

Valente Ramírez

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Profile

Researcher in mathematics with an international track record. Working in complex analytic and algebraic geometry. My research focuses on the study of holomorphic foliations, vector fields and self-maps on complex manifolds. Interested in computational research, mathematics education, programing and data science. Experienced combining analytic and computational methods to solve research problems and communicating abstract ideas to a diverse audience.

Employment and Education

Institut de Recherche Mathématique de Rennes (IRMAR)

Rennes, France

LEBESGUE POSTDOCTORAL RESEARCH FELLOW

October 2017 – September 2019

- Marie Skłodowska-Curie Fellow
- Campus France Fellow

Cornell University

Ithaca NY, United States

PH.D. IN MATHEMATICS, M.SC. IN MATHEMATICS

2012 – 2017

- Thesis: “Quadratic vector fields on the complex plane: rigidity and analytic invariants”. doi: [10.7298/X48913Z1](https://doi.org/10.7298/X48913Z1).
- Advisor: Yulij Sergeevich Ilyashenko

Universidad Nacional Autónoma de México (UNAM)

Mexico City, Mexico

B.SC. IN MATHEMATICS

2007 – 2011

- Thesis: “Strong topological invariance of the monodromy group at infinity for quadratic vector fields”
- Advisor: Laura Ortiz-Bobadilla

University of California Berkeley

Berkeley CA, United States

INTERNATIONAL EXCHANGE STUDENT

Fall 2009

Publications

- [1] V. Ramírez. “Strong topological invariance of the monodromy group at infinity for quadratic vector fields”. *J. Singul.* **9** (2014), 193–202. doi: [10.5427/jsing.2014.9n](https://doi.org/10.5427/jsing.2014.9n).
- [2] V. Ramírez. “An example of a non-algebraizable singularity of a holomorphic foliation”. *Enseign. Math.* **62**, no. 1/2 (2016), 7–14. doi: [10.4171/LEM/62-1/2-3](https://doi.org/10.4171/LEM/62-1/2-3).
- [3] V. Ramírez. “The utmost rigidity property for quadratic foliations on \mathbb{P}^2 with an invariant line”. *Bol. Soc. Mat. Mex.* **23**, no. 2 (2017), 759–813. doi: [10.1007/s40590-016-0127-5](https://doi.org/10.1007/s40590-016-0127-5).
- [4] V. Ramírez. “The Woods Hole trace formula and indices for vector fields and foliations on \mathbb{C}^2 ” (*unpublished notes*). Available at: [arXiv: 1608.05321v1](https://arxiv.org/abs/1608.05321v1) (2016).
- [5] V. Ramírez. “Twin vector fields and independence of spectra for quadratic vector fields”. *J. Dynam. Control Syst.* **23**, no. 3 (2017), 623–633. doi: [10.1007/s10883-016-9344-5](https://doi.org/10.1007/s10883-016-9344-5).
- [6] Yu. Kudryashov and V. Ramírez. “Spectra of quadratic vector fields on \mathbb{C}^2 : The missing relation”. To appear in: *Mosc. Math. J.* Preprint: [arXiv: 1705.06340v2](https://arxiv.org/abs/1705.06340v2) (2018).
- [7] A. Guillot and V. Ramírez. “On the multipliers at fixed points of quadratic self-maps of the projective plane with an invariant line”. *Comput. Methods Funct. Theory* (2019). doi: [10.1007/s40315-019-00293-w](https://doi.org/10.1007/s40315-019-00293-w).
- [8] F. Loray and V. Ramírez. “A map between moduli spaces of connections”. Preprint: [arXiv: 1910.13535v1](https://arxiv.org/abs/1910.13535v1) (2019).

