Ricardo Augusto E. Mendes

Address and Personal Information

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Born: January, 1983
Citizenship: Brazilian

Research Interests

My main interest is Riemannian Geometry. More specifically: isometric group actions and singular Riemannian foliations; algebraic curvature operators, in particular different notions of positivity; and minimal surfaces.

Education

University of Pennsylvania, Philadelphia, PA, USA

Ph.D. in Mathematics, May 2011.

- Thesis: Equivariant tensors on polar manifolds
- Advisor: Wolfgang Ziller

State University of Campinas, Campinas, Brazil

M.Sc. in Mathematics, 2006.

- Thesis: Geometric Invariant Theory and Representations of Quivers
- Advisor: Marcos Jardim

B.Sc. in Mathematics, 2004.

Visiting Positions

Postdoctoral fellow at Universität zu Köln, Köln, Germany	since Summer 2017
Postdoctoral fellow at Universität Münster, Münster, Germany	Summer 2014 to Spring 2017
Visiting assistant professor at the University of Notre Dame, Notre Dame, IN, USA	Fall 2011 to Spring 2014
Visiting graduate student at IMPA, Rio de Janeiro, Brazil	Fall 2009

Honors and Awards

Postdoctoral grant, Deutsche Forschungsgemeinschaft (DFG), Germany, 2016.

Carlitz-Zippin Prize, Department of Mathematics, University of Pennsylvania, 2011.

Benjamin Franklin Fellowship, Department of Mathematics, University of Pennsylvania, 2006-2011.

Masters Scholarship, Brazilian National Council of Scientific and Technological Development (CNPq), Brazil, 2005-2006.

Undergraduate Research Scholarship, Foundation for Research Support of the State of São Paulo (FAPESP), Brazil, 2001-2004.

Papers and Publications

Gorodski, C., Lange, C., Lytchak, A., Mendes, R.
A diameter gap for quotients of the unit sphere,
submitted for publication.

Gorodski, C., Mendes, R., and Radeschi, M.
Robust index bounds for minimal hypersurfaces of isoparametric submanifolds and symmetric spaces,
to appear in Calculus of Variations and Partial Differential Equations.

Mendes, R., and Radeschi, M.
Virtual immersions, and a characterization of symmetric spaces,
to appear in Annals of Global Analysis and Geometry (AGAG).

Bettiol, R., and Mendes, R. *Sectional curvature and Weitzenböck formulae*,
submitted for publication.

Mendes, R., and Radeschi, M.
Virtual immersions and minimal hypersurfaces in compact symmetric spaces,
submitted for publication.

Mendes, R., and Radeschi, M. *Singular Riemannian foliations and their quadratic basic polynomials*,
to appear in Transformation Groups.

Mendes, R., and Radeschi, M. *A Slice Theorem for singular Riemannian foliations, with applications*,
to appear in Transactions of the AMS.

Bettiol, R., and Mendes, R. *Strongly positive curvature*,
Ann. Global Anal. Geom. 53 (2018), no. 3, 287309.

Bettiol, R., and Mendes, R. *Strongly non-negative curvature*,
Math. Ann. 368 (2017), no. 3-4, 971– 986.

Mendes, R. *Extending tensors on polar manifolds*,
Math. Ann. 365 (2016), no. 3-4, 1409 –1424.

Bettiol, R., and Mendes, R. *Flag manifolds with strongly positive curvature*,
Math. Z. 280 (2015), no. 3-4, 1031–1046.

Mendes, R. *Equivariant tensors on polar manifolds*,
PhD dissertation (2011).

Talks and Presentations

Singular Riemannian Foliations — Metric and Algebraic Aspects — May 2019
Workshop on Singular Foliations
KU Leuven, Leuven, Belgium

The Real Algebraic Geometry of Riemannian curvature conditions — May 2019
Düsseldorf Doctoral Research Seminar in Pure Mathematics
Heinrich Heine Universität Düsseldorf, Düsseldorf, Germany

A diameter gap for quotients of the unit sphere — April 2019
Felix Klein Seminar
University of Notre Dame, Notre Dame, IN, USA

Singular Riemannian foliations, manifold submetries, and Laplacian algebras — January 2019
Geometry Seminar
Max Planck Institute for Mathematics, Bonn, Germany

Diameter of quotients of the sphere by isometric group actions — November 2018
Geometry Oberseminar
University of Münster, Münster, Germany

