

# Sarah E. Bailey

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## CONTACT INFORMATION

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## RESEARCH INTERESTS

Symbolic Dynamics, Ergodic Theory, AMS MSC: 37A, 37B

## EDUCATION

**University of North Carolina**, Chapel Hill, North Carolina (UNC-CH)

Ph.D. Candidate, Mathematics, August 2001 (expected graduation date: May 2006)

- Dissertation Topic:  
“Dynamical Properties of a some non-simple, non-stationary Bratteli-Vershik Systems”
- Advisor: Dr. Karl Petersen

**College of Charleston**, Charleston, South Carolina (CofC)

B.S., Mathematics, May, 2001

## ACADEMIC EXPERIENCE

**Graduate Student**, *August 2001 - present*

University of North Carolina, Chapel Hill

**Visiting Researcher**, *May 2004 - June 2004, June 2005 - August 2005*

Erwin Schrödinger International Institute for Mathematical Physics  
Vienna, Austria

## HONORS AND AWARDS

Recipient of Senior Dissertation Completion Fellowship, UNC-CH, *August 2005-May 2006*

Lottie C. Wilson Scholarship, UNC-CH, *August 2005-May 2006*

Junior Research Fellow, *June 2005 - August 2005*

Erwin Schrödinger International Institute for Mathematical Physics, Vienna, Austria

Research Assistant, UNC-CH, *January 2005 - July 2005*

Nominee for J. Burton Linker Award for excellence in teaching, *December 2004*

Department of Mathematics, University of North Carolina, Chapel Hill

Teaching Assistant, UNC-CH, *August 2004 - December 2004*

Graduate Assistance in Areas of National Need Fellow, UNC-CH, *August 2001 - July 2004*

Susan Prazak Endowed Award for Future Teacher, CofC, *May 2001*

Energy Research Undergraduate Laboratory Fellowship (ERULF), *August 2000 - December 2000*

Department of Energy, Oak Ridge National Laboratory

Undergraduate Research in Mathematics, Texas A&M University, *June 2000 - August 2000*

South Carolina Palmetto Fellows Scholarship, CofC, *August 1996 - May 2000*

Presidential Honors Scholarship, CofC, *August 1996 - May 2000*

TEACHING  
EXPERIENCE

**Teaching Assistant**, UNC-CH, *August 2004 - December 2004*

Taught two sections of first semester Calculus simultaneously, was asked to give feedback on new Calculus curriculum, wrote a section of the common final

**Teaching Fellow**, UNC-CH, *August 2002 - December 2003*

Full course responsibilities including lecture and test writing for one section of College Algebra and one section of first semester Calculus.

**Private Tutor**, *August 2001 - present*

Provide private tutoring for courses in middle school, high school, and a variety of college mathematics.

**Supplemental Instruction Leader**, CofC *August 1999 - May 2000, January 2001 - May 2001*

Provided structured tutoring sessions 3 times each week outside class meeting times for five sections of first semester Calculus.

PUBLICATIONS

Bailey, S., M. Keane, K. Petersen, and I. Salama. 2005  
Ergodicity of the adic transformation on the Euler graph,  
*to appear Cambridge Philosophical Society, Mathematical Proceedings*  
[www.unc.edu/~sebailey/Papers/EulerErgodicity.pdf](http://www.unc.edu/~sebailey/Papers/EulerErgodicity.pdf)

Sarah Bailey and Karl Petersen  
Random Permutations and unique fully supported ergodicity for the Euler adic transformation  
*submitted*  
[www.unc.edu/~sebailey/Papers/UniqueEulerMeasure.pdf](http://www.unc.edu/~sebailey/Papers/UniqueEulerMeasure.pdf)

POSTERS AND  
PRESENTATIONS

See: "<http://www.unc.edu/~sebailey/Research.html>" for copies of talks.

AWM Poster session at the Joint Mathematical Meetings (accepted), January 2006  
San Antonio, TX

Ergodic Theory and Topological Dynamics Seminar, November 2005  
Wesleyan University, Middletown, CT

Ergodic Theory and Dynamical Systems Seminar, November 2005  
University of North Carolina, Chapel Hill, NC

AMS Special Session on Measurable, Symbolic, and Tiling Dynamical Systems, October 2005  
Bard College, Annandale-on-the-Hudson, NY

The Northwest Dynamics Symposium, August 2005  
Victoria, Canada

The Visegrad Conference on Dynamical Systems, July 2005  
Prague, Czech Republic

Dynamics Seminar, June 2005  
The Erwin Schrödinger International Institute for Mathematical Physics, Vienna, Austria

Carolina Dynamics Conference, April 2005  
University of North Carolina, Chapel Hill, NC

Maryland-Penn State Workshop on Dynamical Systems, March 2005  
University of Maryland, College Park, MD

Graduate Math Association Seminar, February 2005  
University of North Carolina, Chapel Hill, NC

Ergodic Theory and Dynamical Systems Seminar, February 2005  
University of North Carolina, Chapel Hill, NC

Dynamics Seminar, May 2004  
The Erwin Schrödinger International Institute for Mathematical Physics, Vienna, Austria

Carolina Dynamics Conference, April 2004  
College of Charleston, Charleston, SC

Ergodic Theory and Dynamical Systems Seminar, November 2003  
University of North Carolina, Chapel Hill, NC

ADDITIONAL  
CONFERENCES  
ATTENDED

Harmonic Analysis and Ergodic Theory, DePaul University, December 2006 (registered)  
Probability and Ergodic Theory Workshop, University of North Carolina, February 2005  
Maryland-Penn State Workshop on Dynamical Systems, University of Maryland, March 2004  
Ergodic Theory Workshop, University of North Carolina, February 2004  
AMS Sectional (SS: Measurable, Complex, and Symbolic Dynamics), UNC-CH, October 2003

COMMITTEE  
MEMBERSHIP

Graduate Mathematics Association President, August 2002 - May 2003  
*Acted as a liaison between faculty and graduate students*  
*Organized departmental events including the Fall picnic, Winter Party, and Recruitment weekend*

PROFESSIONAL  
MEMBERSHIPS

American Mathematical Association  
Association for Women in Mathematics

REFERENCES

Karl Petersen, University of North Carolina, Chapel Hill  
Jane Hawkins, University of North Carolina, Chapel Hill  
Michael Keane, Wesleyan University  
Sue Goodman, University of North Carolina, Chapel Hill