Zachary L. Miner

1 University Station C1200
Austin, TX 78712
✉ zminer@math.utexas.edu
http://www.ma.utexas.edu/~zminer/

Education

2004–2011 **Ph.D. Mathematics**, *University of Texas*, Austin, May 2011.

2000–2004 **B.S. Pure Mathematics (honors)**, *University of Texas*, Austin, May 2004.

Ph.D. Dissertation

Title *Norms Extremal with respect to the Mahler Measure and a generalization of Dirichlet's Unit Theorem*

Advisor Professor Jeffrey Vaaler

Publications

Equidistribution and the heights of totally real and totally p-adic numbers (with P. Fili). Acta Arith. 170 (2015), no. 1, 15–25.

A generalization of Dirichlet's S-unit theorem (with P. Fili). Acta Arith. 162 (2014), no. 4, 355–368.

Orthogonal decomposition of the space of algebraic numbers and Lehmer's problem (with P. Fili). J. Number Theory 133 (2013), no. 11, 3941–3981. dx.doi.org/10.1016/j.jnt.2013.05.004

Norms extremal with respect to the Mahler measure (with P. Fili). J. Number Theory 132 (2012), no. 1, 275–300. dx.doi.org/10.1016/j.jnt.2011.07.006

Talks

Feb. 2020 *Problem Solving*, Math Teachers' Circle of Austin, University of Texas.

Oct. 2014 *The Futurama theorem*, Math Teachers' Circle of Austin, University of Texas.

Oct. 2013 *Postage Stamp Problems: A problem-posing session*, Math Teachers' Circle of Austin, University of Texas.

Aug. 2012 *Inquiry-Based Learning in the Classroom*, Math Teachers' Circle of Austin, University of Texas.

Apr. 2011 *A Generalization of Dirichlet's S-unit theorem*, Jr. Number Theory Seminar, Texas A&M.

Dec. 2010 *A Generalization of Dirichlet's S-unit theorem*, Jr. Number Theory Seminar, UT Austin.

Jan. 2010 *S-unit Projections in the Vector Space of Algebraic Numbers Modulo Torsion*, Jr. Number Theory Seminar, UT Austin.

Dec. 2009 *Norms Extremal with respect to the Mahler Measure*, Jr. Number Theory Seminar, UT Austin.

May 2008 *A Notion of Degree Related to the Weil Height*, Sr. Number Theory Seminar, UT Austin.

Apr. 2008 *A Notion of Degree Related to the Weil Height*, Jr. Number Theory Seminar, UT Austin.

Sep. 2007 *A Lower Bound for the Height in Abelian Extensions*, Jr. Number Theory Seminar, UT Austin.

May 2007 *Smyth's result on the Mahler Measure of Nonreciprocal Polynomials*, Jr. Number Theory Seminar, UT Austin.

Teaching Experience

2018–present **Assistant Professor of Instruction**, *University of Texas*, Department of Mathematics, Austin, TX.

2011–2018 **Lecturer**, *University of Texas*, Department of Mathematics, Austin, TX.

2008–2011 **Assistant Instructor**, *University of Texas*, Department of Mathematics, Austin, TX.

2005–2008 **Teaching Assistant**, *University of Texas*, Department of Mathematics, Austin, TX.

2004–2005 **Personal Tutor**, *University of Texas*, Sanger Learning Center, Austin, TX.

Upper Division Courses Taught

M325K, Discrete Mathematics, *(inquiry-based)*.

M427K, Advanced Calculus I (Differential Equations).

M427L, Advanced Calculus II (Vector Calculus).

M328K, Number Theory, *(inquiry-based)*.

M333L, Structure of Modern Geometry, *(inquiry-based)*.

M340L, Matrices and Matrix Calculations.

M362K, Probability.

Lower Division Courses Taught

M305G, Preparation for Calculus.

M408C, Calculus I (for math and engineering majors).

M408D, Calculus II (for math and engineering majors).

M408K, Differential Calculus (for non-science majors).

M408N, Differential Calculus (for (non-math) science majors).

M316K, Foundations of Arithmetic (for future teachers), *(inquiry-based)*.

M316L, Geometry, Statistics, Probability (for future teachers), *(inquiry-based)*.

Awards

2009 Department of Mathematics Outstanding Teaching Award.

Languages

English **Fluent** *Native speaker*

German **Fluent** *Self-taught*

Spanish **Proficient** *School and University courses*

Research Interests

Number theory, heights of algebraic numbers, Mahler measure and Lehmer's problem, Diophantine approximation, heights in arithmetic dynamics

Professional

2016-present Organizer, Math Teachers' Circle of Austin, a professional learning community that brings together middle and high school math teachers and professional mathematicians so that they may work together and learn from each other.