Teaching Experience

Cayuga Correctional Facility

Moravia NY, United States

INSTRUCTOR

Aug. 2016 – Dec. 2016

Fall 2016 Mathematical Explorations

Department of Mathematics, Cornell University

Ithaca NY, United States

TEACHING ASSISTANT

Aug. 2013 – May 2016

Spring 2016 Totally Awesome Mathematics
Fall 2014 Multivariable Calculus for Engineers
Fall 2013 Differential Equations and Dynamical Systems

Facultad de Ciencias, Universidad Nacional Autónoma de México

Mexico City, Mexico

TEACHING ASSISTANT

Aug. 2010 – May 2012

Spring 2012 Ordinary Differential Equations III
Fall 2011 Ordinary Differential Equations II
Spring 2011 Real Analysis II
Fall 2010 Real Analysis I
Fall 2010 Differential Topology I

Distinctions

GRANTS

2017 – 2019 **PRESTIGE co-Financing Grant Award** · Coordinated by Campus France · Co-financed under the Marie Skłodowska-Curie Actions – COFUND of the FP7 · €30.000

FELLOWSHIPS

2013 – 2017 **Conacyt Fellow (Becario en el Extranjero)** · Consejo Nacional de Ciencia y Tecnología
2015 – 2017 **Graduate School Fellow** · Cornell University Graduate School
2013 – 2015 **Beca Complemento SEP** · DGRI Secretaría de Educación Pública
2012 – 2013 **Cornell Sage Fellowship** · Department of Mathematics Cornell University
2011 **Beca SIBES de Titulación** · Secretaría de Educación Pública
2010 – 2011 **Beca Conacyt de Tesista** · Consejo Nacional de Ciencia y Tecnología
2007 – 2011 **Fundación Telmex Fellow** · Programa Educativo Fundación Telmex

AWARDS

2014 **Eleanor York Award** · For academic achievement and promise · Department of Mathematics, Cornell University
2013 **Gabino Barrera Medal** · To the top student in the class of 2007–2011 · Universidad Nacional Autónoma de México
2012 **Sotero Prieto Medal** · To the best undergraduate thesis in mathematics · Sociedad Matemática Mexicana
2010 **Beca de Excelencia Académica** · Prize awarded for academic merit · Secretaría de Educación Pública
2009 **Beca de Excelencia Académica** · Prize awarded for academic merit · Secretaría de Educación Pública
2008 **Beca de Excelencia Académica** · Prize awarded for academic merit · Secretaría de Educación Pública
2006 **State Youth Award** · Awarded for academic achievement · State Government of San Luis Potosí

COMPETITIONS

2008 **Honor Mention** Pierre Fermat Mathematics Competition · Instituto Politécnico Nacional
2007 **Third Place** Pierre Fermat Mathematics Competition · Instituto Politécnico Nacional
2006 **Second Place** Pierre Fermat Mathematics Competition · Instituto Politécnico Nacional
2006 **Honor Mention** Asian Pacific Mathematics Olympiad · Canadian Mathematical Society
2006 **First Place** Mexican Mathematics Olympiad · Sociedad Matemática Mexicana
2005 **First Place** Mexican Mathematics Olympiad · Sociedad Matemática Mexicana
2004 **Third Place** Mexican Mathematics Olympiad · Sociedad Matemática Mexicana

Talks and Presentations

RESEARCH PRESENTATIONS IN CONFERENCES AND SCHOOLS

ENCUENTRO DE FOLIACIONES Y SINGULARIDADES · Aug. 2018	Mexico City, Mexico
GEOMETRY OF SINGULARITIES AND DIFFERENTIAL EQUATIONS (POSTER) · Jun. 2017	Santander, Spain
HOLOMORPHIC FOLIATIONS IN ALSACE (POSTER) · Oct. 2017	Strasbourg, France
IV ENCUENTRO CONJUNTO RSME-SMM · Jun. 2017	Valladolid, Spain
CIMPA SCHOOL ON SINGULARITY THEORY IN TOPOLOGY, GEOMETRY AND FOLIATIONS · Nov. 2014	Cuernavaca, Mexico
ATTRACTORS, FOLIATIONS AND LIMIT CYCLES (POSTER) · Jan. 2014	Moscow, Russia
DYNAMICAL SYSTEMS SUMMER SCHOOL · Jun. 2013	Dubná, Russia
46TH SPRING TOPOLOGY AND DYNAMICS CONFERENCE · Mar. 2012	Mexico City, Mexico
XLIV CONGRESO NACIONAL DE LA SMM · Oct. 2011	San Luis Potosí, Mexico
ALGEBRAIC METHODS IN GEOMETRY: COMMUTATIVE AND HOMOLOGICAL ALGEBRA IN FOLIATIONS AND SINGULARITIES (POSTER) · Sep. 2011	Guanajuato, Mexico

