Jonathan Montaño

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Department of Mathematical Sciences
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CITIZENSHIP   Colombian.

INTERESTS

Commutative algebra and its interactions with algebraic geometry, combinatorics, and homological algebra.

EXPERIENCE

Assistant Professor	New Mexico State University	August 2018-
Visiting Assistant Professor	University of Kansas	August 2015-May 2018
Graduate Assistant	Purdue University	August 2009-July 2015
Program Associate	MSRI, Berkeley, CA	August 2012-December 2012
Graduate Assistant	Universidad Nacional de Colombia, Bogotá	August 2008-August 2009

EDUCATION

Purdue University, West Lafayette, IN
  Ph.D. in Mathematics, August 2015
    Thesis: *Generalized multiplicities, reductions of ideals, and depth of blowup algebras.*
    Advisor: Prof. Bernd Ulrich
  M.Sc. in Mathematics, August 2011

Universidad Nacional de Colombia, Bogotá
  M.Sc. in Mathematics, August 2009
    Thesis: *Idempotents, adjoining an identity, and connectedness.* (in Spanish)
    Advisor: Prof. Lorenzo Acosta
  B.Sc. in Mathematics, August 2008
    Thesis: *Applications of the algorithmic proofs of the Quillen-Suslin theorem in algebraic geometry.* (in Spanish)
    Advisor: Prof. José Oswaldo Lezama

JOURNAL PUBLICATIONS

1. *On asymptotic vanishing behavior of local cohomology*, with Hailong Dao, `arXiv:1809.02310`, submitted.

2. *Splittings and symbolic powers of square-free monomial Ideals*, with Luis Núñez-Betancourt, `arXiv:1809.02308`, submitted.

3. *Length of local cohomology of powers of ideals*, with Hailong Dao, Trans. Amer. Math. Soc. **371** (2019), 3483-3503.

4. *Lower bounds on projective levels of complexes*, with Hannah Altmann, Eloísa Grifo, William Sanders, and Thanh Vu, J. Algebra **491** (2017), 343-356.

5. *On the growth of deviations*, with Adam Boocher, Alessio D'Alì, Eloísa Grifo, and Alessio Sammartano, Proc. Amer. Math. Soc. **144** (2016), 5049-5060.

6. *Edge ideals and DG algebra resolutions*, with Adam Boocher, Alessio D'Alì, Eloísa Grifo, and Alessio Sammartano, Le Matematiche **70** (2015), no.1, 215-237.

7. *Artin-Nagata properties, minimal multiplicities, and depth of fiber cones*, J. Algebra **425** (2015), 423-449.

8. *Multiplicities of classical varieties*, with Jack Jeffries and Matteo Varbaro, Proc. London Math. Soc. **110** (2015), 1033-1055.

9. *The j-multiplicity of monomial ideals*, with Jack Jeffries, Math. Res. Lett. **20** (2013), 729-744.

FELLOWSHIPS, HONORS, AND GRANTS

Faculty Travel Grant	College of Arts & Sciences, NMSU	Fall 2018
Oberwolfach Leibniz Fellow	MFO, Oberwolfach Res. Inst. for Math.	Summer 2018
NSF Conference Grant, DMS #1745772	KUMUNU 2017, University of Kansas	October 2017
AMS - Simons Travel Grant	AMS & Simons Foundation	July 2017-June 2019
Bilsland Dissertation Fellowship	Purdue University, College of Science	June 2014-May 2015
CSAP Travel Grant 2014-2015	Colombian Student Association at Purdue	May 2014
Graduate School Summer Research Grant	Purdue University	Summer 2012
Ross Fellowship	Purdue University	August 2009-July 2010
Outstanding Graduate Students Fellowship	Universidad Nacional de Colombia, Bogotá	August 2008- July 2009
Second place (nationwide)	ECAES in Mathematics, Colombia	2008

