

Curriculum Vitae

Name	Cecília Salgado
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Academic history

Since August 2012: Professor at UFRJ (Rio de Janeiro)
2011-2012: Guest researcher at Max Planck Institute (Bonn) and postdoc at Universiteit Leiden
2009 – 2011: Postdoc at Universiteit Leiden
2005 – 2009: PhD in Mathematics at Université Paris VII under the supervision of M. Hindry
2003 – 2005: Master in Pure Mathematics at IMPA – Rio de Janeiro – Brazil
2000 – 2002: Undergraduate studies in Mathematics at the Federal University of Rio de Janeiro (UFRJ)

Research field

Arithmetic Geometry, Number Theory.

Prizes and grants

2018 Research grant Instituto Serrapilheira.
2017 Humboldt/ CAPES fellowship - Experienced Researcher.
2016 Young Scientist of Rio de Janeiro - FAPERJ Brazil.
2015 L' Óreal For Women in Sciences- Brazil.
2014 Cnpq (Brazilian government) 3 year research grant.
2015 EMC (big data company) grant for organization of workshop on rational points.
2014 Nanum travel grant (ICM)
2013 CAPES (Brazilian government) travel grant.
2012 Cnpq (Brazilian government) grant for organizing national events – ColGA.
2012 CAPES-DAAD (German-Brazilian agreement) grant
2012 Starting grant: FAPERJ– Rio de Janeiro
2011 Hendrik-Casimir Karl-Ziegler Research Award by KNAW

Selected mathematical activities

- 2019 Group leader at Women in Numbers Europe 3 – Rennes.
- 2018 Talk at Seventh Iberoamerican Congress on Geometry – Valladolid.
- 2017 Mini-course on elliptic fibrations at workshop Geometry at the Frontier II – Chile.
- 2017 Plenary talk at Brazilian Math. Colloquium – IMPA.
- 2016 Séminaire Variétés Rationnelles– Paris
- 2016 Conference Arithmetic Algebraic Geometry – New York
- 2016 Group leader at Women in Number Europe 2 –Leiden.
- 2016 Workshop Geometria na Fronteira (Univ de la Frontera- Chile)
- 2016 Plenary talk at CLAM (Colquio Latino-americano de lgebra)– Buenos Aires
- 2016 Congreso Latino-americano de matemticos in Barranquilla – Colombia
- 2015 North German Algebraic Geometry Seminar
- 2015 Rational Points – Franken Akademie/ Germany
- 2015 Rational Points – IMPA
- 2015 ELGA (Latin american school of algebraic geometry) – Cabo Frio.
- 2014 Focm- workshop on computational Number Theory –Montevideo
- 2014 Geometry of algebraic surface – Munich
- 2014 Fibrations on algebraic varieties and related topics – Milano.
- 2013 Women in Numbers – Luminy
- 2013 JOGA (algebraic geometry days) – UFRJ
- 2013 ALGA (Commutative Algebra and Algebraic Geometry) – Teresópolis
- 2013 New trends in the arithmetic and geometry of surfaces – Luminy
- 2012 Rational points workshop – Zurich
- 2012 Workshop on algebraic surfaces – Hannover
- 2011 Arithmetic, Geometry, Cryptography, and Coding Theory: AGCT-13– Luminy

