

CONTACT INFORMATION	Washington University in St. Louis Department of Mathematics One Brookings Drive St. Louis, MO 63130-4899	ccox@math.wustl.edu (309)472-4870
RESEARCH INTERESTS	Dynamical systems, differential geometry—specifically, rigid body systems and the dynamics of no-slip billiards, and (standard) ergodic billiards. Past research areas include Steiner networks, flow dependent networks, and soap bubble geometry.	
EDUCATION	Washington University in St. Louis	
	Ph.D. in Mathematics	2016
	<ul style="list-style-type: none"> • Dissertation: No-slip Billiards • Advisor: Renato Feres 	
	Northwestern University	
	M.S. in Mathematics	1994
	Williams College	
	B.A. in Mathematics	1992
	<ul style="list-style-type: none"> • Cum Laude, with Honors in Mathematics 	
MANUSCRIPTS & PUBLICATIONS	M. Correia, C. Cox, H.-K. Zhang, <i>Ergodicity in umbrella billiards</i> . (in preparation)	
	C. Cox, R. Feres, H.-K. Zhang, <i>Stability of periodic orbits of no-slip billiards</i> . (submitted) (arXiv:1612.03355)	
	C. Cox, R. Feres, <i>No-slip billiards in dimension two</i> , to appear in <i>Contemporary Mathematics</i> . (arXiv:1602.01490)	
	C. Cox, R. Feres, <i>Differential geometry of rigid bodies collisions and non-standard billiards</i> , <i>Discrete and Continuous Dynamical Systems A</i> 36 (11), (2016) 6065-6099.	
	C. Cox, <i>Flow-dependent networks: Existence and behavior at Steiner points</i> , <i>Networks</i> 31 (1998), no. 3, 149-156.	
	C. Cox, L. Harrison, M. Hutchings, S. Kim, J. Light, A. Mauer, M. Tilton, <i>The shortest enclosure of three connected areas in \mathbb{R}^2</i> , <i>Real Anal. Exchange</i> 20 (1994/95), 313-335.	
	T. Colthurst, C. Cox, J. Foisy, H. Howards, K. Kollett, H. Lowy, and S. Root, <i>Networks minimizing length plus the number of Steiner points</i> , <i>Network Optimization Problems: Algorithms, Complexity and Applications</i> , (1993), pp. 23-26.	
EXPERIENCE	Washington University in St. Louis	
	Postdoctoral Teaching Fellow	2016-2017
	<ul style="list-style-type: none"> • Mentor: Renato Feres • Teaching Fall 2016: Math 309 Matrix Algebra • Teaching Spring 2017: Math 131 Calculus I, 370 Combinatorics 	

Teaching Assistant 2011-2015

- Taught Calculus in the Freshman Summer Academic Program (twice), Foundations of Calculus (twice)
- Teaching Assistant for Differential Equations
- Tutor at the Calculus Help Room
- Grader for graduate level Differential Geometry, Algebraic Topology, Point Set Topology, and Fourier Analysis

Illinois Central College

Professor of Mathematics 1998-2011

- Taught Calculus I, II, and III, Differential Equations, Discrete Math, Finite Math, Statistics, College and Intermediate Algebra, Calculus for Business and Social Science.
- Experience with distance learning, including teaching DL classes to rural high schools allowing students to complete the Calculus sequence.
- Taught online College Algebra and Business Calculus open sections for nine years, as well as designated dual-credit sessions for high school students.
- Extensive committee work, including hiring, syllabus and compliance, textbook, college accreditation, faculty forum, ICC Educational Foundation campaign, and community outreach committees.
- Extracurricular activities included Student Math League (coach), WYSE and Illinois Council of Teachers of Mathematics high school competitions.
- Supervised honors projects for math majors and served as director of the Honors Program.

Oklahoma State University

Taught Calculus, Business Calculus, and College Algebra 1996-1997.

Spoon River College

Adjunct Mathematics Instructor 1995.

SELECTED TALKS

Research Talks

- ❑ *Ergodicity of umbrella and no-slip billiards*, invited talk, Southern University of Science and Technology of China, Shenzhen, China. (July 2016)
- ❑ *The dynamics of no-slip billiards*, The 11th AIMS Conference on Dynamical Systems, Differential Equations and Applications, special session on Dynamical Systems and Their Applications, Orlando, FL. (July 2016)
- ❑ *The search for ergodic no-slip billiards*, awarded Outstanding Graduate Research Exposition, ISMAA, Jacksonville, IL. (April 2016)
- ❑ *No-slip billiards in dimension two*, Joint Mathematics Meetings, Seattle. (January 2016)
- ❑ Applied Analysis and Computation Seminar, University of Massachusetts Amherst. (November 2015)
- ❑ *No-slip billiards: periodicity, boundedness, and ergodicity*, Geometry and Topology Seminar, Washington University. (October 2015)
- ❑ *Rough collisions and periodic orbits of non-standard billiards*, The thirteenth annual Graduate Student Topology and Geometry Conference, University of Illinois Urbana-Champaign. (March 2015)
- ❑ *Geometry of the Euclidean group and mechanical systems with collisions (part II)*, Geometry and Topology Seminar, Washington University. (November 2014)
- ❑ *Length-minimizing partitions of the sphere*, with Andrew Perry, Mathfest 2001, Madison, WI. (August 2001)

Math Circles and Talks for General Audiences

- ❑ *Partitions of the plane*, Washington University Math Circle, St. Louis. (September 2016)
- ❑ *The mathematics of billiards*, Washington University Math Circle, St. Louis. (March 2016)
- ❑ *An introduction to billiard dynamics*, ICTM Math Contest, Illinois Central College, East Peoria, IL. (February 2016)
- ❑ *Some dynamics of rough collisions*, Szego Seminar, Washington University, St. Louis. (March 2015)
- ❑ *The lazy caterer and graceful configurations*, ICTM Math Contest, Illinois Central College, East Peoria, IL. (February 2015)
- ❑ *Cutting pancakes, cake and cheese*, Washington University Math Circle, St. Louis. (October 2014)
- ❑ *A generalized Hamilton-Jacobi problem*, Szego Seminar, Washington University, St. Louis. (February 2014)
- ❑ *Length minimizing partitions of the sphere*, Graduate Student Seminar, Washington University, St. Louis. (July 2012)
- ❑ *Steiner networks*, Washington University Math Circle, St. Louis. (February 2012)

FELLOWSHIPS,
GRANTS,
AND SUPPORTED
RESEARCH

- 2015-2017 Stochastic Thermodynamics and Random Billiards.
Structured Quartet Research Ensemble,
American Institute of Math, San Jose, CA.
Tim Chumley (organizer), Hongkun Zhang,
Renato Feres, Scott Cook, and Matt Wallace.
- 2015-2016 Dissertation Fellowship.
Washington University in St. Louis.
- May 2015 Houston Summer School on Dynamical Systems.
University of Houston, Houston, TX.
- 2013, 2014 Summer Research Assistant.
for Xiang Tang, supported by the National Science Foundation.
- 2011-2012 University Fellowship.
Washington University in St. Louis.
- 2001 ICC Educational Foundation Grant.
Awarded to support the development of an
online College Algebra course.
- 1991, 1992 SMALL REU Summer Undergraduate Research Program.
Advisors: Frank Morgan and Tom Garrity.
Williams College, Williamstown, MA.

RELEVANT
SKILLS

- Programming: Experience modeling with Sage and Python, especially billiard systems.
- OHS: WeBWork and MyMathLab.