

Personal Information

Birth date: March 23 1981.
Citizenship: Colombian
email: jgomez@math.jhu.edu

Office

222 Krieger Hall
Department of Mathematics
Johns Hopkins University
3400 N. Charles Street
Baltimore, MD 21218

Education

Ph.D. Mathematics, University of Michigan, 2008
M.A. Mathematics, University of Cincinnati, 2004
B.S. Mathematics, Universidad Nacional de Colombia Sede Medellín, 2002

Work Experience

J.J. Sylvester Assistant Professor. Johns Hopkins University. Fall 2011-Present
Post-doctoral Research Assistant. University of British Columbia. Fall 2008-Summer 2011
Graduate Student Instructor. University of Michigan. Fall 2004-Summer 2008.

Research Interest

My research in mathematics concerns algebraic topology. More specifically, stable and unstable homotopy theory, infinite loop spaces and K-theory. I am especially interested in applying homotopy theory to problems arising from different areas of mathematics such as geometry, topology and algebraic geometry and also to problems arising in the mathematical aspects of string theory. With this point of view, in the past few years I have been trying to understand moduli spaces of flat connections over surfaces and problems in twisted K-theory and orbifold theory.

Awards and Fellowships

Joel Dean Award for “Excellence in the teaching of Mathematics”. Johns Hopkins University. Spring 2012.
Graduate Student Research Assistant, University of Michigan, Winter 2008.
Graduate Student Research Assistant, University of Michigan, Fall 2006.
Arthur Herbert Copeland, Sr. Memorial Scholarship, University of Michigan, Summer 2006.
Luther Claborn Mathematics Fellowship, University of Michigan, Summer 2005.

University Research Council Summer Fellowships, University of Cincinnati, Summer 2004.
Taft Enhancement Fellowship, University of Cincinnati, Academic year 2003-2004.
University Graduate Scholarships, University of Cincinnati, Academic year 2003-2004.
Academicos en Formación (Academics in Formation), Universidad Nacional de Colombia sede Medellín, Winter 2003.
Undergraduate Fellowship, Universidad Nacional de Colombia sede Medellín, Winter 1998-Fall 2002 (For best top 2 GPA on each semester).

Publications

J. M. Gómez. On the nonexistence of higher twistings over a point for Borel cohomology of K-theory. *Journal of Geometry and Physics* 60 (2010) 678-685

A. Adem, F. R. Cohen and J.M. Gómez. Commuting elements in central products of special unitary groups. To appear in the Proceedings of the Edinburgh Mathematical Society.

A. Adem, F. R. Cohen and J.M. Gómez. Stable splittings, spaces of representations and almost commuting elements in Lie groups. *Math. Proc. Camb. Phil. Soc.* 149 (2010) 455-490.

A. Adem, A. N. Duman and J.M. Gómez. Cohomology of toroidal orbifold quotients. *Journal of Algebra* 344 (2011) 114-136.

J.M. Gómez, A. Pettet and J. Souto. On the fundamental group of $\text{Hom}(\mathbb{Z}^k, G)$. To appear in *Math. Zeitschrift*. Arxiv.1006.3055

A. Adem and J.M. Gómez. Equivariant K-theory of compact Lie group actions with maximal rank isotropy. With A. Adem. Accepted for publication in the *Journal of Topology*.

A. Adem and J.M. Gómez. On the structure of the spaces of commuting elements in compact Lie groups. Accepted for publication in the proceedings of the conference Configuration spaces: Geometry, Combinatorics and Topology. C.R.M. Ennio De Giorgi.

B. Antieau, D. Gepner and J.M. Gómez. Actions of Eilenberg-MacLane spaces on K-theory spectra and uniqueness of twisted K-theory. Submitted. Arxiv.1006.5099

J. M. Gómez. From fibered symmetric bimonoidal categories to symmetric spectra. Preprint.

J. M. Gómez, P. Hu and I. Kriz. Stringy bundles and infinite loop space theory. Preprint.

Teaching Experience

Instructor. Math 311 Complex Analysis. Johns Hopkins University, Winter 2012.

Instructor. Math 106 Calculus I for Bio. and Soc. Sciences. Johns Hopkins University, Winter 2012.

Instructor. Math 106 Calculus I for Bio. and Soc. Sciences. Johns Hopkins University, Fall 2011.

Instructor. Math 152 Linear Systems. University of British Columbia, Winter 2011.

Instructor. Math 100 Calculus I. University of British Columbia, Fall 2010.

Instructor. Math 152 Linear systems. University of British Columbia, Winter 2010.

