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## Education

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**Doctor of Philosophy in Mathematics, University of Arizona (2015)**

*Thesis supervised by Romyar Sharifi*

**Master of Science in Mathematics, Brigham Young University (2009)**

*Thesis supervised by Roger Baker*

**Bachelor of Science in Mathematics, Brigham Young University (2007)**

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## Publications *Number Theory (Algebraic and Analytic) and College Teaching*

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**Dissertation: “Modular symbols mod Eisenstein ideals for Bianchi spaces” (2015)**

*Developed a technique that doubles the speed of calculating Hecke actions on generalized Manin Symbols attached to Bianchi Spaces.*

*Produced dozens of examples in Magma to help formalize a conjecture framed by Fukaya, Kato and Sharifi.*

**Publication: R. C. Baker and K. Powell, “The Distribution of  $k$ -Free Numbers,” Acta Math. Hungar., 126 (1-2) (2010), 181-197.**

*Decreased the exponent in the asymptotic formula for the number of cubic and quartic free integers by 1.5%.*

**Thesis: “ Topics in Analytic Number Theory” (2009)**

*Proved that the Generalized Riemann Hypothesis for Dirichlet  $L$ -functions is equivalent to the derivative of these functions admitting a particular zero-free region.*

**Submitted Paper: A. Chipman, G. Lawlor, and K. Powell, “Abstract algebra shows how to understand and expand peg solitaire and vice versa,” submitted to Mathematics Magazine (2007).**

*Developed dozens of games that utilized matrix quotient groups associated to a peg solitaire board to teach and provide examples of basic group theory.*

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## Teaching *University, College, and Elementary School Levels*

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**Graduate Assistant Instructor, The University of Arizona (2009-10, 2011-present)**

*College algebra, trigonometry, precalculus, business calculus and calculus I; (recitation: differential equations)*

**Adjunct Faculty Member, Pima Community College (2011-present)**

*College algebra, calculus I and calculus II*

**Qualifying Exam Review Leader, The University of Arizona (2013)**

*Doctoral program qualifying exam in algebra*

**Summer Math Camp Instructor, The International School of Tucson (2012)**

*Elementary school recreational mathematics*

**GTEAMS Fellowship Intern, Nash Elementary School (2010-11)**

*Second grade mathematics curriculum*

**Graduate Assistant Instructor, Brigham Young University (2007-09)**

*Calculus II; (recitation: calculus I, calculus II)*

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## Presentations *Research and Teaching*

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**“Modular symbols mod Eisenstein ideals for Bianchi spaces,” Algebra and Number Theory Seminar, University of Arizona (2014)**

**“p-adic L functions on elliptic curves with Complex Multiplication,” Oral Exam Defense, University of Arizona (2013)**

**“A geometric picture of ramification groups,” Algebra and Number Theory Seminar, University of Arizona (2012)**

**“Instructional applets,” Teaching Strategies Workshop, Pima Community College (2011)**

**“Math is all around us,” GK-12 Showcase, University of Arizona (2011)**

“The distribution of  $k$ -free integers,” Number Theory Seminar, University of Arizona  
(2010)

“The distribution of  $k$ -Free integers,” Number Theory Seminar, Brigham Young University  
(2009)

“Zeros of Dirichlet  $L$ -functions,” Spring Research Conference, Brigham Young University  
(2009)

“Counting cube-free integers,” Spring Research Conference, Brigham Young University  
(2008)

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## Skills *Computer and Language*

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### **Magma (2014)**

*(See Dissertation)*

### **Java (2011)**

*Wrote applets for teaching addition and subtraction concepts and for visualizing notions of logarithms and graph transformations.*

### **Pari/GP (2006)**

*Found dozens of examples of Galois group elements to support a conjecture of Doud.*

### **Mathematica/Maple (2006-07)**

*Compared the efficiencies of three algorithms (PSLQ, LLL and Brun) for computing the polytope of discrete lattices.*

### **Russian (2003-05)**

*Typed, spoke, and answered phone calls in Russian.*

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## Service and Leadership *The Church of Jesus Christ of Latter Day Saints*

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**Local Elders Quorum President; Tucson, Arizona (2014-present)**

*Overseeing the visiting and strengthening of over one hundred church members, organizing service projects, counseling with other leaders and overseeing quorum meeting instruction.*

**Local Choir Director; Provo, Utah and Tucson, Arizona (2002-03, 2012-13)**

*Directed practices and monthly musical presentations.*

**Missionary; St. Petersburg, Russia (2003-05)**

*Served as a secretary, taught Russian church investigators, trained other missionaries, taught English classes and served in the local communities.*

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## References

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