Selected talks

1. Classification of elliptic fibrations on certain K3 surfaces (2016 at Rio de Janeiro, Barranquilla, Buenos Aires, New York, Berlin, Hanover, Rome and Paris)
2. All del Pezzo surfaces of degree two are unirational over finite fields (2014 at Munich, Campinas, Montevideo)
3. Rank jumps on jacobian fibrations (2014, Milano)
4. Density of rational points on del Pezzo surfaces of low degree (February 2012 at Workshop on Algebraic surfaces – Hannover and March 2012 at Max Planck – Bonn)
5. Arithmetic of low degree del Pezzo surfaces (March 2011 at AGCT-13 Luminy and April 2011 at Number Theory seminar at CUNY– New York)
6. Comparing generic and special ranks on elliptic surfaces and unirationality of del Pezzo surfaces of degree two (December 2010 at Max Planck Institute- Bonn and November 2010 at Rice Univ., Brown Univ. and Courant Institute).
7. Zariski density of rational points on del Pezzo surfaces of small degree (November 2010 at Eindhoven, September 2010 at IMPA)
8. On the rank of the fibres of rational elliptic surfaces (2010: Hausdorff Institute- Bonn, 2009: Poznan, Latin American Algebra Colloquium, Groningen, Journées Arithmétiques – St. Etienne, Caen)
9. Comparing the rank of the generic and the special fibres on rational elliptic surfaces (2009: Hausdorff Institute Bonn, Mainz, Copenhagen)

Teaching

- 2017: Calculus I – Polytechnical school (Rio de Janeiro).
2017: Algebraic Curves – Master (Rio de Janeiro)
2016: Galois Theory – Undergraduate class (Rio de Janeiro)
2016: Commutative Algebra and Euclidean Geometry (Rio de Janeiro)
2015: Pre-Calculus (Rio de Janeiro)
2015: Algebra 1 (Rio de Janeiro)
2015: Real Analysis – Master (Rio de Janeiro)
2014: Galois Theory – Master (Rio de Janeiro)
2014: Algebraic surfaces – PhD students (Rio de Janeiro)
2013: Calculus IV: PDEs (Rio de Janeiro)
2011: Algebra 1 – (Leiden)
2010: Commutative algebra – Master (Leiden)
2009: Elliptic curves (exercise section) – MasterMath/ ALGANT (Vrije Universiteit – Amsterdam)
2008 – 2009 : Mathématiques élémentaires (teaching assistant) – (Paris VII)
2006 : Formes quadratiques (teaching assistant) – (Paris VI)
2001 – 2002 : Algebra 1 and 2 (teaching assistant) – (UFRJ – Rio de Janeiro)

Supervision of students and postdocs (by end year)

- 2018 Vladimir Mitankin – Postdoc (Rio de Janeiro)

projects on Brauer groups in families of del Pezzo surfaces and variation of ranks of elliptic curves over $\mathbb{F}_q(t)$.

2018 Vinicius Martins – PhD (Rio de Janeiro).

Title: Ranks of elliptic fibrations in prime characteristic.

2018 Mariana Neuman – Master (Rio de Janeiro).

Title: An effective version of Hilbert’s Nullstellensatz.

2017 Gabriel Munoz – Postdoc (Rio de Janeiro)

2017 Gabriel Freitas – Master (Rio de Janeiro).

Title: Construction of pencils of cubic curves with MW rank three.

2017 Victor Vergara – Master (Rio de Janeiro).

Title: Sphere Packing – the densest packings E_8 and Λ_{24} .

2016 Arthur Newlands – Bachelor (Rio de Janeiro).

Title: Galois actions on the 27 lines on a cubic surface.

2016 Julio Mello and Felipe Zingali – Bachelor (Rio de Janeiro).

Title: Primes of the form $x^2 + ny^2$.

2015 Krissy Dias – Bachelor (Rio de Janeiro).

Title: Error correcting Goppa codes- an introduction.

2015 Mariana Neumann – Bachelor (Rio de Janeiro).

Title: First steps in algebraic geometry.

2013 Mariana Neumann – Bachelor (Rio de Janeiro).

Title: The Hasse-Minkowski principle for quadratic forms and some generalizations.

2012 Antonio Revail – Bachelor (Rio de Janeiro).

Title: Irreducibility of cubics modulo 5.

2011 Remy van Dobben de Bruyn – Bachelor (Leiden).

Title: The modularity Theorem and Fermat’s Last Theorem (co-supervised with R. van Luijk).

2010 Valerio Pastro – Master (Leiden).

Title: Constructions of rational elliptic surfaces of rank four.

2010 Anco Moritz – Bachelor (Leiden).

Title: Heights and dynamical systems.

