

# TIMOTHY KILBOURN

## CURRICULUM VITAE

University of Illinois at Urbana-Champaign  
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## Education

- Ph.D. candidate, August 2002 - present  
University of Illinois at Urbana-Champaign  
Advisor: Scott Ahlgren
- B.S., Mathematics and Computer Science, May 2001  
Rose-Hulman Institute of Technology, Terre Haute, IN

## Research Interests

modular forms  
elliptic curves  
arithmetic geometry  
algebraic number theory

## Publications

1. *The distribution of powers of the partition function mod  $\ell^j$* , submitted.
2. *The weight of half-integral weight modular forms with few non-vanishing coefficients mod  $\ell$* , with Do-hoon Choi, *Acta Arithmetica*, **127** (2007), 193-197.
3. *An extension of the Apéry number supercongruence*, *Acta Arithmetica*, **123** (2006), 335-348.
4. *Differential automorphisms for modular forms on  $\Gamma_0(4)$* , to appear in *Ramanujan Journal*.
5. *Using factorizations to prove a partition identity*, with David E. Dobbs, in "Arithmetical properties of commutative rings and monoids", *Lecture Notes in Pure and Applied Mathematics*, 241.

## Invited Talks

- November 2006: *The distribution of powers of the partition function mod  $\ell^j$*   
AMS Special Session on Analytic Number Theory and Modular Forms, Fayetteville, AR.
- April 2006: *The distribution of powers of the partition function mod  $\ell^j$*   
AMS Special Session on  $q$ -series and Partitions, San Francisco, CA.

## Contributed Talks

- November 2006: *The distribution of powers of the partition function mod  $\ell^j$*   
Number Theory seminar, UIUC
- November 2005: *The distribution of powers of the partition function mod  $\ell^j$*   
Midwest Number Theory Conference for Graduate Students III, Madison, WI.
- March 2005: *An extension of the Apéry number supercongruence*  
19th Annual Workshop on Automorphic Forms and Related Topics, Denton, TX.
- February 2005: *An extension of the Apéry number supercongruence*  
Number Theory seminar, UIUC
- February 2005: *An extension of the Apéry number supercongruence*  
Midwest Number Theory Conference for Graduate Students II, Urbana, IL
- October 2003: *Differential automorphisms for modular forms on  $\Gamma_0(4)$*   
Midwest Number Theory Conference for Graduate Students, Madison, WI
- November 2000: *On the probability that a monic integral polynomial is irreducible*  
AMS Sectional Meeting, Evansville, IN
- September 2000: *On the probability that a monic integral polynomial is irreducible*  
Undergraduate Conference at Miami University, Oxford, OH

## Other Talks

- January 2006: Algebraic Number Theory seminar on Iwasawa Theory and Elliptic Curves, UIUC
- January 2006: Guest lecturer for two days at Covenant Christian High School's J-term; taught graph theory and RSA cryptography to high school students
- March 2004: Gave several one hour lectures on number theory at Covenant Christian High School (Indianapolis, IN) and Bethesda Christian High School (Brownsburg, IN)
- Fall 2003: Class Field Theory seminar, UIUC
- June 2003: Summer Algebraic Number Theory seminar, UIUC
- February 2003: Computational Number Theory seminar, UIUC
- October 2002: Information Protection seminar, UIUC

- January 2001: Mathematics Colloquium, Rose-Hulman Institute of Technology
- January 2001: Undergraduate poster session at Joint Meetings, New Orleans, LA

## Teaching

- Fall 2006 - Math 124: Finite Mathematics
- Spring 2006 - Math 118: A Mathematical World\*
- Fall 2005 - Math 118: A Mathematical World\*
- Spring 2003 - Math 225: Introductory Matrix Theory (*Calculus & Mathematica*)
- Fall 2002 - Math 130: Calculus II

\* – Rated as excellent by students through the UIUC Instructor and Course Evaluation System

## Awards

- Spring 2007: Brahana Teaching Assistant Instructional Award
- Spring 2007: Bateman Fellowship in Number Theory
- Fall 2004 - Summer 2005: UIUC Math Department Fellowship
- Fall 2003 - Summer 2004: GAANN Fellowship

## Academic Service

- Organizer for the Midwest Number Theory Conference for Graduate Students 4, November 2006
- Helped lead UIUC Teaching Assistant orientation session on preparing lectures
- High School Math Days co-instructor, June 2006
- Co-organizer for the Midwest Number Theory Conference for Graduate Students 2, February 2005
- UIUC Mathematics Department graduate school orientation mentor, 2004-2006
- Illinois Council of Teachers of Mathematics (ICTM) High School Math Contest judge, May 2004 and April 2005
- UIUC Graduate Affairs Committee student representative, 2004-2005
- University High School (Urbana, IL) Agora Days co-instructor, February 2005
- Organizer for UIUC Summer Number Theory seminar (2004), UIUC Modular Forms seminar (Spring 2005, Summer 2005)

## Computer Skills

- Expert in Maple, C, C++, HTML, Java, L<sup>A</sup>T<sub>E</sub>X, Ruby, Smalltalk, SQL, Unix Shells, Linux/Unix, XML
- Excellent working knowledge of MAGMA, Haskell, Objective C, Perl, PHP, Prolog, Python, XSLT

## References

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