Rafael S. González D'León

Postdoctoral Scholar
University of Kentucky
Patterson Office Tower, Room 767,
Lexington, KY 40506-0027, USA.

rafaeldleon@uky.edu
http://www.ms.uky.edu/ ˜rsgo226/
Phone: (1) 859-257-4802

Research interests

Algebraic and Topological Combinatorics.

Education

Ph.D. in Mathematics, August 8 2014.
University of Miami, Coral Gables, FL, USA.
Thesis: *On the combinatorics of the free Lie algebra with multiple brackets.*
Advisor: Michelle Wachs.

M.Sc. in Mathematics, May 2011.
University of Miami, Coral Gables, FL, USA.

M.Sc. in Mathematics, June 2009.
KTH - Royal Institute of Technology, Stockholm, Sweden.
Thesis: *Representing matroids by polynomials with the half-plane property.*
Advisor: Petter Brändén.

Electrical Engineering, March 2006.
UPB University, Medellín, Antioquia, Colombia.
Thesis: *Enhancement of fiber optics network and design of the SDH information transport system of Metro de Medellín.*

Academic Employment

Postdoctoral Scholar.
August 2014 – Present.
University of Kentucky. Lexington, KY, USA.

Research Assistant (NSF funded).
June 2012 – July 2014.
University of Miami. Coral Gables, FL, USA.

Teaching Assistant.
August 2009 – May 2012.
University of Miami. Coral Gables, FL, USA.

Adjunct Instructor.
January 2006 – June 2007.
UPB University. Medellín, Antioquia, Colombia.

Preprints and Publications

A family of symmetric functions associated with Stirling permutations.
`http://arxiv.org/abs/1506.01628`.

A note on the γ-coefficients of the "tree Eulerian polynomial".
`http://arxiv.org/abs/1505.06676`.

On the free Lie algebra with multiple brackets (submitted).
http://arxiv.org/abs/1408.5415.

On the (co)homology of the poset of weighted partitions (with M. L. Wachs).
Accepted for publication in Trans. Amer. Math. Soc.

On the poset of weighted partitions (with M. L. Wachs).
DMTCS Proceedings 01 (2013): 1029-1040.

On the half-plane property and the Tutte-group of a matroid (with P. Brändén).
J. Combin. Theory Ser. B. 100-2010.

On the Combinatorics of the Free Lie Algebra With Multiple Brackets (Ph.D. thesis).
UM 2014. http://scholarlyrepository.miami.edu/oa_dissertations/1246

Representing matroids by polynomials with the half-plane property (master thesis).
KTH 2009.

Talks and Posters

In conferences and meetings:

April 18, 2015. Special Session on Algebro-Geometric Methods in Graph Theory. AMS Sectional Meeting. U. of Nevada. Las Vegas, NV.

March 27, 2015. Colloquium-Graduate Students Combinatorics Conference. U. of Kentucky, Lexington, KY.

March 14, 2015. Special Session on Algebraic Combinatorics. AMS Sectional Meeting. Michigan State University, East Lansing, MI.

January 5, 2015. Conference in honor of Michelle Wachs. U. of Miami. Miami, FL.

October 26, 2014. Special Session on Topological Combinatorics and Combinatorial Commutative Algebra. AMS Sectional Meeting. SFSU, San Francisco, CA.

July 12, 2014. Cuarto Encuentro Colombiano de Combinatoria ECCO2014. Universidad de los Andes, Bogotá, Colombia.

October 19, 2013. Special Session on Topological Combinatorics. AMS Sectional Meeting. Washington University, St. Louis, MO.

June 17, 2013. The 11th Nordic Combinatorial Conference (NORCOM). KTH, Stockholm, Sweden.

June 24, 2013. (Poster) FPSAC'13 The 25th International Conference on Formal Power Series and Algebraic Combinatorics. Paris, France.

October 14, 2012. Special Session on Algebraic and Topological Combinatorics. AMS Sectional Meeting. Tulane University, New Orleans, LA.

In seminars:

May 13, 2015. Combinatorics seminar. U. of Washington. Seattle, WA.

November 24, 2014. Applied Algebra Seminar. York University. Toronto, Canada.

January 24, 2014. Postdoctoral Candidate Colloquium. U. of Kentucky, Lexington, KY.

October 2, 2010. Combinatorics Seminar. U. of Miami, Coral Gables, FL.

March 2, 2010. Combinatorics Seminar. U. of Miami, Coral Gables, FL.

May 27, 2009. Combinatorics Seminar. KTH-The Royal Institute of Technology, Stockholm, Sweden.

In student seminars:

April 2, 2015. Math Club. U. of Kentucky, Lexington, KY.

January 31, 2014. UM Math Graduate Students Seminar. U. of Miami, Coral Gables, FL.

November 1, 2013. UM Math Graduate Students Seminar. U. of Miami, Coral Gables, FL.

March 1, 2013. UM Math Graduate Students Seminar. U. of Miami, Coral Gables, FL.

November 2, 2012. UM Math Graduate Students Seminar. U. of Miami, Coral Gables, FL.

February 17, 2012. UM Math Graduate Students Seminar. U. of Miami, Coral Gables, FL.

September 9, 2011. UM Math Graduate Students Seminar. U. of Miami, Coral Gables, FL.

October 20, 2011. UMMU University of Miami Mathematics Union. U. of Miami, Coral Gables, FL, USA.

