

Daniela Paiva Peñuela

Curriculum Vitae

Universität Basel
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Colombian Citizenship

Education

- 2021–2025 **PhD in Mathematics**, *Instituto de Matemática Pura e Aplicada, Rio de Janeiro, Brazil.*
Advisor: Prof. Carolina Araujo
- 2019–2021 **M.Sc. in Mathematics**, *Instituto de Matemática Pura e Aplicada, Rio de Janeiro, Brazil.*
- 2014–2018 **B.Sc. in Mathematics**, *Universidad del Tolima, Ibagué, Colombia.*
(Summa cum laude)

Employment

- 09/2025–
09/2027 **Postdoctoral position**, *Universität Basel, Basel, Switzerland.*
Mentor: Prof. Susanna Zimmermann
- 04/2025–
08/2025 **Postdoctoral position**, *Instituto de Matemática Pura e Aplicada, Rio de Janeiro, Brazil.*
Mentor: Prof. Olivier Martin

Publications

- 2025 **Cremona transformations of P^3 stabilizing quartic surfaces**, to appear in Women in Mathematics Latin America - ICMAM 2024, Springer-Birkhäuser Trends in Mathematics.
- 2024 **On Gizatullin's problem for quartics of Picard rank 2, joint with Carolina Araujo and Sokratis Zikas**, to appear in Algebraic Geometry ([arXiv:2410.08415](https://arxiv.org/abs/2410.08415)).
- 2023 **Automorphisms of quartic surfaces and Cremona transformations, joint with Ana Quedo**, Journal of Pure and Applied Algebra ([arXiv:2302.09014](https://arxiv.org/abs/2302.09014)).

Talks

- 09/2025 **Universidad del Tolima, Invited Speaker, XIII National Meeting of Mathematics and Statistics (Invitada Especial, XIII Encuentro Nacional de Matemáticas y Estadística)**, Ibagué, Colombia.
Studying Automorphisms of Quartic Surfaces in P^3
- 04/2025 **Universität Basel, Algebra and Geometry seminar**, Basel, Switzerland.
Birational geometry of Fano 3-folds and anticanonical surfaces
- 04/2025 **Università di Bologna, Algebra and Geometry seminar**, Bologna, Italy.
Cremona transformations of P^3 stabilizing quartic surfaces
- 09/2024 **Université Paris-Saclay, Algebraic geometry seminar**, Orsay, France.
On Gizatullin's problem
- 09/2024 **Università degli Studi di Milano, Algebraic geometry seminar**, Milan, Italy.
On Gizatullin's problem
- 09/2024 **Fano Varieties in Cetraro**, Cetraro, Italy.
Cremona transformations of P^3 stabilizing quartic surfaces
- 08/2024 **V ELGA - Latin American School of Algebraic Geometry, CIMPA School**, Cabo Frio, Brazil.
An application of the Sarkisov program

- 06/2024 **Foliation Theory and Algebraic Geometry**, *IMPA*, Rio de Janeiro, Brazil.
Cremona transformations of P^3 stabilizing quartics
- 03/2024 **Liberdade em Geometria Algébrica - LEGAL**, *Universidade Federal Fluminense - UFF*, Teresópolis, Brazil.
Gizatullin's Problem and the Sarkisov program
- 12/2023 **8th Iberoamerican Congress on Geometry**, *Geometry at the Frontier Research Center*, Pucón, Chile.
Automorphisms of quartic surfaces with Picard number two and Cremona transformations
- 07/2023 **Universidad de Antioquia - UdeA**, *Seminario de Álgebra, Geometría y Topología*, Medellín, Colombia.
Superficies K3 y Teoría de Reticulados
- 07/2023 **Universidad del Tolima - UT**, *Seminario de Álgebra*, Ibagué, Colombia.
Introducción a la Geometría Algebraica y Superficies K3
- 02/2023 **Around Symmetries of K3 Surfaces**, *Banff International Research Station for Mathematical Innovation and Discovery - BIRS*, Banff, Canada.
Automorphisms of quartic surfaces and Cremona transformations
- 02/2023 **15th Commutative Algebra and Algebraic Geometry**, *ALGA, IMPA*, Rio de Janeiro, Brazil.
Automorphisms of quartic surfaces and Cremona transformations
- 12/2022 **Workshop Geometry at the Frontier III 1/2**, *Geometry at the Frontier Research Center*, Pucón, Chile.
A new example for Gizatullin's problem
- 11/2021 **Instituto de Matemática Pura e Aplicada - IMPA**, *Student Algebraic Geometry Seminar (online)*.
The Cremona group
- 10/2021 **Universidad del Tolima (Colombia)**, *Faculty Week Celebration - Science Faculty (online)*.
On the Cremona group

Teaching Experience

Lecturer

- 09-2025 **Minicourse: An Introduction to Algebraic Geometry**, *XIII National Meeting of Mathematics and Statistics (XIII Encuentro Nacional de Matemáticas y Estadística)*, Universidad del Tolima, Ibagué, Colombia.

