Jorge Duque

Curriculum Vitae

Universidad de Chile, Campus Juan Gómez Millas
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Colombian Citizenship
Birth: 26/10/1990

Employment

04/2022 - 04/2025	**Postdoctoral position**, *Universidad de Chile*, departamento de Matemáticas, Santiago de Chile, Chile. Sponsored by Robert Auffarth.

Education

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

Articles

2022	**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 Villaflor. *arXiv:2112.14818*

Research Visits

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

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. Medellin, 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. Medellin, 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