Instructor. Math 527 Algebraic Topology. University of British Columbia, Fall 2009.

Instructor. Math 105 Calculus. University of British Columbia, Winter 2009.

Graduate Student Instructor, Calculus I, University of Michigan, Summer 2008, Winter 2007, Winter 2006 and Fall 2005

Graduate Student Instructor, Calculus II, University of Michigan, Fall 2007

Graduate Student Instructor, Calculus III, University of Michigan, Spring 2007, Winter 2005

Graduate Student Instructor, Precalculus, University of Michigan, Fall 2004

Graduate Student Instructor training week, University of Michigan, September 2004

Teaching Assistant, Differential Equations, University of Cincinnati, Spring 2004

Summer School Lecturer, Physics, Columbus School Medellín Colombia, Summer 2003

Graduate Instructor, Calculus I, Universidad Nacional de Colombia sede Medellín, Winter 2003

Undergraduate Lecturer, Calculus I, Universidad Nacional de Colombia sede Medellín, Fall 2002

Undergraduate Teaching Assistant, Calculus/Physics, Universidad Nacional de Colombia sede Medellín, Fall 1999- Winter 2002

Talks on Conferences and Seminars

Equivariant K -theory and maximal rank isotropy subgroups. Topology seminar University of Rochester. Winter 2012.

Equivariant K -theory and maximal rank isotropy subgroups. Topology seminar Penn State Altoona. Fall 2011.

Equivariant K -theory and maximal rank isotropy subgroups. Topology seminar Johns Hopkins University. Fall 2011.

Equivariant K -theory and maximal rank isotropy subgroups. Congreso Colombiano nacional de matematicas. Bucaramanga, Colombia. Summer 2011.

Equivariant K -theory and maximal rank isotropy subgroups. Topology seminar UBC. Winter 2011.

Stable splittings, commuting and almost commuting elements in Lie groups. Colloquium Binghamton University. Winter 2011

Stable splittings, spaces of representations and almost commuting elements in Lie groups. Intensive research period on Configurations spaces. Centro di Giorgi. Pisa, Italy. Summer 2010

Cohomology of toroidal orbifold quotients. PIMS postdoctoral colloquium. Winter 2010.

Stable splittings and almost commuting elements in Lie groups. III congreso latino Americano de matematicas. Santiago de Chile, Summer 2009

Stable splittings and almost commuting elements in Lie groups. First Prima conference Sydney, Summer 2009

Stable splittings and almost commuting elements in Lie groups. MIT, Spring 2009

Stable splittings and almost commuting elements in Lie groups. University of Rochester, Spring 2009

Stable splittings and almost commuting elements in Lie groups. University of Chicago, Spring 2009.

Stable decompositions and almost commuting elements in Lie groups. University of British Columbia, Winter 2009.

From fibered symmetric bimonoidal categories to symmetric spectra. University of British Columbia, Fall 2008.

Stringy bundles and ring spectra. University of Chicago, Winter 2008.

Topology Seminar, Higher Twistings in K-theory. University of British Columbia, Fall 2007.

Topology Seminar, Higher Twistings in K-theory. University of Michigan, Fall 2007.

National Colombian Congress of Mathematics, Twistings in K-theory. Medellín Colombia, Summer 2007.

Student Topology seminar, An introduction to operads. University of Michigan, Winter 2007.

Student Topology seminar, Introduction to Simplicial Spaces. University of Michigan, Winter 2007.

Arbeitsgemeinschaft mit aktuellem Thema: Twisted K-Theory. Talk N.2. Basic Definitions of Twisted K-theory. Oberwolfach Germany, Fall 2006.

Student Topology seminar, Twisted K-theory. University of Michigan, Fall 2006.

Student Topology seminar, Eilenberg-MacLane Spaces. University of Michigan, Winter 2006.

Student Topology seminar, A non-embedding theorem for projective spaces. University of Michigan, Fall 2005.

Math Olympiads

Bronze medals on the International Mathematics competition for university students, Czech Republic 2001, Poland 2002.

Bronze medals on the Iberoamerican Mathematics competition for university students, 2001-2002

Seminars

Co-Organizer Topology seminar. Johns Hopkins University, Fall 2011-present.

Organizer Topology seminar. University of British Columbia, Fall 2008-Summer 2011.

Co-Organizer Student Topology/Geometry Seminar, University of Michigan, Academic Year 2006-2007.

Co-Organizer joint Graduate Topology/Geometry meeting, Michigan State University and University of Michigan, Fall 2006, Winter 2007.