Diameter of quotients of the sphere by isometric group actions — August 2018

New trends and open problems in Geometry and Global Analysis
Castle Rauischholzhausen, near Marburg, Germany

Diameter of quotients of the sphere by isometric group actions July 2018
Modern Trends in Differential Geometry
University of São Paulo, São Paulo, Brazil

Robust index bounds for minimal hypersurfaces in compact symmetric spaces and isoparametric submanifolds March 2018
Geometry Seminar
University of São Paulo, São Paulo, Brazil

Virtual immersions and minimal hypersurfaces in compact symmetric spaces March 2018
20th School of Differential Geometry
João Pessoa, Brazil

Minimal hypersurfaces in compact symmetric spaces November 2017
Analysis Seminar
University of Warwick, Coventry, UK

Strongly positive curvature October 2017
Seminar "Differentialgeometrie und Analysis"
Philipps-Universität Marburg, Marburg, Germany

Minimal hypersurfaces in compact symmetric spaces September 2017
Geometry Seminar
University of São Paulo, São Paulo, Brazil

Invariant Theory without groups August 2017
Karcher Colloquium
University of Oklahoma, Norman, OK, USA

Sectional curvature and the Weitzenböck formula August 2017
Geometry and Topology Seminar
University of Oklahoma, Norman, OK, USA

Minimal hypersurfaces in compact symmetric spaces August 2017
Geometric Analysis Seminar
University of Notre Dame, Notre Dame, IN, USA

Minimal hypersurfaces in compact symmetric spaces July 2017
Workshop on Curvature and Global Shape
University of Münster, Münster, Germany

Minimal hypersurfaces in compact symmetric spaces June 2017
Lie Group Actions in Riemannian Geometry
Dartmouth College, Hanover, NH, USA

Minimal hypersurfaces in compact symmetric spaces June 2017
Universität zu Köln, Cologne, Germany

Invariants of degree two December 2016
Universität zu Köln, Cologne, Germany

Invariant Theory of singular Riemannian foliations September 2016
State University of Campinas, Campinas, Brazil

Invariant Theory of singular Riemannian foliations April 2016
Radboud University, Nijmegen, Netherlands

Invariant Theory of singular Riemannian foliations April 2016
University of Pennsylvania, Philadelphia, PA, USA

Smooth functions constant on the leaves of singular Riemannian foliations October 2015

Universität zu Köln, Cologne, Germany

Smooth basic functions on singular Riemannian foliations — September 2015
University of São Paulo, São Paulo, Brazil

Smooth basic functions on singular Riemannian foliations — August 2015
IMPA, Rio de Janeiro, Brazil

Metrics with strongly positive curvature on flag manifolds — February 2015
Penn State University, State College, PA, USA

Metrics with strongly positive curvature on flag manifolds — December 2014
I Congresso Brasileiro de Jovens Pesquisadores em Matemática Pura e Aplicada
University of São Paulo, São Paulo, Brazil

Strongly positive curvature — June 2014
Workshop – Geometrie
Mathematisches Forschungsinstitut Oberwolfach, Germany

Strongly positive curvature — March 2014
AMS Southeastern Spring Sectional Meeting
Special Session on Metric Geometry and Topology
University of Tennessee, Knoxville, Knoxville, TN, USA

Strongly positive curvature — October 2013
University of Notre Dame, Notre Dame, IN, USA

Strongly positive curvature — June 2013
State University of Campinas, Campinas, Brazil

Curvature conditions as semi-algebraic sets — June 2013
University of São Paulo, São Paulo, Brazil

Extending general tensors in polar manifolds — March 2013
University of Waterloo, Waterloo, Canada

Extending metrics in polar manifolds — July 2012
Utrecht University, Utrecht, Netherlands

Polar Representations and their Invariant Theory — August 2010
State University of Campinas, Campinas, Brazil

Smoothness conditions on polar manifolds — June 2009
State University of Campinas, Campinas, Brazil

Teaching Experience

University of Notre Dame, Notre Dame, IN, USA

- *Calculus III* — Spring 2014
- *Calculus II* — Fall 2013
- *Linear Algebra and Differential Equations* — Fall 2013
- *Linear Algebra and Differential Equations* — Spring 2013
- *Linear Algebra* — Fall 2012
- *Calculus II* — Fall 2012
- *Calculus B* — Spring 2012
- *Calculus I* — Fall 2011

University of Cologne, Cologne, Germany

- *Elementary Differential Geometry* — Winter 2018-2019