

Roi Docampo Álvarez

Instituto de Ciencias Matemáticas ■ Consejo Superior de Investigaciones Científicas ■ Madrid ■ Spain
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BIOGRAPHICAL	Born May 22, 1978, in Ourense (Spain).
EMPLOYMENT	Contratado Severo Ochoa (Post-doc), ICMAT, Madrid, Feb. 2015 – present Investigador Asociado (Visitor), Univ. de Santiago de Compostela, Dec. 2014 – Jan. 2015 Bolsista Ciência sem Fronteiras (Post-doc), Univ. Federal Fluminense, Feb. 2013 – Nov. 2014 Wylie Assistant Professor/Lecturer (Post-doc), University of Utah, July 2009 – June 2012 Research/Teaching Assistant (Student), Univ. of Illinois at Chicago, Aug. 2003 – July 2009
EDUCATION	University of Illinois at Chicago, Ph. D. in Mathematics, 2009 Thesis: <i>Arcs on determinantal varieties</i> . Advisor: Lawrence Ein Universidade de Santiago de Compostela, Diploma de Estudios Avanzados, 2003 Universidade de Santiago de Compostela, Licenciatura en Matemáticas, 2001
RESEARCH INTERESTS	Algebraic geometry, singularity theory, and valuation theory: birational geometry, multiplier ideals, arc spaces, jet schemes, Nash problem, motivic integration, Riemann-Zariski spaces, Berkovich spaces, homogeneous spaces, determinantal varieties, spherical varieties, Grassmannians, Schubert varieties.
PUBLICATIONS	[1] <i>Arcs on determinantal varieties</i> , Transactions of the American Mathematical Society 365 (2013), no. 5, 2241–2269. arXiv:1011.1930 . [2] <i>Jacobian discrepancies and rational singularities</i> , Journal of the European Mathematical Society 16 (2014), no. 1, 165–199. With Tommaso de Fernex. arXiv:1106.2172 . [3] <i>Comparing multiplier ideals to test ideals on numerically \mathbb{Q}-Gorenstein varieties</i> , Bulletin of the London Mathematical Society 47 (2015), no. 2, 359–369. With Tommaso de Fernex, Shunsuke Takagi, and Kevin Tucker. arXiv:1401.7946 .
IN PRESS	[4] <i>Terminal valuations and the Nash problem</i> , Inventiones mathematicae, to appear. With Tommaso de Fernex. arXiv:1404.0762 .
PREPRINTS	[5] <i>The arc space of the Grassmannian</i> . With Antonio Nigro. In preparation.
ORGANIZED CONFERENCES	<i>Workshop on Higher Dimensional Algebraic Geometry</i> , May 18–22, 2015, IMPA, Rio de Janeiro. With Carolina Araujo and Sándor Kovács. <i>Local and Global Methods in Algebraic Geometry</i> , May 12–15, 2016, Univ. of Illinois at Chicago. With Nero Budur, Tommaso de Fernex, and Kevin Tucker.
INVITED TALKS	<i>El problema de Nash para espacios de arcos</i> , 09/11/2015, 3er Congr. Jóvenes Invest., Murcia <i>Terminal valuations and the Nash problem</i> , 05/20/2015, W. on Higher Dim. Alg. Geom., IMPA <i>Terminal valuations and the Nash problem</i> , 02/05/2015, Congreso de la RSME 2015, Granada <i>Valorizações terminais e o problema de Nash II</i> , 09/16/2014, Universidade Federal Fluminense <i>Valorizações terminais e o problema de Nash</i> , 09/09/2014, Universidade Federal Fluminense <i>Nash problem II</i> , 06/13/2014, FRG Special Month in Ann Arbor, Univ. of Michigan <i>Terminal valuations and the Nash problem</i> , 05/14/2014, IMPA

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INVITED TALKS (CONT.)

Discrepancies on non- \mathbb{Q} -Gorenstein varieties, 02/25/2014, Univ. of Illinois at Chicago
Schubert varieties, arc spaces, and LCT's, 02/17/2014, LEGAL 2014, Teresópolis
Jacobian discrepancies and rational singularities, 10/31/2013, Univ. Federal do Rio de Janeiro
Jacobian discrepancies and rational singularities, 09/18/2013, 2° Congr. Jóvenes Invest., Seville
Jacobian discrepancies and rational singularities, 08/30/2013, COLGA, Univ. Federal Fluminense
Inversion of adjunction, arc spaces and Jacobian discrepancies, 08/02/2013, NCTS/TPE, Taiwan
Jacobian discrepancies and rational singularities, 07/29/2013, NCTS/TPE, Taiwan
Jacobian discrepancies and rational singularities, 07/04/2013, 14th ALGA Meeting, Teresópolis
Jacobian discrepancies and rational singularities, 04/17/2013, IMPA
Arcs on determinantal varieties II — Motivic integration, 04/02/2013, Univ. Federal Fluminense
Arcs on determinantal varieties, 03/26/2013, Universidade Federal Fluminense
Singularities in birational geometry and multiplier ideals, 03/08/2013, University of Oklahoma
Jacobian discrepancies and rational singularities, 04/14/2012, WAGS, University of Washington
Discrepancies, 03/14/2012, University of Illinois at Chicago
Jacobian discrepancies and rational singularities, 02/21/2012, Ohio State University
Discrepancies and Nash blowing-ups, 02/08/2012, Purdue University
Jacobian discrepancies and rational singularities, 02/08/2012, Purdue University
Jacobian discrepancies and rational singularities, 10/23/2011, AMS Special Session, Utah
Arcs on determinantal varieties, 04/15/2011, Brown University
Geometry of arcs under birational maps, 11/07/2010, AMS Special Session, Notre Dame
Arcs on determinantal varieties, 09/18/2009, University of Notre Dame
Arcs on determinantal varieties, 09/08/2009, University of Utah
Arcs on determinantal varieties, 12/10/2008, University of Michigan
Jet schemes, contact loci and singularities, 03/03/2005, University of Valladolid (Spain)

