

Georgia Southern University
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PROFESSIONAL APPOINTMENTS

Georgia Southern University, 2015-present
Assistant Professor (tenure-track), Department of Mathematical Sciences

University of Illinois at Urbana-Champaign, 2013-2015
Visiting Assistant Professor, Department of Mathematics

Penn State University, Altoona, 2012-2013
Assistant Professor, Department of Mathematics and Statistics

Korea Institute for Advanced Study (KIAS), Seoul, 2008-2012
Research Fellow (Postdoc), School of Mathematics

EDUCATION

Ph.D., 2008, Department of Mathematics, University of Wisconsin-Madison
Thesis: The group of Hamiltonian homeomorphisms and C^0 -symplectic topology
Advisor: Yong-Geun Oh

M.A., 2003, Department of Mathematics, University of Wisconsin-Madison

Vordiplom, 2001, Mathematisches Institut (Mathematical Institute), Rheinische Friedrich-Wilhelms-Universität Bonn (University of Bonn), Germany

RESEARCH INTERESTS

Symplectic geometry/topology and contact geometry/topology
(Topological) Hamiltonian dynamics and (topological) contact dynamics
 C^0 -characterization of symplectic and contact (embeddings/diffeomorphisms)
Applications to smooth dynamics, topological dynamics, Riemannian geometry
J-holomorphic curve techniques

PUBLICATIONS

Refereed Journal Articles

Topological contact dynamics III: uniqueness of the topological Hamiltonian and C^0 -rigidity of the geodesic flow, with P. Spaeth, *J. Symplectic Geom.* 14 (2016), no. 1, 1–29

Topological contact dynamics I: symplectization and applications of the energy-capacity inequality, with P. Spaeth, *Adv. Geom.* 15 (2015), no. 3, 349–380

Gromov's alternative, Eliashberg's shape invariant, and C^0 -rigidity of contact diffeomorphisms, with P. Spaeth, *Internat. J. Math.* 25 (2014), no. 14, 1450124, 13 pp.

Uniform approximation of homeomorphisms by diffeomorphisms, *Topology Appl.* 178 (2014), 315–319

Topological contact dynamics II: topological automorphisms, contact homeomorphisms, and non-smooth contact dynamical systems, with P. Spaeth, *Trans. Amer. Math. Soc.* 366 (2014), no. 9, 5009–5041

Helicity of vector fields preserving a regular contact form and topologically conjugate smooth dynamical systems, with P. Spaeth, *Ergodic Theory Dynam. Systems* 33 (2013), no. 5, 1550–1583

On properly essential classical conformal diffeomorphism groups, with P. Spaeth, *Ann. Global Anal. Geom.* 42 (2012), no. 1, 109–119

The group of Hamiltonian homeomorphisms in the L^∞ -norm, *J. Korean Math. Soc.* 45 (2008), no. 6, 1769–1784

The group of Hamiltonian homeomorphisms and C^0 -symplectic topology, with Yong-Geun Oh, *J. Symplectic Geom.* 5 (2007), no. 2, 167–219

PREPRINTS on arXiv

C^0 -characterization and C^0 -rigidity of symplectic and contact embeddings, preprint, arXiv:1607.03135, 40 pages

INVITED TALKS

Seminars and colloquia (talks at home institutions not listed)

Georgia Tech Geometry Topology Seminar, Atlanta, 7 November 2016

Geometry Seminar, University of Georgia, Athens, GA, 13 November 2015

Analysis Seminar, Clemson University, SC, 1 October 2015

Colloquium, Georgia Southern University, Statesboro, GA, 28 January 2015

Colloquium, North Dakota State University, Fargo, ND, 20 January 2015

Institute for Advanced Study, Princeton/IAS Symplectic Geometry Seminar, School of Mathematics, NJ, 7 November 2014

Institut de Mathématiques et de Sciences Physiques, Colloquium, Porto Novo, Benin, 23 May 2012 (in French)