Organization of conferences

- 2018 Rational and Integral Points via Analytic and Geometric Methods at Casa Matematica in Oaxaca (co-organized with T. Browning and U. Derenthal)
- 2016 Algebraic Geometry session at V CLAM at Barranquilla (co-organized with G. Urzua, Y. Bermudez and P. Rizzo)
- 2015 Rational Points workshop – IMPA (co-organized with A. Auel and A. Várilly-Alvarado)
- 2013 JOGA (algebraic geometry days) – UFRJ (co-organized with L. Quoos and N. Puignau)
- 2012 ColGA (arithmetic and geometry colloquium of Rio de Janeiro) – monthly event started in August 2012 (co-organized with C. Araujo, E. Esteves, N. Medeiros and O. Lorscheid).
- 2010 Arithmetic of surfaces – Lorentz Center (co-organized with Ronald van Luijk).
- 2010 Workshop on arithmetic aspects of elliptic surfaces – Hausdorff Institute (co-organized with Matthias Schuett).

Women in Mathematics

- 2018 Co-organization of *World Meeting for Women in Mathematics* (ICM – Rio de Janeiro).
- 2017 Co-organization of series of meetings *Matemática: substantivo feminino* (several Brazilian universities).
- 2016 Talk at round table about *Women in Mathematics* – UNICAMP (São Paulo).

Scientific outreach

- 2017 Talk for high school students: *Prime numbers: facts, mysteries and applications*. – Rio de Janeiro.
- 2017 Interview for TV show dedicated to undergraduate and high school students about choosing mathematics as a career *A hora do Enem*.
- 2017 Interview for *Cause* magazine about women in scientific careers.
- 2016 Interview for documentary about women in academic career *Super women*.
- 2015 Interview for *Galileu* magazine about women in scientific careers.

Languages

Fluent: Portuguese, French and English
Intermediate (speak and understand): German and Spanish
Beginner (concluded A2): Dutch

References

- [1] Lower bounds for the rank of abelian varieties on families under base change (joint with M. Hindry), *submitted*.
- [2] Elliptic fibrations on double covers of the elliptic modular surface of level 5 (joint with. F. Balestrieri, J. Desjardins, A. Garbagnati, C. Maistret, I. Vogt) – accepted for publication at *AWM series Springer* (2017).
- [3] Linear systems on rational elliptic surfaces and elliptic fibrations on K3 surface (joint with A. Garbagnati), *submitted*.
- [4] A remark on topologies of rational point sets (join with O. Lorscheid)– *Journal of Number Theory*, 159 (2016).
- [5] Classification on elliptic fibrations of a singular K3 surface (joint with M.J. Bertin, A. Garbagnati, R. Horstch, O. Lecacheux, M. Mase, U. Whitcher), – Research Directions in Number Theory, 1ed.Berlin: Springer Verlag, 2015, v. 2, p. 1-28.
- [6] Arithmetic and geometry of rational elliptic surfaces– *to appear at Rocky Mountain Journal of Math*.
- [7] Density of rational points on del Pezzo surfaces of degree one (joint with Ronald van Luijk) – *Advances in Math*. 26 (2014) 1.
- [8] Unirationality of del Pezzo surfaces of degree two (joint with Damiano Testa and Tony Várilly-Alvarado) – *Journal of the London Math. Soc.* 90 (2014)
- [9] On the rank of the fibres of rational elliptic surfaces – *Algebra and Number Theory vol. 6* (2012), No. 7, 12891314
- [10] On the rank of the fibres of elliptic K3 surfaces – *Bull. Braz. Math. Soc.* 42(2), p.1-10, 2011
- [11] Constructions of linear pencils of cubics with Mordell-Weil rank five – *Comm. Math. St. Pauli* 58, No. 2, 2009
- [12] Rank of elliptic surfaces and base changes – *C.R. de l'Académie de Sciences Math.* 347, 2009
- [13] Rang des surfaces elliptiques: théorèmes de comparaison – *thèse de doctorat*, 2009