

Jorge Duque

Curriculum Vitae

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📄 [georgyduque.github.io](https://github.com/georgyduque)
Colombian Citizenship
Birth: 26/10/1990



Education

- 03/2017 - 04/2021 **Instituto de Matemática Pura e Aplicada (IMPA)**, Rio de Janeiro, Brazil.
Ph.D. in Mathematics.
Thesis: *Hodge cycles and Gauss' hypergeometric function*.
Advisor: Hossein Movasati.
- 03/2015 - 02/2017 **Instituto de Matemática Pura e Aplicada (IMPA)**, Rio de Janeiro, Brazil.
M.Sc. in Mathematics.
- 03/2007 - 11/2014 **Universidad de Antioquia**, *Facultad de Ciencias Exactas y Naturales*, Medellín, Colombia.
B.Sc. in Mathematics.

Articles

- 2021 **Periods of Hodge cycles and special values of the Gauss' hypergeometric function.**
Journal of Number Theory. Vol 238, Pages 221-252. 2022

Pre-prints

- 2021 **On fake linear cycles inside Fermat varieties.** Joint Roberto Villafior. *arXiv:2112.14818*

Research Visits

- 08/10/2019 - **University of Bayreuth, Mathematical Department.** Bayreuth, Germany.
12/11/2019

Talks

- 2022 **Instituto de Matemática Pura e Aplicada (IMPA).** Rio de Janeiro, Brazil, *GADEPs seminar: Geometry, Arithmetic and Differential equations of Periods.*
On fake linear cycles inside Fermat varieties
- 2022 **Departamento de Matemática y Estadística, Universidad de la Frontera.** Temuco, Chile, *Cruz del Sur seminary.*
Generic Hodge cycles of perturbations of a Fermat variety
- 2021 **Instituto de Matemática Pura e Aplicada (IMPA).** Rio de Janeiro, Brazil, *Student Algebraic Seminar at IMPA.*
Hodge locus
- 2021 **Instituto de Matemáticas, Universidad de Antioquia.** Medellín, Colombia, *Seminario Institucional.*
An informal talk about the Hodge conjecture
- 2021 **Instituto de Matemática, Estatística e Computação Científica (IMECC), Universidade Estadual de Campinas (Unicamp).** Campinas, Brazil, *Arxiv club seminar.*
Periods of Hodge cycles of perturbations of a Fermat variety
- 2020 **Instituto de Matemática Pura e Aplicada (IMPA).** Rio de Janeiro, Brazil, *GADEPs seminar: Geometry, Arithmetic and Differential equations of Periods.*
Hodge cycles and Gauss hypergeometric function
- 2019 **Instituto de Matemáticas, Universidad de Antioquia.** Medellín, Colombia, *Seminario Institucional.*
Periods of Hodge cycles and special values of Hypergeometric function
- 2019 **Mathematisches Institut, Bayreuth University.** Bayreuth, Germany, *Oberseminar on Arithmetische Geometrie.*
Periods of Hodge cycles and special values of Hypergeometric function

- 2019 **Instituto de Matemática Pura e Aplicada (IMPA).** Rio de Janeiro, Brazil, *Calabi-Yau variety seminar.*
Abelian subvariety theorem
- 2019 **Instituto de Matemática Pura e Aplicada (IMPA).** Rio de Janeiro, Brazil, *Calabi-Yau variety seminar.*
Hodge cycles on a perturbation of a Fermat variety

Conferences and Research Schools Attended

- 2018 **International Congress of Mathematicians (ICM 2018).** Rio de Janeiro, Brazil.
- 2018 **CIMPA-ICTP-FAMAF. School: AGRA III.** Córdoba, Argentina.
- 2014 **ECCO 2014.** Universidad de los Andes. Bogotá, Colombia.
- 2013 **XIX Colombian Congress of Mathematics.** Universidad del Norte. Barranquilla, Colombia.
- 2012 **ALTENCOA 5.** Universidad Distrital Francisco José de Caldas. Bogotá, Colombia.

Awards and Scholarships

- 2017 - 2021 **Ph.D. Scholarship.** CNPq - Brazil (National Council for Scientific and Technological Development).
- 2015 - 2017 **M.Sc. Scholarship.** CNPq - Brazil (National Council for Scientific and Technological Development).

Teaching

- M.Sc and Ph.D. minicourse **A look at the Hodge conjecture and related problems, 2022-1,** Medellín.
Instituto de Matemáticas. Universidad de Antioquia (UdeA).
- B.Sc. Course **Euclidean Geometry, 2022-1,** Medellín.
Facultad de Ingeniería. Universidad de Antioquia (UdeA).
- B.Sc. Course **Integral Calculus, 2022-1,** Medellín.
Facultad de Ciencias Farmacéuticas y Alimentarias. Universidad de Antioquia (UdeA).
- B.Sc. Course **Number theory, 2021-2,** Medellín.
Instituto de Matemáticas. Universidad de Antioquia (UdeA).
- B.Sc. Course **Multivariable Calculus, 2021-2,** Medellín.
Facultad de Ingeniería. Universidad de Antioquia (UdeA).
- B.Sc. Course **Euclidean Geometry, 2021-2,** Medellín.
Facultad de Ingeniería. Universidad de Antioquia (UdeA).
- B.Sc. Course **Multivariable Calculus, 2021-1,** Medellín.
Facultad de Ciencias Farmacéuticas y Alimentarias. Universidad de Antioquia (UdeA).

Teaching Assistance

- 2021 **Topics of Modular Forms and Elliptic Curves, Professors Roberto Villaflor and Hossein Movasati,** Summer 2021.
Instituto de Matemática Pura e Aplicada (IMPA)
- 2019 **Real Analysis, Professor Carlos Gustavo Moreira,** Summer 2019.
Instituto de Matemática Pura e Aplicada (IMPA)

Languages

- Spanish Native
- Portuguese Proficient
- English Proficient