

# Sarah C. Koch

Department of Mathematics  
Malott Hall  
Cornell University  
Ithaca, New York 14853

phone: (607) 255-7548  
fax: (607) 255-7149  
kochs@math.cornell.edu  
www.math.cornell.edu/~kochs

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## Employment

<b>Harvard University</b>	Benjamin Peirce Assistant Professor	2010 – 2013
<b>Harvard University</b>	NSF Mathematical Sciences Research Postdoctoral Fellow	2009 – 2010
<b>University of Warwick</b>	NSF Mathematical Sciences Research Postdoctoral Fellow	2008–2009

## Education

<b>PhD</b>	Cornell University, Mathematics Advisor: John H. Hubbard	2002 – 2008
<b>PhD</b>	Université de Provence, Mathematics Advisor: John H. Hubbard	2006 – 2007
<b>MS</b>	Cornell University, Mathematics	2002 – 2005
<b>BS</b>	Rensselaer Polytechnic Institute, Mathematics graduated summa cum laude	1997 – 2001

## Research Interests

Complex dynamics (in one and several variables), Teichmüller theory

## Publications

*Iterated Monodromy of a two-dimensional map*, submitted.  
*On Thurston's Pullback Map*, (with X. Buff, A. Epstein, K. Pilgrim)  
to appear in *Complex Dynamics, Families and Friends*, in honor of John H. Hubbard's 60th Birthday.  
*SaddleDrop: a tool for studying dynamics in  $\mathbb{C}^2$* , submitted.

## Work in Progress

*An analytic construction of the Deligne-Mumford compactification of the moduli space  $\mathcal{M}_{g,n}$*   
(with J. H. Hubbard, G. Muller)  
*Teichmüller theory and endomorphisms of  $\mathbb{P}^n$*   
*Slow matings and twisted matings*, (with X. Buff, A. Epstein, J. H. Hubbard).  
*Böttcher Coordinates in higher dimensions*, (with X. Buff, A. Epstein).

## Awards and Honors

- *Top three finalist, AIM Five-year Fellowship, 2008*
- *NSF Mathematical Sciences Research Postdoctoral Fellowship, 2008–2011*
- *Robert John Battig Prize in Mathematics, 2006*  
Awarded by the Cornell Mathematics Department for excellence in research.
- *Director's Award for research, 2002*  
Awarded by the National Security Agency for excellence in research.
- *NPSC Graduate Research Fellowship, 2001–2007*  
Awarded by the the National Physical Science Consortium for six years of support during graduate study; sponsored by the National Security Agency.
- *Bell Labs Graduate Research Fellowship, 2001–2005*  
Awarded by Lucent Technologies for four years of support during graduate study. Award was declined by applicant.
- *NSF Graduate Research Fellowship, 2001–2004*  
Awarded by the National Science Foundation for three years of support during graduate study. Award was declined by applicant.

- *George H. Handleman Award*, 2001  
Awarded by Rensselaer Polytechnic Institute to a graduating senior who shows promise in mathematics.
- *Emily Roebling Scholarship*, 1997–2001  
Awarded by Rensselaer Polytechnic Institute to women demonstrating academic promise.
- *4.0 Award*, 2000  
Awarded by Rensselaer Polytechnic Institute for academic excellence.
- *Founder's Award of Excellence*, 1999  
Awarded by Rensselaer Polytechnic Institute for leadership, creativity, and academic promise.

### Conference Lectures

- *The 21st Rolf Nevanlinna Colloquium*, invited speaker Japan, September 2009.
- *Complex dynamics: several complex variables*, invited speaker; BIRS, Banff, Canada, March 2009.
- *Trends and developments in complex dynamics*, invited speaker; MFO, Oberwolfach, Germany, October 2008.
- *Memorial Conference for Adrien Douady*, invited participant; Institut Henri Poincaré, Paris, France, May 2008.
- *The Fourth Ahlfors-Bers Colloquium*, invited speaker; Rutgers University, Newark, New Jersey, May 2008.
- *42nd Annual Spring Topology and Dynamics Conference*, invited speaker; University of Wisconsin, Milwaukee, Wisconsin, March 2008.
- *Groups Generated by Automata*, invited speaker; Centro Stefano Franscini, Ascona, Switzerland, February 2008.
- *Teichmüller spaces and iterating Thurston's algorithm*, invited speaker; Université de Cergy-Pontoise, Cergy-Pontoise, France, February 2008.
- *Connections for women: Teichmüller theory and Kleinian groups*, invited speaker; Mathematical Sciences Research Institute, Berkeley, California, August 2007.
- *Joint Meetings of the American Mathematical Society and the Sociedad Matemática Mexicana*, invited speaker; special session on holomorphic dynamics, Zacatecas, Mexico, May 2007.
- *International Workshop on Teichmüller theory and Moduli Problems*, invited speaker; Harish-Chandra Research Institute, Allahabad, India, January 2006.
- *Conformal dynamics, hyperbolic geometry, and continued fractions*, contributed talk; Centre International de Rencontres Mathématiques, Luminy, France, June 2005.
- *Workshop on Holomorphic surgery*, contributed talk; Institut Henri Poincaré, Paris, France, September 2003.

