

# DAVID PENNISTON

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## EDUCATION

**Ph.D. in Mathematics, University of Georgia, Athens, GA, 6/98.**

*Thesis advisor:* Professor Dino Lorenzini

**M.S. in Physics, University of Michigan, Ann Arbor, MI, 8/91.**

**B.S. in Physics and Mathematics, University of Wisconsin, Madison, WI, 6/90.**

## EMPLOYMENT

**Assistant Professor, University of Wisconsin Oshkosh, 9/08 - present.**

**Associate Professor, Furman University, 9/04 - 9/08.**

**Assistant Professor, Furman University, 9/00 - 9/04.**

**Visiting Assistant Professor, Pennsylvania State University, 8/98 - 8/00.**

**Teaching/Research Assistant, University of Georgia, 9/91 - 6/98.**

**Teaching Assistant, University of Michigan, 9/90 - 6/91.**

## RESEARCH INTERESTS

**Number Theory**, modular forms, elliptic curves, partitions

**Arithmetic Geometry**, degeneration of curves and Jacobians, K3 surfaces

## TEACHING HONORS

**Nominated for Graduate School Excellence in Teaching Award, 1998.**

**Department of Mathematics Excellence in Teaching by a Graduate Assistant, 1996.**

**Outstanding Graduate Teaching Award, 1993.**

## PROFESSIONAL ORGANIZATIONS

**Member of the American Mathematical Society, 1991 - present.**

**Member of the Mathematical Association of America, 2008 - present.**

**Member of South Carolina Delta Chapter of Pi Mu Epsilon, 2001 - 2008.**

## PUBLICATIONS

$\ell$ -divisibility of  $\ell$ -regular partition functions (joint with Brian Dandurand), *Ramanujan Journal* 19 (2009), no. 1, 63-70.

Arithmetic properties of non-harmonic weak Maass forms (joint with Kathrin Bringmann), *Proceedings of the American Mathematical Society* 137 (2009), 825-833.

Divisibility properties of the 5-regular and 13-regular partition functions, (joint with Neil Calkin, Nate Drake, Kevin James, Shirley Law, Philip Lee and Jeanne Radder), *Integers* 8 (2008), no. 2, A60, 10pp.

$p$ -adic properties of Maass forms arising from theta series (joint with Sharon Garthwaite), *Mathematical Research Letters* 15 (2008), no. 3, 459-470.

Arithmetic of  $\ell$ -regular partition functions, *International Journal of Number Theory* 4 (2008), no. 2, 295-302.

Congruences for  ${}_3F_2$  hypergeometric functions over finite fields (joint with Ken Ono), *Illinois Journal of Mathematics* 46 (2002), no. 3, 679-684.

The  $p^a$ -regular partition function modulo  $p^j$ , *Journal of Number Theory* 94 (2002), no. 2, 320-325.

Zeta functions of an infinite family of  $K3$  surfaces (joint with Scott Ahlgren and Ken Ono), *American Journal of Mathematics* 124 (2002), 353-368.

3-regular partitions and a modular  $K3$  surface (joint with Jeremy Lovejoy), *Contemporary Mathematics* 291 (2002), 177-182.

The 2-adic behavior of the number of partitions into distinct parts (joint with Ken Ono), *Journal of Combinatorial Theory (series A)* 92 (2000), 138-157.

Unipotent groups and curves of genus two, *Mathematische Annalen*, 317 (2000) 1, 57-78.

Unipotent groups associated to reduced curves, *Transactions of the American Mathematical Society*, 352 (2000), no. 11, 5025-43.

## PROFESSIONAL ACTIVITIES

Referee for *Journal of Combinatorial Theory*, *Ramanujan Journal*, *Proceedings of the National Academy of Sciences*, *Proceedings of the Indian Academy of Sciences*, *International Journal of Number Theory* and *Ars Combinatoria*.

Reviewer for *Mathematical Reviews*, 2001 - present.

**INVITED  
ADDRESSES**

**Algebra/Geometry Seminar, Oregon State University, Corvallis, OR, June 2009.**

**Distinguished Visiting Professor, Bucknell University, Lewisburg, PA, October 2007.**

**Special Session on Analytic Number Theory and Modular Forms, University of Arkansas, Fayetteville, AR, November 2006.**