UC Berkeley, Topology Seminar, CA, 26 April 2012

Seoul National University, Geometry Seminar, Republic of Korea, fall 2010

University of Melbourne, Algebra & Geometry & Topology Seminar, Australia, 16 July 2009

Seoul National University, Symplectic Seminar Lecture Series: spectral invariants in Hamiltonian Floer theory (bi-weekly lectures), Republic of Korea, fall 2008

Pennsylvania State University, Symplectic Topology Seminar, State College, PA, 29 November 2007

Conferences

Union College Mathematics Conference, Differential Geometry and Geometric Analysis Session, 3 December 2016

C^0 -symplectic topology and dynamical systems, IBS Center for Geometry and Physics, POSTECH, Republic of Korea, 21 January 2014

Conference in honor of Augustin Banyaga, Université Cheikh Anta Diop, Dakar, Senegal, 19 May 2012

International Conference: Symplectic, Contact, and Low Dimensional Topology, Seoul National University, Republic of Korea, 10 November 2009

6th KWMS International Conference, Korea Institute for Advanced Study, Seoul, Republic of Korea, 19 June 2009

East Asian Symplectic Conference, Institute of Mathematics, Academia Sinica, Taipei, Taiwan, 6 May 2009

Joint Summer Research Conference, Snowbird Resort, Utah, 2 July 2007

SELECTED CONTRIBUTED TALKS

AMS Fall Southeastern Sectional Meeting, Special Session: Topological Dynamics and Ergodic Theory, University of Louisville, KY, 6 October 2013

Lehigh University Geometry and Topology Conference, PA, 25 May 2013

Jahrestagung der Deutschen Mathematiker-Vereinigung (DMV), Geometrie und Topologie Sektion, Universität zu Köln, Germany, 21 September 2011

GESTA 2011: New Trends in Symplectic and Contact Geometry, CIEM in Castro Urdiales, Spain, 29 June 2011

Arbeitsgemeinschaft Mathematical Billiards, Mathematisches Forschungsinstitut Oberwolfach (MFO), Germany, 9 April 2010

FELLOWSHIPS, GRANTS, and RESEARCH FUNDING

Georgia Southern University Professional Travel Grant / Faculty Development Committee Award, fall 2016

NSF grant proposals submitted, program announcement PD 10-1265, Geometric Analysis, proposal number 1611878, fall 2015, and program announcement PD 10-1267, Topology, proposal number 1405804, fall 2013

Georgia Southern University COSM Research Grant proposal submitted, fall 2015

Research Fellowship, Korea Institute for Advanced Study, research grant for travel, inviting collaborators, and equipment, about \$9,000 annually, 2008-2012

Research assistant, University of Wisconsin-Madison, spring 2006 and 2008

International office fellowship, Rheinische Friedrich-Wilhelms-Universität Bonn, full scholarship, 12-months visit to University of Wisconsin-Madison, 2002-2003

TEACHING and MENTORING EXPERIENCE

Undergraduate students

Included on "List of Teachers Ranked as Excellent by Their Students," University of Illinois at Urbana-Champaign, fall 2013 and fall 2014

Illinois Geometry Lab (for mathematical visualization & community engagement), faculty mentor, undergraduate research project, University of Illinois at Urbana-Champaign, spring 2015

Nominated for spring 2015 "Distinguished Teaching Award in Mathematics for Non-Tenure-Track Faculty," University of Illinois at Urbana-Champaign

Teaching (lecturer):

