Michael John Griffin

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Academics

Ph.D. Mathematics. Emory University 2015

M.Sc. Mathematics. Emory University 2014

B.S. Mathematics w/ C.S. minor. Brigham Young University 2011
Graduated magna cum laude, and with university honors

Work Experience

Brigham Young University Provo, UT Aug 2017 – Present
Assistant professor

UNIVERSITY OF COLOGNE Cologne, Germany July 2016 – July 2017
NSF postdoctoral fellow

PRINCETON UNIVERSITY Princeton, NJ July 2015 – July 2016
NSF postdoctoral fellow

MICROSOFT CORPORATION Redmond, WA Summer 2011
Intern, software developer

- Built a prototype application for intuitive data manipulation
- Coded in C# and MS Silverlight for efficient handling of very large data sets

BOY SCOUTS OF AMERICA Ogden, UT
COPE course director Summer 2009
High Adventure area director Summer 2008

LDS CHURCH; INDIA, BANGALORE MISSION India May 2006 – May 2008
Volunteer Missionary

Awards and Honors

MAA Project NExT fellow
NSF postdoctoral fellow
Emory Dept. of Math. graduate student research award
Research featured in Discover Magazine's top 100 stories for years 2014 and 2015
NSF graduate research fellow
NPSC graduate fellow
BYU Dept. of Math. Orson Pratt Prize for outstanding graduating senior
BYU Gordon B. Hinckley presidential scholar
BSA Eagle Scout

Teaching

Brigham Young University

Math 485: Mathematical Cryptography — Fall 2017

National Museum of Mathematics

Expansions outreach program — Sep 2015 – May 2016

Emory University

Math Circle outreach program — Jan 2014 – May 2015
Emory REU project advisor — Summers 2013, 2015
Math 111: Beginning Calculus — Sept 2012 – May 2013

Brigham Young University

Teaching assistant for Math 485: Mathematical Cryptography — Fall 2010

Publications

- On p-adic harmonic Maass functions. Submitted.
- A proof of the Thompson Moonshine Conjecture. (with M. Mertens), *Research in the Mathematical Sciences*, **3:36** (2016).
- On p-adic modular forms and the Bloch-Okounkov theorem. (with M. Jameson and S. Trebat-Leder), *Research in the Mathematical Sciences,* **3:11** (2016).
- Proof of the Umbral Moonshine Conjecture. (with K. Ono and J. Duncan), *Research in the Mathematical Sciences,* **2:26** (2015).
- Moonshine. (with K. Ono and J. Duncan), *Research in the Mathematical Sciences*, **2:11**, (2015).
- A framework of Rogers-Ramanujan identities and their arithmetic properties. (with K. Ono, and S. O. Warnaar), *Duke Mathematical Journal,* **165** (2016), 1475-1527.
- Weierstrass mock modular forms and elliptic curves, (with C. Alfes, K. Ono, and L. Rolen), *Research in Number Theory*, **1:24** (2015).
- Singular Moduli for a Distinguished Non-Holomorphic Modular Function. (with V. Dose, N. Green, T. Mao, L. Rolen, and J. Willis), *Proceedings of the American Mathematical Society,* **143**, no. 3 (2015), 965-972.
- Ramanujan's Mock Theta Functions. (with K. Ono and L. Rolen), *Proceedings of the National Academy of Science,* **110**, no. 15 (2013), 5765-5768.
- SU(2) Donaldson invariants of the projective plane. (with A. Malmendier and K. Ono), *Forum Mathematicum*, **27**, no. 4 (2015), 2003–2023.
- Properties of Class Polynomials for Non-holomorphic Modular Functions. (with L. Rolen), *Journal of the Ramanujan Societey*, **30**, no. 1 (2015), 83-99.

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

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

Presentations

"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, Umbral moonshine." KIAS number theory seminars. Seoul, 2-5 Feb. 2016

"Moonshine." Princeton number theory working seminar. Princeton NJ, 8 Oct. 2015

"Moonshine." Purdue automorphic forms and representation theory seminar. West Lafayette IN, 16 April 2015

"Umbral moonshine." Automorphic forms workshop. Ann Arbor MI, 5 Mar. 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." 28th Automorphic forms workshop. Moab UT, 12 May 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 April 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." IMSc number theory colloquium. Chennai India, 22-23 July. 2013.

"Ramanujan's mock-theta runctions." BYU Number Theory Seminar. Provo UT, 8 Jan. 2013.

"SU(2) Donaldson invariants of the projective plane." Ramanujan 125 Conference. Gainsville FL, 6 Nov. 2012.

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

"U_p congruences modulo powers of primes." 25th Automorphic Forms Workshop. Corvalis OR, 24 Mar. 2011.

"Divisibility properties of coefficients of weight 0 weakly holomorphic Modular Forms." 24th Automorphic Forms Workshop. Honolulu, 23 Mar. 2010.

"A new perspective on some non-simple periodic orbits." Spring Research conference, Brigham Young University College of Physical and Mathematical Sciences. Provo UT, 21 Mar. 2009.