### Noted Seminar Lectures

- Dynamics Seminar*, Jacobs University; Bremen, Germany, April 2009.
- Colloquium Speaker*, Mathematics Institute, Göttingen, Germany, April 2009.
- Dynamics Seminar*, Université Paul Sabatier; Toulouse, France, January 2009.
- Dynamics Seminar*, RUK; Roskilde, Denmark, December 2008.
- Dynamics Seminar*, University of Bristol; Bristol, United Kingdom, December 2008.
- Topology and Geometry Seminar*, University of Warwick; Coventry, United Kingdom, November 2008.
- Dynamics Seminar*, University of Chicago; Chicago, Illinois, April 2008.
- COOL Seminar*, Institut Henri Poincaré; Paris, France, February 2008.
- Dynamics & Group Theory Seminar*, Texas A&M; College Station, Texas, November, 2007.
- Dynamics Seminar*, SUNY Stony Brook; Stony Brook, New York, October 2007, April 2006.
- Dynamics Seminar*, Cornell University; Ithaca, New York, September 2007, September 2005.
- Dynamics Seminar*, University of Warwick; Coventry, United Kingdom, May 2007.
- Dynamics Seminar*, Queen Mary, University of London; London, United Kingdom, May 2007.
- Dynamics Seminar*, University of Liverpool; Liverpool, United Kingdom, April 2007.
- Dynamics Seminar*, Université Paul Sabatier; Toulouse, France, March 2007, May 2006.
- Teichmüller Theory Seminar*, Université de Provence; Marseille, France, December 2006.

*Dynamics Seminar*, Université de Provence; Marseille, France, September 2006.

### Teaching Experience

- *Instructor; Cornell University, Fall 2007*  
Instructor for two sections of Math 111 (Calculus I).
- *Instructor, Prefreshman Summer Program; Cornell University, Summers 2003–2005, 2007.*  
Independent instructor for courses Math 002 (Calculus I), Math 004 (Precalculus). These courses were part of the Prefreshman Summer Program; a program designed to help incoming students prepare for the challenges of the freshman year at Cornell University. Students who were admitted through special programs such as EOP (Educational Opportunity Program) or HEOP (Higher Education Opportunity Program) are required to attend.
- *Head Instructor, Prefreshman Summer Program; Cornell University, Summer 2006*  
In addition to the regular duties of instructor (outlined above), the head instructor position involved supervising three other mathematics instructors in this program.
- *Teaching Assistant; Cornell University, Fall 2003.*  
Recitation instructor and grader for undergraduate course Math 192 (Multivariable Calculus).

### Other Activities

- *Organizer for the Dynamics Seminar; Cornell University, 2007–2008*
- *Invited speaker; Workshop for high school math teachers, Cornell University, Fall 2007, Spring 2006*  
Asked to give a mathematics talk to local high school mathematics teachers.
- *Graduate TA Trainer; Cornell University, Fall 2005*  
Selected to lead new teaching assistants in active learning, group work, and grading.
- *Organizer for PFF; Cornell University, 2003–2006*  
Organized the Preparing Future Faculty Program which sends graduate students to area colleges and universities to provide an opportunity to observe and experience faculty responsibilities.
- *Lecturer, Math Explorer's Club; Ithaca High School, Ithaca, New York, Fall 2005*  
Invited to lead six math club meetings, engaging high school students in mathematics.
- *Co-organizer of Prospective Student Committee; Cornell University, 2003–2005*  
Asked to participate in recruiting new graduate students.

### References

John H. Hubbard, Cornell University, Université de Provence	jhh8@cornell.edu
John Smillie, Cornell University	jds28@cornell.edu
Jean-Christophe Yoccoz, Collège de France	jean-c.yoccoz@college-de-france.fr
Xavier Buff, Université Paul Sabatier	buff@picard.ups-tlse.fr
Adam Epstein, University of Warwick	A.L.Epstein@warwick.ac.uk
Laurent Bartholdi, Georg-August-Universität	laurent.bartholdi@gmail.com
Patty Alessi ( <i>teaching reference</i> ), Cornell University	pa31@cornell.edu