September 17, 2010. UM Math Graduate Students Seminar. U. of Miami, Coral Gables, FL.

Teaching Experience

As Instructor:

Calculus 4 (MA 214). Spring 2015. U. of Kentucky, Lexington, KY.

Matrix Algebra and Its Applications (MA 322). Fall 2014 -Spring 2015. U. of Kentucky, Lexington, KY.

Calculus 2 (MTH 162). Spring 2012. U. of Miami, Coral Gables, FL.

Calculus 1 (MTH 161). Fall 2010 - Fall 2011. U. of Miami, Coral Gables, FL, USA.

Precalculus 1 (MTH 107). Spring 2011. U. of Miami, Coral Gables, FL.

Computer Networks. Spring/Fall 2006 - Spring 2007. UPB university, Medellín, Antioquia, Colombia.

Data Networks Lab. Spring 2007. UPB university, Medellín, Antioquia, Colombia.

As Teaching Assistant:

Calculus 2 (MTH 162). Spring 2010. U. of Miami, Coral Gables, FL.

Calculus 1 (MTH 161). Fall 2009. U. of Miami, Coral Gables, FL.

Math Lab. Assisting students with diverse questions in mathematics. Fall 2009 to Fall 2011. U. of Miami, Coral Gables, FL.

Numerical Methods 2. Spring 2008. KTH - The Royal Institute of Technology, Stockholm, Sweden.

Electromagnetism Fundamentals. Fall 2001 - Fall 2005. UPB university, Medellín, Antioquia, Colombia.

Programming Fundamentals. Spring 2001. UPB university, Medellín, Antioquia, Colombia.

Industrial Experience

Fluidsignal Group   *Medellín, Antioquia, Colombia*
Project Engineer   *August 2005–August 2007*
Network design and implementation with open source software tools, information security advisory, project leading in the deployment of a colombian ISP and many other network infrastructure projects, project leading in network security and intrusion testing projects, responsible for risk identification, assessment and mitigation within the organization under the scheme of ISO/IEC 27001, OCTAVE and AS/NZS 4360 standards.

Metro de Medellín   *Bello, Antioquia, Colombia*
Engineering Intern   *July 2004–January 2005*
Design of a metropolitan transport network backbone with SDH standard for the interconnection of

all the metro stations and headquarters. Design of new links of optical fiber to enhance the scope over the physical network.

Conferences

Special Session on Algebro-Geometric Methods in Graph Theory. AMS Sectional Meeting. University of Nevada. Las Vegas, NV, USA.April 18-19, 2015.

Special Session on Algebraic Combinatorics. AMS Sectional Meeting. Michigan State University in East Lansing, MI, USA. March 14-15, 2015.

Conference in honor of Michelle Wachs. University of Miami. Miami, FL, USA. January 6-9, 2015.

IMA Annual Program Year Workshop Geometric and Enumerative Combinatorics. IMA University of Minnesota. Minneapolis, MN, USA. November 10-14, 2014.

Special Session on Topological Combinatorics and Combinatorial Commutative Algebra. AMS Sectional Meeting. SFSU, San Francisco, CA, USA. October 25-26, 2014.

Cuarto Encuentro Colombiano de Combinatoria ECCO2014. Universidad de los Andes, Bogotá, Colombia. June 2-13, 2014.

Bijective and Algebraic Combinatorics: In honor of Bruce Sagan's 60th birthday. University of Florida, Gainesville, Florida. March 24-25, 2014.

Special Session on Topological Combinatorics. AMS Sectional Meeting. Washington University, St. Louis, MO, USA. October 18-20, 2013.

FPSAC'13 The 25th International Conference on Formal Power Series and Algebraic Combinatorics. Paris, France. June 24-28, 2013.

The 11th Nordic Combinatorial Conference (NORCOM). KTH, Stockholm, Sweden. June 17-19, 2013.

Triangle Lectures in Combinatorics (TLC), Seventh meeting. Wake Forest University, Winston -Salem,NC, USA. February 9, 2013.

Special Session on Algebraic and Topological Combinatorics. AMS Sectional Meeting. Tulane University, New Orleans, LA, USA. October 13-14, 2012.

MSRI Summer Graduate Workshop - Cluster Algebras and Cluster Combinatorics. Mathematical Sciences Research Institute, Berkeley, CA, USA. August 1-12, 2011.

Ninth Annual Graduate Student Topology and Geometry Conference. Michigan State University, East Lansing, MI, USA. April 2-3, 2011.

Eighth Annual Graduate Student Topology and Geometry Conference. University of Michigan, Ann Arbor, MI, USA. April 10-11, 2010.

AMS Fall Southeastern Meeting. Florida Atlantic University, Boca Raton, FL, USA. October 30-31, 2009.

Awards and honors

Most outstanding graduate students in Mathematics May 2014. University of Miami, Coral Gables, FL, USA.

College of Arts and Sciences Dean's summer research fellowship Summer 2011. University of Miami, Coral Gables, FL, USA.

Other Activities

Cofounder and organizer of the UM Math Graduate Students Seminar. Fall 2010 to Spring 2012.

Students delegate on the faculty counsel of Electrical Engineering and on the Engineering School 2003-2004. UPB University, Medellín, Colombia.

Skills

Languages: Spanish (native), English (fluent).
Operating Systems: GNU/Linux, Unix and WINDOWS.
Computer Languages: C, Python, MATLAB, Maple, Sage.
Other technology topics: LAN and TCP/IP networking.

References

Available on request