INVITED TALKS

AMS Sectional Meeting	Auburn University	March 15, 2019
Frobenius Action in CA Workshop	Barcelona, Spain	January 18, 2019
Algebra Seminar	Universitat Politècnica de València, Spain	January 15, 2019
Fall School in CA	CIMAT, Mexico	November 13-17, 2018
Algebra Seminar	New Mexico State University	September 24, 2018
Algebra Seminar	New Mexico State University	September 17, 2018
Algebra Seminar	Georgia State University	September 11, 2018
Public Lecture at ECCO 2018	Barranquilla, Colombia	June 7, 2018
Col.-Mex. Math Soc. joint meeting	Universidad del Norte, Colombia	May 30, 2018
AMS Sectional Meeting	Portland State University	April 14, 2018
CA-AG Seminar	CIMAT, Mexico	March 22, 2018
Geometry and Topology Seminar	San Francisco State University	March 12, 2018
Commutative Algebra Seminar	University of Michigan	November 2, 2017
Commutative Algebra Seminar	University of Utah	October 19, 2017
PRIMA 2017	Oaxaca, Mexico	August 14, 2017
Algebra Seminar	University of Kansas	April 25, 2017
Combinatorial and CA Seminar	Oklahoma State University	April 20, 2017
Commutative Algebra Seminar	University of Nebraska-Lincoln	April 10, 2017
KUMUNU jr 2017	University of Nebraska-Lincoln	April 8, 2017
Algebra Seminar	University of Missouri	February 27, 2017
Department of Mathematics Colloquium	New Mexico State University	February 9, 2017
2016 CMS Winter Meeting	Niagara Falls, Canada	December 4, 2016
Algebra & Combinatorics Seminar	Tulane University	November 10, 2016
Commutative Algebra Seminar	Purdue University	October 21, 2016
KUMUNU 2016	University of Kansas	October 1, 2016
AMS Sectional Meeting	North Dakota State University	April 16, 2016
Algebra Seminar	University of Arkansas	January 29, 2016
AMS Sectional Meeting	Rutgers University	November 14, 2015
Combinatorics Seminar	University of Kansas	November 6, 2015
Commutative Algebra Seminar	Purdue University	October 7, 2015
Algebra Seminar	University of Kansas	September 24, 2015
Midwest Commutative Algebra Meeting	Purdue University	August 5, 2015
CA and related topics 2015	University of Kansas	March 22, 2015
Commutative Algebra Seminar	Purdue University	February 4, 2015

2015 Joint Mathematics Meeting	San Antonio, TX	January 13, 2015
Commutative Algebra Seminar	University of Utah	November 21, 2014
Commutative Algebra Seminar	Purdue University	November 5, 2014
Algebra Seminar	New Mexico State University	November 3, 2014
AMS Sectional Meeting	San Francisco State University	October 26, 2014
AMS Sectional Meeting	Dalhousie University	October 19, 2014
AMS Sectional Meeting	University of New Mexico	April 5, 2014
Commutative Algebra Seminar	Purdue University	February 27, 2014
Commutative Algebra Seminar	Purdue University	October 28, 2013
Commutative Ring Theory Seminar	University of Illinois at U-C	October 24, 2013
Commutative Algebra Seminar	Purdue University	October 21, 2013
AMS Sectional Meeting	University of Louisville	October 5, 2013
KUMUNU jr 2013	University of Nebraska-Lincoln	April 22, 2013
Commutative Ring Theory Seminar	University of Illinois at U-C	March 7, 2013
AG-CA Seminar	University of Notre Dame	February 26, 2013
Commutative Algebra Seminar	Purdue University	February 22, 2013

ORGANIZATIONAL ACTIVITIES

Co-Organizer, Pan-American School on CA	University del Norte, Colombia	June 2020
Co-Organizer, AMS Spe. Ses. on Multiplicities	University of Michigan, Ann Arbor, MI	October 2018
Co-Organizer, Algebra Seminar	University of Kansas	Fall 2015-Spring 2018
Co-Organizer, KUMUNU 2017	University of Kansas	October 2017
Co-Organizer, 2017 SACNAS, Session on CA	Salt Lake City, UT	October 2017
Co-Organizer, AMS Spe. Ses. on CA	University of North Texas, Denton, TX	September 2017
Co-Organizer, JMM - MRC Session on CA	Seattle, WA	January 2016
Co-Organizer, AMS Spe. Ses. on CA	Loyola University, Chicago, IL	October 2015
Co-Organizer, Student Comm. Alg. Seminar	Purdue University	Fall 2013-Spring 2015
Co-organizer, Student Colloquium	Dept. of Mathematics, Purdue University	Fall 2013-Spring 2015
Co-organizer, Program Associate Seminar	MSRI	Fall 2012