**Number Theory Seminar, University of South Carolina, Columbia, SC, November 2005.**

**Algebra and Discrete Mathematics Seminar, Clemson University, Clemson, SC, December 2004.**

**Mathematics Department Colloquium, Wake Forest University, Winston-Salem, NC, October 2004.**

**Number Theory Seminar, Texas A & M University, College Station, TX, April 2004.**

**AMS Special Session on  $q$ -series and Partitions, San Francisco State University, San Francisco, CA, May 2003.**

**Algebra and Discrete Mathematics Seminar, Clemson University, Clemson, SC, February 2003.**

**AMS Special Session on Number Theory and Arithmetic Geometry, Northeastern University, Boston, MA, October 2002.**

**VIGRE Seminar, University of Georgia, Athens, GA, September 2002.**

**Algebra and Discrete Mathematics Seminar, Clemson University, Clemson, SC, February 2002.**

**AMS Special Session on Number Theory with a Geometric Flavor, University of Nevada-Las Vegas, Las Vegas, NV, April 2001.**

**AMS Special Session on Number Theory, University of Kansas, Lawrence, KS, March 2001.**

**AMS Special Session on Analytic Number Theory, University of South Carolina, Columbia, SC, March 2001.**

**Algebra Seminar, Brown University, Providence, RI, February 2001.**

**$q$ -series with Applications to Combinatorics, Number Theory and Physics, University of Illinois at Urbana-Champaign, October 2000.**

**Algebra and Discrete Mathematics Seminar, Clemson University, Clemson, SC, October 2000.**

**Number Theory Seminar, University of Wisconsin, Madison, WI, September 2000.**

**AMS Special Session on Automorphic Forms and Arithmetic Geometry, Pennsylvania State University, University Park, PA, October 1998.**

**Number theory seminar, Pennsylvania State University, University Park, PA, November 1997.**

**COURSE  
DEVELOPMENT**

Rewrote course requirements and developed complete course notes for Math 35 (Number Theory), Furman University, 2000-2001.

Helped develop engineering calculus course in conjunction with the College of Engineering, by creating new course materials and experimenting with nontraditional teaching methods, Pennsylvania State University, Fall 1999.

**TEACHING  
EXPERIENCE**

**University of Wisconsin Oshkosh** (9/08 - present)

*Courses Taught*

Math 349/549 (Introduction to Number Theory)

Math 204 (Mathematics for Business Analysis I)

Math 172 (Calculus II)

PBIS 187 (Problem-Based Inquiry Seminar)

**Furman University** (9/00 - 5/08)

*Courses Taught*

Math 43 (Modern Algebra)

Math 41 (Real Analysis)

Math 39 (Complex Variables)

Math 37 (Probability)

Math 35 (Number Theory)

Math 34 (Linear Algebra)

Math 28 (Discrete Mathematics)

Math 21 (Third Semester Calculus)

Math 16 (Finite Mathematics)

Math 15 (Ideas in Mathematics)

Math 12 (Second Semester Calculus)

Math 11 (First Semester Calculus)

Math 11S (Integrated Precalculus/Calculus II)

Math 10 (Integrated Precalculus/Calculus I)

**Pennsylvania State University** (8/98 - 5/00)

*Courses Taught*

Math 141E (Engineering Calculus)

Math 141 (Second Semester Calculus)

Math 140E (Engineering Calculus)

Math 140 (First Semester Calculus)

**University of Georgia** (9/91 - 8/98)

*Courses Taught*

MAT 253 (First Quarter Calculus)

MAT 116 (Precalculus)

MAT 106 (Intro to Math)

MAT 105 (Intro to Math)

Other duties performed: grading, assisting in teaching calculus.

**University of Michigan** (9/90 - 6/91)

Taught laboratory sections of first semester physics course for scientists and engineers.

**STUDENT  
RESEARCH**

**Supervised undergraduate teaching/research project through the Furman Advantage Teaching Fellowship program, Winter 2008.**

*Student:* Michael Hull

*Course:* Number theory (Math 35)

**Principal Investigator, in collaboration with Clemson University, Research Experiences for Undergraduates in Computational Number Theory and Combinatorics, summer 2006 (NSF subaward 1048-7557-206-2093579).**

**Supervised undergraduate research project through the Furman Advantage program, Summer 2002.**

*Student:* Brian Dandurand

*Project:* A study of the divisibility properties of  $p$ -regular partition functions

**OUTREACH  
ACTIVITIES**

**Gave presentation “Number theory and the legacy of Ramanujan” in Furman University faculty seminar, March 2008.**

**Gave presentation “Number theory and Ramanujan’s legacy” in Furman University Learning in Retirement program, April 2006.**

**Colloquium speaker, Research Experiences for Undergraduates in Computational Number Theory and Combinatorics, Clemson University, 2002, 2003, 2007, 2009.**

**Organized and participated in Furman mathematics department outreach to Greenville County School District, 2001-2004.**

**Organized and ran, jointly with Ken Ono of the University of Wisconsin, a directed study in mathematics at the National Youth Science Camp in West Virginia, July 2000.** This annual camp, attended by students who have just graduated from high school, invites scientists from all fields of study to visit for several days and give the students exposure to their particular areas of research. The top two high school science students from each state are invited to attend.