LECTURE SERIES

Arc spaces, birational geometry, and the Nash problem, 03/2015 – 05/2015, ICMAT, Madrid
Course on valuation theory and Berkovich spaces, 01/2011 – 05/2011, University of Utah

EXPOSITORY TALKS

Algebraic Geometry: A crash course for differential geometers, 01/2012, Univ. of Santiago de Comp.
Introduction to Python and Sage for mathematicians, 07/2014, Univ. of Toronto
The dual complex of singularities (after de Fernex, Kollár, Xu), 11/2013, IMPA
Arakelov Geometry: Green Currents, 05/2013, IMPA
Dynamics of automorphisms of compact complex surfaces, 05/2013, Univ. Federal Fluminense
The cohomology of p -adic symmetric spaces, 02/2011, University of Utah
Introduction to Berkovich spaces, 04/2010, University of Utah
Introduction to G.I.T., 11/2008, University of Illinois at Chicago
Toric varieties, 01/2008 – 05/2008, University of Illinois at Chicago

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EXPOSITORY TALKS (CONT.)

Complete conics, 11/2007, University of Illinois at Chicago
The proof of resolution of singularities, 09/2006 – 12/2007, University of Illinois at Chicago
Intersection theory, 08/2005 – 01/2006, University of Illinois at Chicago
Tropical algebraic geometry and Bernstein's theorem, 04/2005, University of Illinois at Chicago
Positivity in algebraic geometry, 09/2004 – 03/2005, University of Illinois at Chicago
D-Modules and derived categories, 03/2003 – 05/2003, University of Illinois at Chicago

GRANTS AND AWARDS

Bolsista Ciência sem Fronteiras (Atração Jovens Talentos), 02/2013 – 11/2015, CNPq, Brasil
Fulbright Fellowship, 08/2003 – 05/2005, Spanish-American Fulbright Commission
Master's Thesis Travel Grant, 02/2003 – 05/2003, Caixa Galicia Foundation
Scholarship for the Realization of Graduate Studies, 10/2001 – 08/2003, Xunta de Galicia
Premio Nacional de Fin de Carrera de Educación Universitaria (Mención Especial)
(National Award of University Education, Honorable Mention)
2001 – Granted by the Ministry of Education and Culture of Spain
Undergraduate Research Scholarship, 2000 – 2001, Ministry of Education and Culture of Spain

SERVICE

Referee for *Advances in Mathematics*, *Communications in Algebra*, *Journal of Algebra*, *Journal of Algebraic Geometry*, *Journal of Pure and Applied Algebra*, and *Pacific Journal of Mathematics*.
Co-organizer of the *School on Birational Geometry and Moduli Spaces — VIGRE Mini-course*, June 2010, University of Utah.
Co-organizer of the Algebraic Geometry Seminar at the University of Utah.
Co-organizer of the Algebra Seminar at the Universidade Federal Fluminense.

TEACHING EXPERIENCE

Foundations of Analysis II, Lecturer, Spring 2012, University of Utah
Foundations of Analysis II, Lecturer, Fall 2011, University of Utah
Special Topics in Algebraic Geometry: Course on Valuation Theory and Berkovich Spaces, Lecturer, Spring 2011, University of Utah
Partial Differential Equations for Engineering Students, Lecturer, Spring 2011, University of Utah
Introduction to Complex Variables, Lecturer, Fall 2010, University of Utah
Calculus II, Lecturer, Spring 2010, University of Utah
Calculus I, Lecturer, Fall 2009, University of Utah
Calculus III Lab (Maple), Teaching Assistant, Fall 2008, University of Illinois at Chicago
Differential Equations, Teaching Assistant, Summer 2008, University of Illinois at Chicago
Calculus III, TA Lecturer, Spring 2008, University of Illinois at Chicago
Emerging Scholars Workshop for Calculus I, Instructor, Spring 2007, University of Illinois at Chicago
Precalculus, Teaching Assistant, Spring 2006, University of Illinois at Chicago
Precalculus, Teaching Assistant, Fall 2005, University of Illinois at Chicago