RESEARCH PRESENTATIONS IN COLLOQUIA AND SEMINARS

SÉMINAIRE DE GÉOMÉTRIE ANALYTIQUE, IRMAR · Sep. 2019	Rennes, France
MATHEMATICS COLLOQUIUM, BERNOULLI INSTITUTE · Feb. 2019	Groningen, The Netherlands
SÉMINAIRE ANALYSE, IRMA · May 2018	Strasbourg, France
SÉMINAIRE DE SYSTÈMES DYNAMIQUES, IMT · Apr. 2018	Toulouse, France
SÉMINAIRE DE SYSTÈMES DYNAMIQUES ET GÉOMÉTRIE, LAREMA · Jan. 2018	Angers, France
SÉMINAIRE DE GÉOMÉTRIE ANALYTIQUE, IRMAR · Oct. 2017	Rennes, France
DYNAMICAL SYSTEMS SEMINAR, CORNELL UNIVERSITY · May 2017	Ithaca NY, USA
DYNAMICAL SYSTEMS SEMINAR, INSTITUTE FOR MATHEMATICAL SCIENCES · Apr. 2017	Stony Brook, USA
DYNAMICAL SYSTEMS SEMINAR, CORNELL UNIVERSITY · Nov. 2016	Ithaca NY, USA
DYNAMICAL SYSTEMS SEMINAR, CORNELL UNIVERSITY · Sep. 2014	Ithaca NY, USA
SÉMINAIRE DE GÉOMÉTRIE ANALYTIQUE, IRMAR · Jun. 2014	Rennes, France
DYNAMICAL SYSTEMS SEMINAR, CORNELL UNIVERSITY · Feb. 2014	Ithaca NY, USA
DYNAMICAL SYSTEMS SEMINAR, CORNELL UNIVERSITY · Dec. 2012	Ithaca NY, USA
SEMINARIO DE SINGULARIDADES Y FOLIACIONES, INSTITUTO DE MATEMÁTICAS UNAM · Mar. 2011	Mexico City, Mexico

EXPOSITORY TALKS

SEMINARIO DE SINGULARIDADES Y FOLIACIONES, INSTITUTO DE MATEMÁTICAS UNAM · Aug. 2016	Mexico City, Mexico
THE OLIVETTI CLUB, CORNELL UNIVERSITY · Apr. 2016	Ithaca NY, USA
SEMINARIO DE SINGULARIDADES Y FOLIACIONES, INSTITUTO DE MATEMÁTICAS UNAM · Sep. 2015	Mexico City, Mexico
LETTLE TOPOLOGY SEMINAR, CORNELL UNIVERSITY · Mar. 2015	Ithaca NY, USA
THE OLIVETTI CLUB, CORNELL UNIVERSITY · Mar. 2015	Ithaca NY, USA
THE OLIVETTI CLUB, CORNELL UNIVERSITY · Nov. 2013	Ithaca NY, USA
DYNAMICAL SYSTEMS SUMMER SCHOOL · Jun. 2013	Dubná, Russia
THE OLIVETTI CLUB, CORNELL UNIVERSITY · Oct. 2012	Ithaca NY, USA

Programming Skills

Languages	Python, Bash, R, LaTeX
Systems and tools	Unix, Git, SageMath, Jupyter, Macaulay2

Outreach and Volunteer Work

Cornell Prison Education Program

Ithaca NY, United States

INSTRUCTOR, TUTOR AND CONSULTOR

Aug. 2015 – May 2017

- Instructor for the course MATH 1300 “Mathematical Explorations” · Cayuga Correctional Facility · Fall 2016.
- Tutor for the MATH 102 “Introduction to Algebra” course · Auburn Correctional Facility · Fall 2015.
- Member of the Mathematics Committee for the Pedagogy in Prison program.

Department of Mathematics, Cornell University

Ithaca NY, United States

ORGANIZATION AND RESPONSABILITIES

2014 – 2017	Graduate program class representative
2014 – 2017	Organizer of the Dynamical Systems Seminar
Spring 2013	Co-organizer of the What Is Seminar
Fall 2012	Co-organizer of the Olivetti Club Seminar

Languages

Spanish	Native
English	Bilingual
French	Intermediate (B2 level)
Dutch	Beginner (A2 level)