Michael John Griffin

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Professional Experience

Assistant Professor, Brigham Young University, Fall 2017-present.
Postdoctoral Fellow, Universität zu Köln, July 2016–July 2017.
Postdoctoral Fellow, Princeton University, July 2015–July 2016.

Academic Preparation

PhD Mathematics, Emory University, May 2015.
   Dissertation: *Applications of Harmonic Maass Forms*.
MS Mathematics, Emory University, Dec 2014.
B.S. Mathematics, Brigham Young University, May 2011.
   Graduated *Magma Cum Laude* and with university honors.

Recognition for Scholarship

Distinguished Research Award, BYU Math Department (2019).
Research featured in *Biggest math breakthroughs of 2019*, Popular Mechanics (2019).
NSF postdoctoral fellow, National Science Foundation (2015).
Graduate Student Research Award, Emory University Math/CS dept. (2015).
Research featured in *Top 100 science stories of 2015*, Discover Magazine (2016).
Research featured in *Top 100 science stories of 2014*, Discover Magazine (2015).
NSF Graduate Research Fellow, National Science Foundation (2012).
NPSC Graduate Fellow, National Physical Science Consortium (2011).

Outreach

Intermountain Math Competition, Fall 2018, 2019, 2021.
Faculty adviser for USGA (lgbtq+ student organization at BYU), 2019-2021.
BYU Putnam team coach, 2017-2021.
BYU Math Camp, Summers 2018, 2019.
Sterling Scholarship (Mathematics) finals judge , Feb. 2018, 2019.
National Museum of Mathematics Expansions Program, Sept. 2015 – May 2016.
Emory Math Circle program, Jan. 2014 – May 2015.
Emory REU project adviser, Summers 2013, 2015.

CONFERENCES ORGANIZED

34th Automorphic Forms Workshop (organization in progress). Joint with Nickolas Andersen, Darrin Doud, and Paul Jenkins. Funded by NSF, NSA and the Journal of Number Theory. Moab, UT. March 2022 (Postponed from May 2020).

AMS Special Session on Analytic Theory of Automorphic Forms and L-Functions. Joint with Amanda Foslom, Larry Rolen, and Jesse Thorner. Denver, Jan 2020.

Modular Forms are Everywhere conference in honor of the 65th birthday of Don Zagier. Joint with Kathrin Bringmann, Maxim Kontsevich, Pieter Moree, Ken Ono, and Martin Raum. Max-Planck-Insitut für Mathematik. Funded by the European Research Council. Bonn, July 2017.

PUBLICATIONS

Submitted

(24) M. Griffin, K. Ono, N. Saikia, and W-L. Tsai *AGM and jellyfish swarms of elliptic curves*, Submitted.

(23) M. Griffin, P. Jenkins, and G. Molnar *The Arithmetic of Modular Grids*, Submitted.

(22) M. Griffin, J. Hales *The Modular Parameterization of Elliptic Curves*, Submitted.

(21) M. Griffin, K. Ono, L. Rolen, J. Thorner, Z. Tripp, and I. Wagner, *Jensen Polynomials for Riemann's Xi Function*, Submitted.

Accepted or Published

(20) M. Griffin, K. Ono K, and W-L Tsai *Tamagawa products of elliptic curves over $\mathbb{Q}$*, Quarterly Journal of Mathematics (Oxford), Accepted.

(19) BYU Computational Number Theory Group, *Odd, spoof perfect factorizations*, Journal of Number Theory, Accepted.

(18) M. Griffin, K. Ono, and W-L. Tsai, *Heights of points on elliptic curves over $\mathbb{Q}$*, Proceedings of the American Mathematical Society, Accepted.

(17) M. Griffin, K. Ono, and W-L. Tsai, *Quadratic twists of elliptic curves and class numbers*, Journal of Number Theory **227**, 1-29. (2021).

(16) M. Griffin and K. Ono, *Elliptic Curves and Lower Bounds for Class Numbers*, Journal of Number Theory. **214**, 1-12 (2020)

(15) M. Griffin, *On p-adic Harmonic Maass Functions*, Transactions of the American Mathematical Society. **373** (2020), 7019-7066.

(14) M. Griffin, L. Rolen, K. Ono, and D. Zagier, *Jensen Polynomials for Riemann's Zeta Function and Suitable Arithmetic Sequences*, Proceedings of the National Academy of Sciences. **116** no. 23 (2019), 11103-11110.

(13) J. Chahal, M. Griffin, N. Priddis, *When are multiples of polygonal numbers again polygonal numbers?*, Hardy–Ramanujan Journal. **41** (2018), 58-67.

(12) M. Griffin, M. Mertens, *A Proof of the Thompson Moonshine Conjecture*, Research in the Mathematical Sciences. **3:36** (2016).

(11) M. Jameson, M. Griffin, and S. Trebat-Leder, *On p-Adic Modular Forms and the Bloch-Okounkov Theorem*, Research in the Mathematical Sciences. **3:11** (2016).

(10) J. Duncan, M. Griffin and K. Ono, *Proof of the Umbral Moonshine Conjecture*, Research in the Mathematical sciences. **2:26** (2015).

(9) J. Duncan, M. Griffin and K. Ono, *Moonshine*, Research in the Mathematical Sciences. **2:11** (2015).

(8) M. Griffin, K. Ono, and S. O. Warnaar, *A Framework of Rogers–Ramanujan Identities and their Arithmetic Properties*, Duke Mathematics Journal. **165**, (2016), 1475-1527.

(7) C. Alfes, M. Griffin, L. Rolen and K. Ono, *Weierstrass Mock Modular Forms and Elliptic Curves*, Research in Number Theory. **1:24**, (2015).

