

Curriculum Vitae

Frank Trujillo

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Personal information

Name: Frank Alfonso Trujillo Amézquita
Date of birth: 7 October 1993
Nationality: Colombian
Professional address: Centre de Recerca Matemàtica (CRM),
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Education

2016-2020 **Mathematics Ph.D.** at Université Paris Cité, Paris, France, under the supervision of Prof. Bassam Fayad and Prof. Hakan Eliasson
Thesis title: Exotic and tame behavior in quasi-periodic dynamics
Scholarship from: Fondation de sciences mathématiques de Paris (FSMP)

2013-2015 **Mathematics M.S.** at IMPA, Rio de Janeiro, Brazil
Scholarship from: Conselho nacional de desenvolvimento científico tecnológico (CNPQ) and Fundação de amparo à pesquisa do estado do Rio de Janeiro (FAPERJ)

2009-2012 **Mathematics B.S.** at Universidad Nacional de Colombia, Bogotá, Colombia

Current and previous positions

May 2024 - Apr 2026 **Marie Skłodowska-Curie postdoctoral fellow** at Centre de Recerca Matemàtica (CRM), Barcelona, Spain, under the mentorship of Prof. Marcel Guardia

Jan 2024 - Apr 2024 **María de Maeztu postdoctoral fellow** at Centre de Recerca Matemàtica (CRM), Barcelona, Spain, under the mentorship of Prof. Marcel Guardia

Sep 2020 - Dec 2023 **Postdoctoral researcher** at University of Zurich, Zurich, Switzerland, under the mentorship of Prof. Corinna Ulcigrai

Qualifications

2024-2028 **Maître de Conférences qualification**, French Habilitation for Associate Professor, Section 26

2021-2025 **Maître de Conférences qualification**, French Habilitation for Associate Professor, Section 25

Publications

Published

- [1] Hausdorff Dimension of Invariant Measures of Multicritical Circle Maps
Annales Henri Poincaré, 2020
DOI: 10.1007/s00023-020-00940-2
Frank Trujillo
- [2] Uniqueness properties of the KAM curve
Discrete and Continuous Dynamical Systems, 2021
DOI: 10.3934/dcds.2021072
Frank Trujillo
- [3] Smooth, mixing transformations with loosely Bernoulli Cartesian square
Ergodic Theory and Dynamical Systems, 2022
DOI: 10.1017/etds.2021.39
Frank Trujillo
- [4] Lyapunov instability in KAM stable Hamiltonians with two degrees of freedom
Journal of Modern Dynamics, 2023
DOI: 10.3934/jmd.2023010
Frank Trujillo
- [5] Rigidity for piecewise smooth circle homeomorphisms and certain GIETs
Advances in Mathematics, 2024
DOI: 10.1016/j.aim.2024.109560
Przemysław Berk and Frank Trujillo
- [6] On the Hausdorff dimension of invariant measures of piecewise smooth circle homeomorphisms
Ergodic Theory and Dynamical Systems, 2024
DOI: 10.1017/etds.2024.25
Frank Trujillo

Accepted

- [7] Affine interval exchange maps with a singular conjugacy to an IET
To appear in *Annali Scuola Normale Superiore - Classe di Scienze*
DOI: 10.2422/2036-2145.202305_001
Frank Trujillo and Corinna Ulcigrai
- [8] Surviving Lower Dimensional Invariant Tori of a Resonant Torus with any Number of Resonances
To appear in *Transactions of the American Mathematical Society*
DOI: 10.1090/tran/9380
Frank Trujillo
- [9] On the ergodicity of infinite antisymmetric extensions of symmetric IETs
To appear in *Journal of the European Mathematical Society*
DOI: 10.48550/arXiv.2304.01868
Przemysław Berk and Frank Trujillo

Submitted

- [10] Ergodicity of skew-products over typical IETs
DOI: 10.48550/arXiv.2405.07645
Fernando Argentero, Przemysław Berk, and Frank Trujillo

- [11] On the ergodicity of anti-symmetric skew products with singularities and its applications
DOI: 10.48550/arXiv.2412.21067
Przemysław Berk, Krzysztof Frączek, and Frank Trujillo
- [12] Ergodic properties of infinite extension of symmetric interval exchange transformations
DOI: 10.48550/arXiv.2409.12168
Przemysław Berk, Frank Trujillo, and Hao Wu
- [13] Ergodicity of explicit logarithmic cocycles over IETs
DOI: 10.48550/arXiv.2210.16343
Przemysław Berk, Frank Trujillo, and Corinna Ulcigrai
- [14] On the uniqueness of affine IETs semi-conjugated to IETs
DOI: 10.48550/arXiv.2411.06419
Frank Trujillo

