

MICHAEL SLONE  
Curriculum Vitae

University of Kentucky  
Department of Mathematics  
Lexington, KY 40506-0027 USA  
phone +1 (859) 257-6806  
FAX +1 (859) 257-4078

United States Citizen

email: [mstone@ms.uky.edu](mailto:mstone@ms.uky.edu)  
<http://www.ms.uky.edu/~mstone/>

### Research interests

Algebraic combinatorics, discrete geometry, coalgebras, combinatorial representation theory.

### Education

- 2008      Ph.D. (expected), University of Kentucky  
            Dissertation: *Homological combinatorics and extensions of the  $\mathbf{cd}$ -index*  
            Advisor: Richard Ehrenborg
- 2003      MA, University of Kentucky
- 2001      BA, Morehead State University, summa cum laude

### Visiting positions

- 2006      Visiting Graduate Student, Massachusetts Institute of Technology,  
            22–29 October, 2006
- 2005      Visiting Graduate Student, Institut Mittag-Leffler, Semester on algebraic  
            combinatorics, Stockholm, Sweden, 15 January–31 March, 2005

### Papers

“Affine and toric arrangements”, submitted to *Discrete and Computational Geometry*, with Richard Ehrenborg and Margaret Readdy

“An index for non-regular spheres”, with Richard Ehrenborg, in preparation

“The critical group of split even spiders”, in preparation

“Hochschild cohomology of Newtonian coalgebras”, in preparation

## Funding

- Summer 2007    Research assistant: Professor Richard Ehrenborg's National Security Agency (NSA) grant H98230-06-1-0072
- Summer 2006    Research assistant: Professor Richard Ehrenborg's National Security Agency (NSA) grant H98230-06-1-0072
- Spring 2005    Stay at Institut Mittag-Leffler: a National Science Foundation (NSF) grant funded several graduate students
- Summer 2004    Research assistant: Professor Richard Ehrenborg's National Science Foundation (NSF) grant DMS-0200624

## Fellowships and awards

- 2004–2005    Presidential Graduate Fellowship  
*This university fellowship provides full support, including a course release, for a graduate student.*
- 2004–2005    Enochs Scholarship in Algebra  
*This award supports research in algebra or closely related fields.*
- 2002–2003    Kentucky Opportunity Fellowship  
*This fellowship provides a course release and is used to retain excellent graduate students.*
- 2001–2003    Daniel Reedy Quality Fellowship  
*This fellowship is used to attract outstanding graduate students.*

## Conference and workshop talks

- 2006            “An index for non-regular spheres”  
Fall eastern section meeting of the AMS  
Special session on algebraic and analytic combinatorics  
University of Connecticut
- 2006            “The Erdős-Szekeres conjecture”  
Graduate Student Combinatorics Conference, University of Wisconsin-Madison

2005 “Partially Eulerian posets”  
Graduate Student Combinatorics Conference, University of Minnesota

2005 “A growth formula for tree enumeration”  
Pre- and Postdoc Seminar, Institut Mittag-Leffler

### Seminar talks

2008 “Structure of toric arrangements, poset products, and cleft trees”  
Doctoral defense, University of Kentucky

2007 “What lies between structure and randomness”  
Graduate student colloquium, University of Kentucky

2007 “Restricted lattice paths and the  $\mathbf{cd}$ -index of a product”  
Discrete mathematics seminar, University of Kentucky

2007 “How to use the  $\mathbf{cd}$ -index”  
Graduate student colloquium, University of Kentucky

2007 “Nonintersecting lattice paths and the Jacobi–Trudi identity”  
Seminar on representation theory of the symmetric group, University of Kentucky

2007 “Generating functions and bases of the ring of symmetric functions”  
Seminar on representation theory of the symmetric group, University of Kentucky

2007 “Hall’s marriage theorem”  
Graduate student colloquium, University of Kentucky

2006 “Counting regions in hyperplane arrangements”  
Graduate student colloquium, University of Kentucky

2006 “The  $\mathbf{cd}$ -index of weakly graded posets”  
Discrete mathematics and algebra seminar, University of Kentucky

2006 “Elementary topoi and logic”  
Graduate student colloquium, University of Kentucky

- 2006 “Resolutions of Newtonian coalgebras”  
Algebraic combinatorics seminar, University of Kentucky
- 2005 “Compactness in logic”  
Graduate student colloquium, University of Kentucky
- 2005 “Partially Eulerian partially ordered sets”  
Graduate student colloquium, University of Kentucky
- 2004 “The critical group of split even spiders”  
Algebraic combinatorics seminar, University of Kentucky
- 2004 “How to count spanning trees”  
Graduate student colloquium, University of Kentucky
- 2004 “Hochschild cohomology of Newtonian coalgebras”  
Algebraic combinatorics seminar, University of Kentucky
- 2004 “An Euler relation for valuations on polytopes”  
Algebraic combinatorics seminar, University of Kentucky
- 2004 “An Euler-type formula for counting lattice points”  
Graduate student colloquium, University of Kentucky
- 2003 “Homology of Newtonian coalgebras”  
Algebraic combinatorics seminar, University of Kentucky
- 2003 “Valuations on distributive lattices”  
Algebraic combinatorics seminar, University of Kentucky

## Teaching summary

### As primary instructor:

Spring 2008	Linear algebra, Math 322
Fall 2007	College algebra, Math 109
Spring 2007	Calculus IV: differential equations, Math 214
Fall 2006	Calculus III: multivariate calculus, Math 213
Spring 2006	Calculus II, Math 114
Fall 2005	Calculus I, Math 113
Summer 2005	College geometry, Math 341
Spring 2004	Introduction to contemporary mathematics, Math 111
Fall 2003	College algebra, Math 109
Summer 2002	Finite mathematics, Math 162

### As teaching assistant:

Spring 2002	Calculus I, Math 113
Fall 2001	Calculus III, Math 213

## Service

2005–2006	Graduate student council — Department of Mathematics <i>Drafted amendments to the council constitution streamlining the election procedure. Collected and summarized student comments on professors being considered for promotion or tenure.</i>
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## Memberships in professional societies

American Mathematical Society

## Languages

English: fluent.

French: reading knowledge.

## Computer experience

Programming languages: Lisp, Haskell, Scheme, Perl, C++  
Computer algebra systems: GAP, SAGE, Maple, Macaulay2  
Markup and typesetting languages: HTML,  $\text{\TeX}$ ,  $\text{\LaTeX}$   
Operating systems: UNIX, Linux, Mac OS X

## Conferences and workshops

- 2006 Fall eastern meeting of the AMS  
Special session in algebraic and analytic combinatorics  
28–29 October, 2006
- 2006 Graduate Student Combinatorics Conference  
University of Wisconsin-Madison  
21–23 April, 2006
- 2005 Graduate Student Combinatorics Conference  
University of Minnesota  
16–17 April, 2005
- 2004 Hyperplane arrangements and applications  
Arranged by the Mathematical Sciences Research Institute (MSRI)  
University of Oregon  
2–13 August, 2004
- 2003 Combinatorial and discrete geometry  
Mathematical Sciences Research Institute (MSRI)  
17–21 November, 2003
- 2003 Combinatorics and its applications  
Arranged by the Institute for Mathematics and its Applications (IMA)  
Georgia Tech  
13 July – 1 August, 2003

## References

Available on request.