**SECONDARY  
EDUCATION**

**Assisted with Greenville County School District’s student preparation for Advanced Placement Calculus BC exam, April 2003 and 2005-2008.**

**Taught Advanced Placement Calculus BC Institute for secondary teachers, Summer 2002.**

**Taught Discrete Mathematics for Secondary Teachers course, in cooperation with the Greenville County School District, January - May, 2002.** This course was designed to help secondary teachers master the mathematical content necessary to teach the new discrete mathematics course that the district was implementing to complement the current curriculum.

**MEETINGS  
ORGANIZED**

**Palmetto Number Theory Series V**, Furman University, February 16, 2008. This is a regional number theory conference held 2-3 times per year on a rotating basis at the University of South Carolina, Clemson University, the College of Charleston and Furman. The meeting drew approximately 25 participants, with 9 giving presentations, and was supported by National Science Foundation grant DMS-0703547 and National Security Agency grant H98230-07-1-0126.

**2006 Carolinas Mathematics Undergraduate Research Conference**, Furman University, March 24, 2006. This conference drew approximately 40 participants, with 8 undergraduates giving presentations. The meeting was supported by the Mathematical Association of America through National Science Foundation grant DMS-0241090.

**2006 Southeast Regional Meeting On Numbers**, Furman University, March 18-19, 2006. This is a regional number theory conference that is held annually at a university in the southeast; other hosts include the University of Georgia, the University of South Carolina and Clemson University. The meeting at Furman drew 36 participants representing thirteen different institutions.

**2004 Furman Undergraduate Mathematics Conference**, Furman University, March 19, 2004. This conference drew approximately 40 participants, with 12 undergraduates giving presentations. The meeting was supported by the Mathematical Association of America through National Science Foundation grant DMS-0241090.

**Special session in number theory**, 2002 Spring Southeastern Section Meeting of the American Mathematical Society and Mathematical Association of America, March 8-9, 2002.

**2001 Southeast Regional Meeting On Numbers**, Furman University, March 24-25, 2001. The meeting drew 43 participants representing fourteen different institutions.

**UNIVERSITY  
SERVICE**

**Faculty Mentor, Emerging Scholars Program**, 2008-present.

**Individualized Curriculum Program Committee**, 2007-2008.

**Faculty Mentor for junior faculty**, 2007-2008.

**Faculty Mentor for student athletes**, 2004-2006.

**Admissions Committee**, 2003-2006.

**Supervisor for Mathematics Resource Center**, 2002-2008.

**Clanton Lecturer selection committee, Furman**, 2002-2008.

**Mathematics Department library liaison, Furman**, 2003-2004, 2005-2008.

**Organized Furman University's Putnam Mathematical Competition team**, 2002-2008.

**Faculty advisor for Furman ultimate frisbee club team**, 2002-2008.

**CONTRIBUTED  
TALKS**

**MathFest, Mathematical Association of America summer meeting, Portland, OR, August 2009.**

**Mathematical Association of America/Wisconsin Section meeting, University of Wisconsin-LaCrosse, LaCrosse, WI, April 2009.**

**Mathematics Department Colloquium, Furman University, Greenville, SC, April 2008.**

**Southeast Regional Meeting on Numbers, Wake Forest University, Winston-Salem, NC, April 2007.**

**Mathematics Department Colloquium, Furman University, Greenville, SC, September 2004.**

**Seventh Conference of the Canadian Number Theory Association, University of Montreal, Montreal, Quebec, Canada, May 2002.**

**Mathematics Department Colloquium, Furman University, Greenville, SC, April 2002.**

**Southeast Regional Meeting on Numbers, Clemson University, Clemson, SC, March 2002.**

**Mathematics Department Colloquium, Furman University, Greenville, SC, March 2001.**

**Millennial Conference on Number Theory, University of Illinois, Champaign, IL, May 2000.**

**Southeast Regional Meeting On Numbers, Virginia Tech University, Blacksburg, VA, April 2000.**

**Sixth Conference of the Canadian Number Theory Association, Winnipeg, Manitoba, Canada, June 1999.**

**Missouri Algebra Weekend, University of Missouri, Columbia, MO, October 1998.**

**Missouri Algebra Weekend, University of Missouri, Columbia, MO, October 1997.**

**Topics in Number Theory conference, The Pennsylvania State University, University Park, PA, August 1997.**

**Southeast Regional Meeting On Numbers, University of Georgia, Athens, GA, April 1997.**

**West Coast Number Theory conference, University of Nevada-Las Vegas, Las Vegas, NV, December 1996.**