Teaching Assistant

- Fall 2025 **Projective Algebraic Curves and Surfaces I (Master)**, *Prof. Eduardo Alves da Silva*, Universität Basel, Basel, Switzerland.
- Fall 2018 Teaching Assistant of Prof. Carolina Perdomo, *Fundamental Mathematics*. Universidad del Tolima.
- Spring 2017 Teaching Assistant of Prof. Leonardo Duvar Restrepo, *Univariate Calculus*. Universidad del Tolima.
- Fall 2016 Teaching Assistant of Prof. Leonardo Duvar Restrepo, *Univariate Calculus*. Universidad del Tolima.

Grants

- 2021-2025 **Ph.D. fellowship**, *CAPES (Coordenação de Aperfeiçoamento de Pessoal de Nível Superior)*.
- 2019-2021 **Master degree fellowship**, *CNPq (Conselho Nacional de Desenvolvimento Científico e Tecnológico)*.

Co-organization of seminars and conferences

- Fall 2025 *Seminar Algebra and Geometry*. Universität Basel, Basel, Switzerland.
2022-2024 *Student's colloquium*. IMPA, Rio de Janeiro, Brazil.
2023 *3rd Women in Mathematics of IMPA Meeting - EMMI*. IMPA, Rio de Janeiro, Brazil.
2022 *2nd Women in Mathematics of IMPA Meeting - EMMI*. IMPA, Rio de Janeiro, Brazil.
2021 *1st Women in Mathematics of IMPA Meeting - EMMI*. IMPA (Online).

Research visits

- 06.04.2025-13.04.2025 **Universität Basel**, *Basel, Switzerland*, Visiting Prof. Susanna Zimmermann, Dr. Eduardo Alves da Silva and Dr Tiago Duarte Guerreiro.
30.03.2025-05.04.2025 **Università di Bologna**, *Bologna, Italy*, Visiting Prof. Antonella Grassi and Dr. Ana Quedo.
23.03.2025-29.03.2025 **Università degli Studi di Milano**, *Milan, Italy*, Visiting Prof. Alice Garbagnati.
19.09.2024-26.09.2024 **Université Paris-Saclay**, *Orsay, France*, Visiting Prof. Susanna Zimmermann and Dr. Eduardo Alves da Silva.
16.09.2024-18.09.2024 **Università degli Studi di Milano**, *Milan, Italy*, Visiting Prof. Alice Garbagnati.

Selected participation in conferences

- 2025 *Summer School in Mathematics: Cremona Group*. Institute Fourier. Grenoble, France.
2025 *Real Algebraic Geometry and Birational Geometry*. CIRM. Marseille, France.
2024 *Trieste Algebraic Geometry Summer School (TAGSS)*. ICTP. Trieste, Italy.
2024 *Diversity in Finite Fields and Coding Theory*. IMPA. Rio de Janeiro, Brazil.
2022 *School of the Doctoral Program in Mathematics of the UdeC*. Universidad de Concepción. Concepción, Chile (Online).
2022 *AGRA IV (Arithmetic, Groups and Analysis) - Part 2*. Cabo Frio, Brazil.
2022 *Latin American and Caribbean Workshop on Mathematics and Gender*. Casa Matematica Oaxaca, Mexico (Online).
2021 *XXXIII Brazilian Colloquium of Mathematics*. IMPA. Rio de Janeiro, Brazil (Online)
2019 *1st Joint Meeting Brazil-France in Mathematics*. IMPA. Rio de Janeiro, Brazil.
2019 *XXXII Brazilian Colloquium of Mathematics*. IMPA. Rio de Janeiro, Brazil.
2019 *Brazilian Meeting of Women Mathematicians*. IMPA. Rio de Janeiro, Brazil.
2018 *IV Regional Seminar on Number Theory*. On untouchable numbers and their properties. Universidad del Cauca. Popayán, Colombia.

Languages

- Spanish Native
Portuguese Fluent
English Fluent

Interests

- Mathematical Algebraic and Birational Geometry: Cremona group, Sarkisov program, K3 surfaces.
Other Social work, mountain biking, dancing.