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CONFERENCES ATTENDED

3er Congreso de Jóvenes Investigadores, RSME, 09/2015, University of Murcia
Workshop on Higher Dimensional Algebraic Geometry, 05/2015, IMPA, Rio de Janeiro.
Congreso de la RSME 2015, 02/2015, University of Granada
FRG Special Month in Ann Arbor, 05/2014, University of Michigan
Positive Characteristic Algebraic Geometry Workshop, 03/2014, Univ. of Illinois at Chicago
Liberdade em Geometria Algébrica, LEGAL 2014, 02/2014, Teresópolis, Brasil
New Aspects on Singularity Theory, 09/2013, ICMAT, Madrid
2º Congreso de Jóvenes Investigadores, RSME, 09/2013, University of Seville
Algebra and Geometry and Topology of Singularities, Luengo 60th, 09/2013, Miraflores de la Sierra
13th ALGA Meeting, 06/2013, Teresópolis, Brasil
YMIS 13: Seventh Meeting for mathematicians in Segovia, 02/2013, University of Valladolid
Western Algebraic Geometry Symposium, 04/2012, University of Washington
Singularities in Com. Algebra and Alg. Geometry, AMS Sectional Meeting, 03/2012, Univ. of Kansas
Special Session on Algebraic Geometry, AMS Sectional Meeting, 10/2011, University of Utah
Western Algebraic Geometry Symposium, 10/2011, Colorado State University
AIM Workshop: Relating test ideals and multiplier ideals, 08/2011, AIM
2nd International Conference and Workshop on Valuation Theory, 07/2011, Segovia/El Escorial
Western Algebraic Geometry Symposium, 04/2011, Stanford University
Singularities in Algebraic Geometry, AMS Sectional Meeting, 11/2010, Univ. of Notre Dame
Summer School “Berkovich spaces”, 06/2010, Institut de Mathématiques de Jussieu, Paris
School on Birational Geometry and Moduli Spaces — VIGRE Mini-course, 06/2010, Univ. of Utah
Western Algebraic Geometry Symposium, 05/2010, University of British Columbia
Combinatorial, Enumerative and Toric Geometry, 03/2009, MSRI
Modern Moduli Theory, 02/2009, MSRI
Classical Algebraic Geometry Today, 01/2009, MSRI
Michigan-Ohio State-UIC Workshop on Algebraic Geometry, 10/2008, University of Michigan
Alg. Geometry and Commutative Alg. (Hartshorne’s 70th), 04/2008, Univ. of Illinois at Chicago
Michigan-Ohio State-UIC Workshop on Algebraic Geometry, 10/2007, University of Michigan
Algebraic Geometry Session, AMS Meeting, 10/2007, DePaul University
Hot Topics: Minimal and Canonical Models in Algebraic Geometry, 04/2007, MSRI
UIC-Purdue Workshop on Alg. Geom. and Comm. Alg., 12/2006, Purdue Univ., West Lafayette
International Congress of Mathematicians, 08/2006, Madrid
Satellite Conference on Algebraic Geometry, 08/2006, University of Valladolid (Segovia Campus)
Moduli Spaces and Arcs in Algebraic Geometry, 08/2006, University of Cologne
Recent Developments in Higher Dimensional Alg. Geom. (JAMI), 03/2006, Johns Hopkins Univ.

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CONFERENCES ATTENDED (CONT.)

AMS Summer Institute in Algebraic Geometry, 07/2005 and 08/2005, University of Washington
Graduate Student Workshop for AMS Summer Inst. in Alg. Geom., 07/2005, Univ. of Washington
YMIS 2005: First Meeting for Young Mathematicians in Sedano, 02/2005, University of Valladolid
PRAGMATIC 2004: Hyperbolicity of Complex Varieties, 08/2004 and 09/2004, Univ. of Catania
Midwest Comm. Alg. and Geom. Meeting (Lipman's fest), 05/2004, Purdue Univ., West Lafayette
Asymptotic and Effective Results in Complex Geom. (JAMI), 03/2004, Johns Hopkins University
Cohomological Methods in Algebraic Geometry, 09/2002, University of Santiago de Compostela
Seminar on Higher Algebraic Geometry, 07/2002, University of Santiago de Compostela

TECHNICAL SKILLS

Operating Systems: Unix, Linux, OS X, Microsoft Windows.
Programming Languages: Python, FORTRAN, C, C++, HTML, PHP.
Others: Sage, Mathematica, Maple, Singular, Macaulay2, $\text{T}_\text{E}\text{X}$, $\text{L}_\text{A}\text{T}_\text{E}\text{X}$.

LANGUAGES

Native Speaker of Spanish and Galician
Fluent in English and Portuguese
Reading skills in French and Italian

REFERENCES

Carolina Araujo, Instituto Nacional de Matemática Pura e Aplicada (IMPA)
Tommaso de Fernex, University of Utah
Lawrence Ein, University of Illinois at Chicago
Javier Fernández de Bobadilla, Instituto de Ciencias Matemáticas (ICMAT)
Mircea Mustață, University of Michigan