(6) V. Dose, N. Green, M. Griffin, T. Mao, L. Rolen, and J. Willis *Singular Moduli for a Distinguished Non-Holomorphic Modular Function*, Proceedings of the American Mathematical Society. **143**, no. 3 (2015), 965-972.

(5) M. Griffin, K. Ono, and L. Rolen, *Ramanujan's Mock Theta Functions*. Proceedings of the National Academy of Sciences. **110** no. 15 (2013), 5765-5768.

(4) M. Griffin, A. Malmendier, and K. Ono, *SU(2) Donaldson Invariants of the Projective Plane*, Forum Mathematicum, **27** (2015), 2003-2023.

(3) M. Griffin, and L. Rolen, *Properties of Class Polynomials for Non-holomorphic Modular Functions*, Journal of the Ramanujan Society. **30**, no. 1 (2015), 83-99.

(2) M. Griffin, and L. Rolen, *On Matrices Arising in the Finite Field Analogue of Euler's Integral Transform*, Mathematics. **1** (2013), 3-8.

(1) M. Griffin, *Divisibility Properties of Coefficients of Weight* 0 *Weakly Holomorphic Modular Forms*, International Journal of Number Theory. **7**, no. 4 (2011), 933-941.

INVITED PRESENTATIONS

- *Jensen polynomials of the Xi-function and other arithmetic sequences* (Virtual), Algebraic Geometry and Number Theory seminar, Chalmers/University of Göthenburg, Göthenburg, 15 Sept. 2021
- *Moonshine* (Virtual), Representation Theory and Number Theory seminar, University of Utah, Salt Lake, 31 Mar. 2021
- *Class pairings and elliptic curves* (Virtual), International Conference on Number Theory and Algebra, IIT (BHU), Varanasi , 22-23 Dec. 2020
- *Class pairings and elliptic curves* (Virtual), International Seminar on Automorphic Forms, TU Darmstadt, 4 Nov. 2020
- *Monstrous Moonshine.* BYU Physics and Astronomy Colloquium, BYU, 1 Apr. 2019
- Convergence of the Jensen polynomials for the Riemann ζ-function. AMS Sectional meeting, Honolulu, 22 Mar. 2019
- *The Modular Parameterization of Elliptic curves.* Conference on Modular Forms and Related Topics, American University of Beirut, Beirut, 29 May 2018

- *The Modular Parameterization of Elliptic curves.* AMS Sectional Meeting, Portland State University, Portland, 15 Apr. 2018
- *Polya's program for the Riemann Hypothosis and related problems.* MPS Conferences on Number Theory, Geometry & Strings II, Simons Foundation, New York, 15 Mar. 2018
- *Umbral Moonshine.* Indefinite theta functions and applications in physics and geometry, Trinity College. Dublin, 7 June 2017
- *Moonshine.* School and Workshop on Modular Forms and Black Holes, NISER. Bhubaneswar India, 12 Jan. 2017
- *Thompson Moonshine.* Plenary talk, UCONN conference on elliptic curves, modular forms and related topics. Storrs CT, 13 Aug. 2016
- *Moonshine, Moonshine and mock modular forms*, and *Umbral moonshine.* (3 talks). KIAS number theory seminars. Seoul, 2-5 Feb. 2016
- *Moonshine.* Purdue automorphic forms and representation theory seminar. West Lafayette IN, 16 April 2015
- *On the distribution of moonshine and umbral moonshine.* UNC-Duke Number Theory Seminar. Durham NC, 21 Jan. 2015
- *Weierstrass mock modular forms and elliptic curves.* Joint math meetings. San Antonio TX, 13 Jan. 2015
- *Algebraic units arising from a framework of Rogers-Ramanujan identities.* Joint math meetings. San Antonio TX, 11 Jan. 2015
- *Weierstrass mock modular forms and elliptic curves.* SASTRA Prize Conference. Kumbakonam India, 21 Dec. 2014
- *On the distribution of moonshine and other theorems at the interface of number theory and representation theory.* Texas A&M Number Theory Seminar. College Station TX, 3 Dec. 2014
- *On the distribution of moonshine and other theorems at the interface of number theory and representation theory.* BYU Number Theory Seminar. Provo UT, 18 Nov. 2014
- *Theorems at the interface of number theory and representation theory.* University of Tennessee Algebra and Number Theory Seminar. Knoxville TN, 3 Nov. 2014
- *Theorems at the interface of number theory and representation theory.* Penn State Number Theory Seminar. University Park PA, 27 Oct. 2014
- *On the distribution of moonshine.* Emory Algebra/Number Theory Seminar. Atlanta GA, 16 Sept. 2014
- *A framework of Rogers-Ramanujan identities and their arithmetic properties.* AMS spring sectional meeting, Texas Tech University. Lubbock TX, 12 April 2014.
- *Weierstraass mock modular forms and elliptic curves.* AMS spring sectional meeting, Texas Tech University. Lubbock TX, 11 Apr. 2014.
- *A framework of Rogers-Ramanujan identities.* University of South Carolina Number Theory Seminar. Clemson SC, 23 Oct. 2013.
- *Weierstraass mock modular forms and elliptic curves.* Clemson Number Theory Seminar. Clemson SC, 23 Oct. 2013.
- *Mock modular forms.* TIFR number theory seminar. Mumbai India, 1 Aug. 2013.
- *Mock modular forms.* (2 talks). IMSc number theory colloquium. Chennai India, 22-23 July. 2013.
- *Ramanujan's mock-theta runctions.* BYU Number Theory Seminar. Provo UT, 8 Jan. 2013.

- *Properties of class polynomials for non-holomorphic modular functions.* AMS Sectional Meeting. Honolulu, 3 Mar. 2012.