Papers in Conferences

- [15] Surviving lower dimensional tori from an invariant resonant torus
Conference paper in *Dynamische Systeme, Oberwolfach Reports*, 2021
DOI: 10.4171/owr/2021/33
Frank Trujillo. *Editors:* Marie-Claude Arnaud et al.

Supervising and mentoring

01/09/2022-31/08/2023	Master thesis co-supervisor of Yuliana Nor at University of Zurich <i>Thesis title:</i> Indifferent Fixed Points of Holomorphic Maps and Regularity Properties of Brjuno Functions
01/09/2021-31/08/2022	Master thesis co-supervisor of Stefan Kurz at University of Zurich <i>Thesis title:</i> Dual Birkhoff Sums for Interval Exchange Transformations

Teaching experience

Fall semester 2024	Instructor , Student seminar on dynamical systems through examples, University of Zurich
Spring semester 2023	Instructor , Qualitative theory of differential equations, University of Zurich
Spring semester 2022	Instructor , Student seminar on Hamiltonian dynamics, University of Zurich
Fall semester 2021/22	Instructor , Foundations of mathematics, University of Zurich
Spring semester 2021	Teaching assistant , Complex analysis, University of Zurich
Fall semester 2020/21	Instructor , Student seminar on circle dynamics, University of Zurich
Spring semester 2020	Teaching assistant , Calculus I, Université Paris Descartes
Fall semester 2019/20	Teaching assistant , Measure theory, Université Paris Descartes
Spring semester 2019	Teaching assistant , Probability, Université Paris Descartes
Fall semester 2018/19	Teaching assistant , Advanced analysis and algebra, Université Paris Diderot
Spring semester 2017	Teaching assistant , Elementary analysis and algebra, Université Paris Diderot
Fall semester 2016/17	Teaching assistant , Advanced analysis and algebra, Université Paris Diderot

Institutional tasks

Sep 2021 - Dec 2023

Co-organizer for the Ergodic Theory and Dynamical Systems Seminar, ETHZ/University of Zurich, Switzerland

Individual scientific expert activities

Scientific referee for various journals: Annales Scientifiques de l'École Normale Supérieure, Advances in Mathematics, Transactions of the American Mathematical Society, Journal of Differential Equations, Proceedings of the London Mathematical Society.

Conferences, talks and presentations

Mini-courses and lecture series

May-Jun 2023

An Introduction to KAM Theory, Workshop on Ergodic theory and parabolic dynamics, IMPAN, Poland, [Link to recordings](#)

Invited conference talks

Jul 2025

(Upcoming) Brazilian Colloquium of mathematics, Rio de Janeiro, Brazil

Nov 2024

Workshop on Spectral Rigidity for Billiards, Budapest, Hungary

Aug 2024

School and Workshop on Dynamical Systems at ICTP, Trieste, Italy

Jun 2024

BMS-BGSMath Junior Meeting, Berlin, Germany

Jun 2024

IMJ-PRG Summer School 2024 - Stability and rigidity in dynamical systems, beyond classical KAM theory, Paris, France

Nov 2023

Barcelona Mathematical Days, Institut d'Estudis Catalans, Spain

Apr 2023

Workshop on two-dimensional maps, Institute Mittag-Leffler, Sweden

Dec 2022

Combinatorial and geometric approaches on dynamics, Universidad de Chile, Chile

Oct 2022

2nd Jangada dinâmica workshop on dynamical systems, ergodic theory and related areas, Universidade Federal do Ceará, Brazil

Nov 2021

Paraguayan colloquium on mathematics and related sciences, Universidad Nacional de Asunción, Paraguay

Sep 2021

8th SwissMAP general meeting, SwissMAP research station, Switzerland

Jul 2021

Oberwolfach workshop on dynamical systems, Mathematisches Forschungsinstitut Oberwolfach (MFO), Oberwolfach, Germany.

