

Trinity University
Department of Mathematics
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Employment

Assistant Professor, Trinity University, TX, Fall 2006 - Present
Collaborator Professor, Universidade Federal do Ceará, Brazil, Summer 2008 - Present
Visiting Assistant Professor, Universidade Federal do Ceará, Brazil, Summer 2007
Teaching Assistant, University of Notre Dame, IN, Fall 2001 - Spring 2006

Education

Ph.D. in Mathematics, University of Notre Dame, May 2006
Dissertation: Detecting Invertibility from the Topology of the Pre-images of Hyperplanes.
Advisor: Frederico Xavier.
M.S. in Mathematics, University of Notre Dame, January 2004
B.S. in Mathematics, *Summa Cum Laude*, Lander University, May 2001

Research Interests

Geometry, Topology, Nonlinear Analysis.
MSC: 58K15, 57R30, and 57R50.

Publications

Foliations and Global Inversion, Commentarii Mathematici Helvetici, to appear.
Incompressibility and Global Inversion, Topological Methods in Nonlinear Analysis, to appear.

Teaching Experience

Instructor at Trinity University: Topology, Real Analysis, Partial Differential Equations, Introduction to Abstract Math, Linear Algebra, Calculus I and II, and Pre-Calculus.
Instructor at University of Notre Dame: Finite Mathematics at the Balfour Scholar Program, Calculus I and II for Business, and Introduction to Probability and Statistics.
Teaching Assistant at University of Notre Dame: Calculus I and II, and Introduction to Linear Algebra and Differential Equations.

Scholarly Presentations

“A Brief Incursion into Knot Theory”, Mathematics Majors Seminar, Trinity University (October 2008)
“Folheações e Invertibilidade Global”, Seminário de Equações Diferenciais, Unicamp, (August 2008)
“Foliations and Global Invertibility”, XVI Encontro Brasileiro de Topologia (Brazilian Topology Meeting, UFSCar (July 2008)
“Foliations and Global Invertibility”, AMS Spring Southeastern Sectional Meeting, Louisiana State University (March 2008)
“The pseudo-paradox on the size and measure of the Cantor set.”, Mathematics Majors Seminar, Trinity University (January 2008)
“Métodos Geométricos e Topológicos no Problema de Inversão Global”, Universidade Federal de Pernambuco (July 2007)
“Métodos Geométricos e Topológicos no Problema de Inversão Global”, Universidade Federal do Ceará (June 2007)

“A topological characterization of diffeomorphisms”, Frank Stones Research Lectureship, Texas Christian University (October 2006)

“How to solve an Equation”, Parabola Undergraduate Mathematics Club, Texas Christian University (October 2006)

“How to solve an Equation”, Mathematics Majors Seminar, Trinity University (August 2006)

“Characterizing diffeomorphisms by the topology of the pullback of hyperplane foliations”, AMS Spring Central Sectional Meeting, University of Notre Dame (April 2006)

“Detecting invertibility from the topology of the pullback of hyperplane foliations”, AMS Session on Topology, Joint Mathematics Meetings, San Antonio, TX (January 2006)

“Lyusternik-Schnirelman category”, Morse theory seminar, University of Notre Dame (December 2005)

“Characterizing diffeomorphisms by the topology of the pullback of hyperplane foliations”, PDE, Complex Analysis and Differential Geometry seminar, University of Notre Dame (October 2005)

“Topological Tools in Nonlinear Analysis”, Graduate student seminar, University of Notre Dame (September 2005)

“Intersection Theory and Linking Numbers”, Summer Topology Seminar, University of Notre Dame (August 2005)

“Invertibility and the topology of hyperplane section”, The Clavius Group Geometry seminar, University of Notre Dame (July 2005)

“Global Injectivity as a Topological Phenomenon”, Graduate student seminar, University of Notre Dame (December 2004)

“Can one hear the shape of a drum?”, Graduate student seminar, University of Notre Dame (October 2003)

“Spectral Analysis of Schrodinger Operators”, Graduate student seminar, University of Notre Dame (February 2003)

Conferences Attended

Texas Geometry and Topology Conference, University of Texas A&M, February 2009.

Texas Geometry and Topology Conference, University of Texas at Austin, October 2008.

XVI Encontro Brasileiro de Topologia (Brazilian Topology Meeting), Universidade Federal de São Carlos, July 2008

XV Escola de Geometria Diferencial, Universidade Federal do Ceará, July 2008

First AMS and SBM Joint Meeting, Instituto de Matemática Pura e Aplicada (IMPA), June 2008

AMS Spring Southeastern Sectional Meeting, Louisiana State University, March 2008

II Encontro de Equações Diferenciais Parciais e Análise Geométrica, Universidade Federal do Ceará, January 2008.

Texas Geometry and Topology Conference, University of Texas A&M, October 2007.

Bloomington Geometry Workshop, Indiana University, April 2007

Texas Geometry and Topology Conference, Texas Christian University, March 2007.

Texas Geometry and Topology Conference, Rice University, October 2006.

Conference on Future Directions in Global Riemannian Geometry, University of Maryland, September 2006

Geometric Function Theory Workshop, University of Michigan, May 2006

AMS Spring Central Sectional Meeting, University of Notre Dame, April 2006

AMS Joint Mathematics Meeting, San Antonio, TX, January 2006

Differential Geometry Day, Department of Mathematics, Eastern Illinois University, November 2004

Geometric and Nonlinear Analysis Conference, Department of Mathematics, University of Notre Dame, September 2004

Bloomington Geometry Workshop, Indiana University, April 2004

Differential Geometry Day, Department of Mathematics, Eastern Illinois University, November 2003

Fully Nonlinear Equations in Geometry, Department of Mathematics, University of Notre Dame, June 2003

Workshop and Conference on Recent Trends in Nonlinear Variational Problems, Trieste, Italy, April-May 2003

Graduate Student Topology Conference, Department of Mathematics, University of Notre Dame, April 2003

Conference on Spectral Analysis in Geometry and Physics, Department of Mathematics, University of California - San Diego, January 2003

Directed Student Research

The Structure of Differential Manifolds via Morse Theory, Susan Abernathy, 2007, Senior Mathematics Project, Trinity University.

Awards and Grants

Summer Research Stipend, Trinity University, awarded by the Faculty Development Committee, 2009.

National Science Foundation Geometric Analysis grant for 2009-2012. (*pending*)

Summer Research Stipend, Trinity University, awarded by the Faculty Development Committee, 2007.

Recipient of the 2002 Richard Sady Prize from the University of Notre Dame for the best first year graduate student in Mathematics.

Classified on the Willian Lowell Putnam Competition in the top 200 in 1999 and 2000.

Service

Organizer of Trinity University Mathematics Departmental Colloquium, Fall 2007 -

Chair of Trinity University Library Activities committee, Fall 2007 -

Member of Trinity University Traffic and Parking committee, Fall 2007 -

Member of Master Degree committee of Carlos Augusto at the Universidade Federal do Ceará, July 2008

Member of PhD entrance exam committee for Gleidson Silva at the Universidade Federal do Ceará, July 2007

Member of PhD entrance exam committee for Ulisses Lima Parente at the Universidade Federal do Ceará, July 2007

Co-organizer of Trinity University Mathematics Departmental Colloquium, Spring 2007

Departmental representative to the Trinity In Focus program at Trinity University, Spring 2008

Departmental representative to the Fall Family Weekend program at Trinity University, Fall 06 and Fall 07

Professional Memberships

American Mathematical Society (AMS), 01-present

Mathematics Association of America (MAA), 98-01

Society for Industrial and Applied Mathematics (SIAM), 04-06