OTHER PROFESSIONAL ACTIVITIES

Teaching Assistant, MSRI Summer Graduate School, University of Notre Dame, May 2019
Teaching Assistant, MSRI Summer Graduate School, Okinawa, Japan, May 2017
Reviewer, NSA-AMS Grant
Reviewer, Mathematical Reviews
Referee, Journal of Algebra, Journal of Algebra and its Applications, Mathematical Research Letters,
     Proceedings of the American Mathematical Society, Rocky Mountain Journal of Mathematics,
     Transactions of the American Mathematical Society.

OUTREACH

Associate Editor, Frontiers for Young Minds		May 2017 -
Junior Faculty and TA, AwesomeMath 2016	Dallas, TX	June 2016
Grader, USAMO 2016	Cambridge, MA	April 2016
Grader, USAMO 2015	Cambridge, MA	April 2015
Coordinator (Problem Captain), IMO 2013	Santa Marta, Colombia	July 2013
Trainer, AAAS Olympiad Program	Washington D.C.	2012
Coordinator, IMO 2012	Mar del Plata, Argentina	July 2012
President, Colombian St. Association at Purdue	Purdue University	2011
Colombian Dep. Leader, IMO 2009	Bremen, Germany	July 2009
Colombian Leader, Vojtech Jarník IMC	Ostrava, Czech Republic	March 2009
Colombian Dep. Leader, Iber. Math. Olympiad	Salvador, Brazil	September 2008

SELECTED AWARDS IN MATHEMATICS AND PROGRAMMING COMPETITIONS

International Collegiate Programming Contest, World Finals, *top 49*, Sweden, 2009.
International Collegiate Programming Contest, South American Final, *first place*, Bogotá, Colombia, 2008.
Colombian Programming Contest, *first place*, 2008.
International Mathematics Competition for University Students, *third prize*, Bulgaria, 2008; Ukraine, 2006.
Iberoamerican Mathematical Olympiad for University Students, *silver medal*, 2006.
Iberoamerican Mathematical Olympiad, *silver medal*, Spain, 2004; *bronze medal*, Argentina, 2003.
International Mathematical Olympiad, *bronze medal*, Greece, 2004.
Colombian Mathematical Olympiad, *gold medal*, 2003.
Colombian Olympiad in Informatics, *first place*, 2002,2001, *third place*, 2003.

TEACHING EXPERIENCE

New Mexico State University, August 2018 -

Calculus and Analytic Geometry II	Instructor	Spring 2019
Calculus and Analytic Geometry I	Instructor	Fall 2018

University of Kansas, August 2015 - May 2018

Calculus III (Honors)	Instructor	Spring 2018
Introductory Modern Algebra	Instructor	Fall 2017
Elementary Linear Algebra	Instructor	Fall 2017
Linear Algebra	Instructor	Summer 2017
Linear Algebra	Instructor	Spring 2017
Elementary Linear Algebra	Instructor	Fall 2016
Calculus III (Honors)	Instructor	Fall 2016
Elementary Linear Algebra	Instructor	Spring 2016
Vector Calculus	Instructor	Spring 2016
Linear Algebra	Instructor	Fall 2015

Purdue University, August 2009 - July 2015

Introductory Analysis I	Instructor	Spring 2014
Introductory Analysis II	Instructor	Fall 2013
Calculus I	Recitation Instructor	Spring 2013
Calculus II	Recitation Instructor	Spring 2012
Multivariable Calculus	Recitation Instructor	Fall 2011
Multivariable Calculus	Recitation Instructor	Fall 2010

Universidad Nacional de Colombia, Bogotá, August 2008 - August 2009

Linear Algebra	Instructor	Spring 2009
Calculus I	Instructor	Fall 2008

LANGUAGES

English (fluent), Spanish (native).

MEMBERSHIP

American Mathematical Society, 2010-