

Valente Ramírez

POSTDOCTORAL FELLOW · INSTITUT DE RECHERCHE MATHÉMATIQUE DE RENNES

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Profile

Mathematician with training and strong interests in programming and data science. Currently working on mathematical research in complex analytic and algebraic geometry in an academic setting. Interested in a position where I can contribute with my mathematical knowledge, problem solving experience and analytic thinking to addressing challenging and meaningful problems in a creative way. Looking to be part of a team where collaboration and experimentation are fundamental practices to achieve innovation.

My interests range from abstract mathematics and statistics to scientific computing and artificial intelligence, including science communication and mathematical pedagogy. I'm also a big advocate for free, open and fair practices in science, computing and education.

Employment and Education

Institut de Recherche Mathématique de Rennes (IRMAR)

Rennes, France

LEBESGUE POSTDOCTORAL RESEARCH FELLOW

2017 – PRESENT

Cornell University

Ithaca NY, United States

PH.D. 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).

University of California Berkeley

Berkeley, United States

EAP EXCHANGE STUDENT

Fall 2009

Universidad Nacional Autónoma de México (UNAM)

Mexico City, Mexico

B.SC. IN MATHEMATICS

2007 – 2011

Competences

I have the experience and skills to combine analytic and computational methods to solve research problems and communicate complex ideas to a diverse audience. I am a fast learner and a good teacher, and I value learning from each other when working in a team. I'm social, considerate and easy to get along with.

Skills

Research Seven years in mathematical research. Developed problem solving, scientific writing and presentation skills.

Data science Solid understanding of statistical methods and machine learning algorithms.

Teaching Vast experience teaching, assisting and designing higher education courses for different levels and contexts.

Programming Languages: Python, R, LaTeX, Bash.

Systems and tools Unix, Git, Octave, SageMath.

Languages

Spanish Native

English Bilingual

French Intermediate (B2 level)

Dutch Beginner (A1 level)

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** (2016), no. 1/2, 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** (2017), no. 2, 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** (2017), no. 3, 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” (*submitted*). Preprint: [arXiv: 1705.06340v2](https://arxiv.org/abs/1705.06340v2) (2018).
- [7] A. Guillot and V. Ramírez. “On the multipliers at fixed points of self-maps of the projective plane” (*submitted*). Preprint: [arXiv: 1902.04433v2](https://arxiv.org/abs/1902.04433v2) (2019).

Selected 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
CIMPA SCHOOL ON SINGULARITY THEORY IN TOPOLOGY, GEOMETRY AND FOLIATIONS · Nov. 2014	Cuernavaca, Mexico
ATTRACTORS, FOLIATIONS AND LIMIT CYCLES (POSTER) · Jan. 2014	Moscow, Russia

RESEARCH PRESENTATIONS IN COLLOQUIA AND SEMINARS

MATHEMATICS COLLOQUIUM, BERNOULLI INSTITUTE · Feb. 2019	Groningen, The Netherlands
SÉMINAIRE DE SYSTÈMES DYNAMIQUES, IMT · Apr. 2018	Toulouse, France
SÉMINAIRE DE GÉOMÉTRIE ANALYTIQUE, IRMAR · Oct. 2017	Rennes, France
DYNAMICAL SYSTEMS SEMINAR, INSTITUTE FOR MATHEMATICAL SCIENCES · Apr. 2017	Stony Brook, USA
DYNAMICAL SYSTEMS SEMINAR, CORNELL UNIVERSITY · Nov. 2016	Ithaca NY, USA

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
DYNAMICAL SYSTEMS SUMMER SCHOOL · Jun. 2013	Dubná, Russia

Fellowships and Awards

FELLOWSHIPS AND GRANTS

2017 – 2019	PRESTIGE co-Financing Grant Award	· Campus France and the European Union
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 AND DISTINCTIONS

- 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*

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

Extracurricular Activities

Cornell Prison Education Program

Ithaca NY, United States

VOLUNTEER INSTRUCTOR, TUTOR AND CONSULTOR

Aug. 2015 – May 2017

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

Department of Mathematics, Cornell University

Ithaca NY, United States

ORGANIZATION AND RESPONSIBILITIES

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