- Ordinary Differential Equations, Georgia Southern University, spring 2017
- Calculus II, Georgia Southern University, spring 2017
- Elementary Linear Algebra, Georgia Southern University, fall 2016
- Calculus III (Multivariable/Vector Calculus), Georgia Southern University, fall 2015 and fall 2016
- Calculus I, Georgia Southern University, spring 2016
- Abstract Linear Algebra, University of Illinois at Urbana-Champaign, spring 2015
- Calculus III (Multivariable/Vector Calculus), University of Illinois at Urbana-Champaign, fall 2013 and fall 2014 (honors) and spring 2014 (large lecture with TA sections)
- College Algebra I, Penn State Altoona, fall 2012 and spring 2013
- Techniques of Calculus I, Penn State Altoona, fall 2012
- Summer collegiate experience (7-week program for underprivileged high-school graduates admitted to college), calculus with algebra & trigonometry, University of Wisconsin-Madison, summer 2007
- Intermediate Algebra, University of Wisconsin-Madison, spring 2007
- Trigonometry, University of Wisconsin-Madison, spring 2004, fall 2004, and summer 2005

Teaching assistant (lecture-discussion format), University of Wisconsin-Madison, Calculus & Analytic Geometry I, II and Finite Mathematics, 2003-2007

MathLab drop-in tutorial program, fall and spring 2005 and 2007, and workshop for Calculus & Analytic Geometry III, fall 2007, University of Wisconsin-Madison

Submitted a total of seven recommendation or reference letters (for academic programs, transfer applications, and internships)

Graduate students

Extra credit project (Abstract Linear Algebra) with two economics grad students, University of Illinois at Urbana-Champaign, spring 2015

Assisted in mentoring graduate student, IMSP, Porto Novo, Benin, summer 2012

Submitted recommendation letter (for postdoc applications)

Symplectic seminar lecture series, Seoul National University, fall 2008

Summer enhancement program (qualifying exam preparation) for first and second year graduate students, University of Wisconsin-Madison, summer 2007

Organizer, graduate participation seminar geometry & topology, University of Wisconsin-Madison, spring and fall 2007

PROFESSIONAL DEVELOPMENT (TEACHING/MENTORING)

MAA Minicourse "Directing Undergraduate Research," 2017 Joint Mathematics Meetings

Book Discussion / Reading Group: Make It Stick, Georgia Southern University, spring 2016

New Faculty Learning Community, Georgia Southern University, fall 2015

"Getting Ready for the First Day" workshop, Georgia Southern University, fall 2015

Center for Teaching and Learning Focus Groups (early feedback), both sections of Calculus III, Georgia Southern University, fall 2015

Technology: MyMathLab, Tools for Enriching Calculus, WebAssign, and Folio, Learn@Illinois (a.k.a. Moodle), Angel (course management systems)

MAA Minicourse "WeBWork: An open source alternative for generating and delivering online homework problems," 2014 Joint Mathematics Meetings

MAA Minicourse "Introduction to teaching statistics," 2014 Joint Mathematics Meetings

"New Faculty Effective Teaching" workshop, Penn State Altoona, October 2012

SERVICE ACTIVITIES

Colloquium Committee, Georgia Southern University, since fall 2015

Grants and Scholarships Committee, Georgia Southern University, since fall 2016

Undergraduate Committee Alternate, COSM Senate, Georgia Southern University, since fall 2016

Organizer, Geometry/Topology Seminar, Georgia Southern University, since fall 2016

Co-organizer, AMS Southeastern Sectional Meeting Special Session, Symplectic and Contact Geometry, University of Georgia, Athens, 5-6 March 2016

Liaison between the Department of Mathematics and the tutoring program for Vector Calculus (CARE) in the College of Engineering, University of Illinois at Urbana-Champaign, spring 2014

Referee for journal articles (five papers in four different journals, including Int. J. Math. and two papers in J. Symplectic Geom.)

Editor of KIAS newsletter, 2009 and 2010

Founder and inaugural president of KIAS tennis club, 2010-2011

PROFESSIONAL MEMBERSHIPS

American Mathematical Society, since 2003

MISCELLANEOUS

Software and programming experience: Mathematica, Excel, SQL, SAS, C, C++, Java, Pascal, Haskell

Languages: English (fluent), German (native), French and Korean (conversational)