Nov 2020

Penn State workshop in dynamical systems and related topics, Pennsylvania State University, USA

Invited seminar talks

Oct 2024

Toruń ergodic theory and dynamical systems seminar, Uniwersytet Mikołaja Kopernika, Poland

Fev 2024

Seminar in dynamical systems at IST (DynamIST), IST, Austria

Jun 2023

Dynamics and Group Geometry Early Researchers Seminar (DAGGER), University of Warwick, Warwick, United Kingdom

May 2023

Quasiworld (online) seminar

Mar 2023

UB-UPC (Universitat de Barcelona - Universitat Politècnica de Catalunya) Dynamical Systems Seminar, Spain

Apr 2023

Ergodic theory and dynamical systems seminar, University of Zurich, Switzerland

Nov 2022	Geometry and dynamical systems seminar, Université de Neuchâtel, Switzerland
Jun 2022	Seminar in dynamical systems at IST (DynamIST), IST, Austria
Mar 2022	Inter-institutional seminar on dynamical systems, ergodic theory and related areas (dinâmica arretada), Universidades do Nordeste, Brazil
Apr 2021	Toruń ergodic theory and dynamical systems seminar, Uniwersytet Mikołaja Kopernika, Poland
Fev 2021	Geometry, analysis and dynamical systems seminar, Université Nice Sophia Antipolis, France
Jul 2020	Dynamics and probability seminar, Université de Picardie Jules Verne, France
Oct 2020	Ergodic theory and dynamical systems seminar, University of Zurich, Switzerland
May 2020	Dynamical systems seminar, Institut de Mathématiques de Jussieu, France
Dec 2019	Ergodic theory and dynamical systems seminar, Université Paris Sud, France

Invitation to international programs and Research visits

Jan 2025	University of Zurich, Switzerland (1 week) Host: Prof. Corinna Ulcigrai
Oct 2024	Uniwersytet Mikołaja Kopernika, Poland (3 weeks) Hosts: Prof. Przemysław Berk and Prof. Krzysztof Fraczek
Jun 2024	University of Zurich, Switzerland (1 week) Host: Prof. Corinna Ulcigrai
Fev 2024	Institute of Science and Technology Austria (ISTA) (1 week) Host: Prof. Vadim Kaloshin
Dec 2023	Uniwersytet Mikołaja Kopernika, Poland (2 weeks) Host: Prof. Przemysław Berk
Mar-Jun 2023	Simons Semester: Topological, smooth and holomorphic dynamics, ergodic theory, fractals, IMPAN and MIMUW Warsaw, Poland (1 month)
Jan-Apr 2023	Two Dimensional Maps, Institut Mittag-Leffler, Sweden (3 weeks)
Aug 2022	Uniwersytet Mikołaja Kopernika, Poland (1 month) Host: Prof. Przemysław Berk

Participation in Academic Events

Additionally, I have attended over 20 academic events (conferences, schools, workshops) without giving talks.

Public engagement and outreach

Jan-Jun 2023	Tutor in the Directed Reading Program <i>Pares Ordenados</i> (online and in Spanish) for mathematics undergraduate students in Latin America
Apr 2022	Information and advice panel "Hanging on when your research is stuck," Zurich Graduate School in Mathematics Forum, ETHZ, Switzerland
May 2021	Public lecture "Dynamical systems: Models and mathematics", Universidad Manuela Beltrán, Colombia
Dec 2019	Mathematics popularization talk for high school, Collège Jean Jaurès, Saint Ouen, France, <u>Summary</u> (in French)

Prizes, awards, scholarships

2016	Scholarship for Ph.D studies in Mathematics, Foundation de sciences mathématiques de Paris, France
2014	Outstanding performance scholarship (Best first year Master's student), Fundação de Amparo à Pesquisa do Estado do Rio de Janeiro, Brazil
2012	First place in “Efi-Ciencias” test (Test for last year students), Universidad Nacional de Colombia
2009 - Fall 2012	Outstanding performance scholarship (Top 10% each semester), Universidad Nacional de Colombia

Funding and Grants

Sep-Dec 2023	UZH Postdoc Grant, <i>Project Grant</i> , Principal Investigator, Hamiltonians and low-dimensional systems.
May 2024 - Apr 2026	Marie Skłodowska-Curie Action Postdoctoral Fellowship

Programming skills

C/C++, Python.

Language skills

Spanish (native), English (C1), French (C1), German (A2-B1), Portuguese (C1).