Tiago J. Fonseca

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https://tjfonseca.github.io/

Personal details

Full name	*Tiago Jardim da Fonseca*
Born in	*Batatais, State of São Paulo, Brazil*
Nationality	*Brazilian*
Date of birth	*March 14th, 1990*
Languages	*Portuguese* (native), *English* (fluent), *French* (fluent)

Professional activity

2021-present **Research Associate (JP Fapesp Fellow)**, *State University of Campinas (Unicamp)*, Campinas, Brazil.
Fapesp Young Investigator Grant "Periods and Algebraicity". https://bv.fapesp.br/en/auxilios/108313/periods-and-algebraicity/

2018-2021 **Postdoctoral Research Associate**, *University of Oxford*, Oxford, United Kingdom.
Part of the ERC project "Galois Theory of Periods" under the direction of Francis Brown.

2019-2020 **Stipendiary Lecturer**, *Hertford College*, Oxford, United Kingdom.
Temporary teaching position.

01-09/2018 **Postdoctoral researcher**, *Max-Planck-Institut für Mathematik (MPIM)*, Bonn, Germany.

09-12/2017 **ATER**, *Université Paris-Saclay*, Orsay, France.
(An ATER is a form of temporary research contract with teaching load)

Education

2014-2017 **Ph.D. Mathematics**, *Université Paris-Saclay*, Orsay, France.
Thesis: *Integral curves: transcendence and geometry*. Supervisor: *Jean-Benoît Bost*.

2012-2014 **M.S. Mathematics**, *Université Paris-Saclay*, Orsay, France.
Memoir: *Integrality in Mirror Symmetry*. Supervisor: *Jean-Benoît Bost*.

2008-2011 **B.S. Mathematics**, *Universidade de São Paulo*, São Carlos, Brazil.

Publications and preprints

2022 **A note on the Gauss-Manin connection for abelian schemes**, *with Nils Matthes. Preprint (submitted)*.
eprint arXiv:2201.06402

2020 **Towards algebraic iterated integrals for elliptic curves via the universal vectorial extension**, *with Nils Matthes. RIMS Kokyuroku, No. 2160 (2020), 114-125*.
eprint arXiv:2009.10433

2019 **On coefficients of Poincaré series and single-valued periods of modular forms**, *Res Math Sci 7, 33*. https://doi.org/10.1007/s40687-020-00232-5.
eprint arXiv:1912.02277

2019 **A geometric introduction to transcendence questions on values of modular forms**, *In H. Movasati,* Modular and automorphic forms & beyond*, Monographs in Number Theory: Volume 9, World Scientific (2021)*.
eprint arXiv:2011.14401

2018 **Higher Ramanujan equations and periods of abelian varieties**, *Memoirs of the AMS, accepted*.
eprint arXiv:1807.11044

2018 **Algebraic independence for values of integral curves**, *Algebra & Number Theory 13-3 (2019), 643–694. DOI 10.2140/ant.2019.13.643*.
eprint arXiv:1710.00563

Invited talks (selection)

Coming up

Jun 2022 Workshop "Special Values of L-functions, Periods, and Fundamental Groups" - Oxford, UK
Feb 2022 Fields Number Theory Seminar - The Fields Institute, Canada

Past talks

Apr 2021 International Seminar on Automorphic Forms - TU Darmstadt, Germany
Jan 2021 Geometric, Arithmetic and Differential equations of Periods seminar - IMPA, Brazil *video*
Sep 2020 LMS Lecture series 'A crash course in modular forms and cohomology' - UK *website*
May 2020 Brazilian Algebraic Geometry Seminar - IMPA, Brazil *video*
May 2020 Research School "Geometry and Dynamics of Foliations" - CIRM, France *video*
Mar 2020 London Number Theory seminar - London, UK
Jan 2020 Geometry and Number Theory seminar - Nottingham, UK
Dec 2019 Number Theory Seminar - Basel, Switzerland
Nov 2019 Young Researchers in Algebraic Number Theory - Warwick, UK
Oct 2019 Galois Theory of Periods seminar - Oxford, UK
May 2019 Young Mathematicians Academic Forum at USTC - Hefei, China
Mar 2019 Number Theory Seminar - Oxford, UK
Oct 2018 Galois Theory of Periods seminar - Oxford, UK
Jul 2018 Workshop "Transcendence and foliations" - Tatihou, France
Apr 2018 Oberseminar at MPIM - Bonn, Germany
Dec 2017 Number Theory Seminar at KU - Copenhagen, Denmark
Aug 2017 Summer School "Motives for Periods" at FU - Berlin, Germany
Jul 2017 Workshop "Classification of foliations in codim 1" - Porquerolles, France
May 2017 Number Theory Seminar at ETH - Zürich, Switzerland
May 2017 Réseau d'étudiants en géométrie algébrique at IHP - Paris, France
Aug 2015 Seminário Genet-Roussel at ICMC - São Carlos, Brazil

