Computations in Real Algebraic Geometry**, *ICERM*, August 24-28, 2020.
 (virtual) **Macaulay2 Workshop**, *Cleveland State University*, May 11-15, 2020.
11th polymake conference and developer meeting, *Max Planck Institute for Mathematics in the Sciences*, Jan 24, 2020.
SIAM Texas-Louisiana Section Meeting, *Southern Methodist University*, Nov 2-3, 2019.
AMS Fall Central Sectional Meeting, *University of Wisconsin*, Sep 14-15, 2019.
AMS Fall Central Sectional Meeting, *University of Wisconsin*, Sep 14-15, 2019.
Sage Days 99: SageMath and Macaulay2 - An Open Source Initiative, *Institute for Mathematics and its Applications*, Jul 22-26, 2019.
SIAM Conference on Applied Algebraic Geometry, *University of Bern*, Jul 9-13, 2019.
Meeting on Applied Algebraic Geometry, *Georgia Institute of Technology*, Apr 13-14, 2019.
Texas Algebraic Geometry Seminar, *University of Texas at Austin*, Feb 8-10, 2019.
Texas Algebraic Geometry Seminar 2018 Fall Program, *Texas A & M University*, Nov 3-4, 2018.
Algebraic Geometry Northeastern Series Fall 2018, *Brown University*, Sep 21-23, 2018.
Nonlinear Algebra Program: Core Computational Methods Workshop, *ICERM*, Sep 17-21, 2018.
CBMS Applications of Polynomial Systems, *Texas Christian University*, Jun 4-8, 2018.
Texas Algebraic Geometry Symposium, *Texas A&M University*, Apr 6-8, 2018.
Texas Women in Math Symposium, *Sam Houston State University*, Dec 2, 2017.
AMS Fall Central Sectional Meeting, *University of North Texas, Denton, TX*, Sep 9-10, 2017.

Memberships

- Association for Women in Mathematics (AWM)
- American Mathematical Society (AMS)
- Society for Industrial and Applied Mathematics (SIAM)