Teaching

University of Oxford

2020-2021
- Tutorial - Galois Theory - Part B (Undergrad)
- Course - Introduction to Hodge theory (joint with Nils Matthes) - PhD.

2019-2020 Stipendiary Lecturer at Hertford College - Oxford
- Tutorial - Analysis I - Prelims (Undergrad)
- Tutorial - Linear Algebra I - Prelims (Undergrad)
- Tutorial - Topology - Part A (Undergrad)
- Tutorial - Rings and modules - Part A (Undergrad)
- Tutorial - Number Theory (Undergrad)
- Tutorial - Projective Geometry (Undergrad)

2018-2019
- Tutorial - Category Theory - Part C (Master)
- Tutorial - Elliptic Curves - Part C (Master)
- TCC Course - Calculus on Schemes (PhD). 16 hours course, part of the TCC program, a collaboration between the mathematics departments at the Universities of Bath, Bristol, Imperial, Oxford and Warwick. Details: https://tjfonseca.github.io/teaching/calculus/.

Université Paris-Saclay

2017-2018
- TA - Mathématiques de la modélisation I - L1 BCST S1 (Undergrad)
- TA - Mathématiques de la modélisation II - L2 BCST S3 (Undergrad)

2016-2017
- TA - Probabilités et Statistiques - DUT S3 (Undergrad), 2 groups

2015-2016
- TA - Probabilités et Statistiques - DUT S3 (Undergrad), 2 groups

2014-2015
- TA - Graphes et Automates - DUT S2 (Undergrad)
- TA - Analyse et méthodes numériques - DUT S2 (Undergrad)

Student supervision

2019-2020
- Håvard Damm-Johnsen - *The Manin–Drinfeld theorem*. Graduate student project.
- Rajarshi Maiti - *Irrationality of odd zeta values*. Summer research programme (informal).

2019-2020
- Yiming Tang - *The AGM: from elliptic integrals to point counting*. Summer Research Programme.

2018-2019
- Alex Saad - *Picard-Fuchs equations and $\mathbb{F}_p$-points on elliptic curves*. Graduate student project.
- Arkadij Bojko - *Grothendieck's comparison theorem*. Graduate student project.
- Deepak Kamlesh - *Picard-Fuchs equations for families of elliptic curves*. Graduate student project.
- Matija Tapuskovic - *Yukawa coupling via Hodge Theory*. Graduate student project.
- Zhenhua Wu - *Cartier operator*. Graduate student project.

Scholarships, Fellowships, Grants

- Fapesp scholarship during the B.Sc.
- FMJH scholarship during the M.Sc. and Ph.D.
- Postdoctoral fellowship 2018-2021, Oxford (ERC project "Galois Theory of Periods)
- Fapesp Young Investigator Grant "Periods and Algebraicity" 2021-2026.

Other information

Organisation

- Creation and organisation of the PhD students seminars on Algebraic Geometry and Number Theory "*Séminaires Secrets d'Orsay*". Orsay. [http://ssorsay.blogspot.com/] (2014-2017)
- Co-organiser of the WORKing seminar on Diophantine Geometry. Warwick, Oxford, Reading, and King's College. [https://sites.google.com/site/netandogra/working-seminar] (2019-2020)
- Co-organiser of the GADEPs seminar at IMPA, Rio de Janeiro. [https://sites.google.com/view/gadeps/home] (2021 - present)

Refereeing and peer-review

- Reviews for Mathematical Reviews (MathSciNet).
- Referee for Algebra & Number Theory, SIGMA, World Scientific.

Outreach

- Monitor at *Math.En.Jeans Association* in Blaise Pascal High School, Orsay (2014-2017).