

Curriculum vitae Serge Cantat

Marital status and professional address

born the 3rd of June 1973, (Paris 17),
french, french citizen.
Married, three childs (born in 2001, 2003 and 2006).
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Professional positions (past and present)

- present.– Directeur de recherches (Senior Researcher), CNRS, University of Rennes 1.
- 2011/2013.– Directeur de recherches, CNRS, Paris, Ecole Normale Supérieure.
- 2006/2011.– Chargé de recherches (Junior Researcher) at the University of Rennes I.
- 2006/2007.– One year at Cornell University (New-York state, USA)
- 2000/2006.– Assistant professor, University of Rennes I.
- 1993/2000.– École Normale Supérieure (Lyon); Ph.d.; post-doc (Ruhr-Universität, Bochum).

Diplomas 2006: "**Habilitation** à diriger des recherches", University of Rennes 1, entitled "Quelques aspects des systèmes dynamiques polynomiaux" ("Several Aspects of Polynomial Dynamical Systems"). 1999 (December): **Ph.D. Thesis** in mathematics at the Ecole Normale Supérieure (Lyon), entitled "Dynamique des automorphismes des surfaces complexes compactes" ("Dynamics of Automorphisms of Compact Complex Surfaces"), advisor É. Ghys.

Jury : A. Beauville, D. Cerveau, J.-P. Demailly (referee), É. Ghys (advisor) et J.-C. Yoccoz (referee).

Distinctions and main invitations

- 2011/2015.– Prize Paul Doisteau - Émile Blutet from the French Academy of Sciences (2011). Invited to the 6th European Congress of Mathematicians (Krakow, 2012); Prize for mathematics La Recherche (a french journal, like "Scientific American"). Funding from the french Academy (Foundation Simone et Cino Del Duca, 2013). Plenary speaker at the "AMS Summer Institute on Algebraic Geometry" (Salt Lake City, 2015): mini-course and lecture notes on Cremona groups.
- 2016-2021.– Speaker at the "International Congress of Mathematics (ICM 2018)" (Rio de Janeiro), in the Algebraic Geometry and the Dynamical Systems Sessions. Plenary speaker at the 2nd national meeting of the Société Mathématique de France (2018). Plenary speaker at the first joint meeting Société Mathématique de France, Société Mathématique du Brésil (Rio de Janeiro, 2019). Plenary speaker at the Ypatia conference (Roma, 2020 -*due to covid*: 2022).

Grants. projects of > 100 kilo Euros

- 2002-2006.- Leader of an ACI Jeune chercheur (old version of ANR): a team of young researchers in complex dynamics: Briend, Ducros, Dujardin, Favre, Guedj, Lamy, etc.

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- 2006-2010.– *member* of ANR Symplex connecting people in symplectic and complex geometry and dynamics
 - 2011-2015.– *member and local leader* of the ANR BirPol.
 - 2013-2020.– Responsible for a project funded by the del Duca foundation. The project ran over 7 years, with a total budget of 75.000 Euros and a one year post-doc position. During the first years of this project, I could also benefit from the ANR project BirPol, so that altogether it can be considered as a budget of 100.000 Euros on a period of 7 years.

Main Responsibilities (present)

- **Editor** of *Comptes Rendus de l'Académie des Sciences de Paris, Annales Henri Lebesgue* (end in Dec. 2021) and *Annales Scientifiques de l'École Normale Supérieure* (start sept. 2021).
- Leader of the team “ergodic theory”, member of “conseil de laboratoire” (Rennes, IRMAR).
- **Scientific activities**.– Main organizer of the cycle "Journées Louis Antoine", since its start in January 2010. Member of the committee for the Peccot Lectures, of the Scientific Advisory Board of the Hausdorff Research Institute for Mathematics (Bonn), of the scientific prospective committee of Toulouse Institute of Mathematics.
- **Outreach**: Editorial board of "Images des Mathématiques" (also from 2010 to 2016).

Main Responsibilities (past)

- **Edition** (2014-2019).– Editor of "Publicacions Matemàtiques" (Barcelona). Editor of "Panorama et Synthèse" (Société Mathématique de France).
- **Expertise** (2012-2016).– Member of the Comité National (CNRS national hiring committee).
- **Outreach**(2010-2021).– Responsible of the cycle of conferences "Un texte un mathématicien" (2013-2021); previously (2010-2013) I was a member of the scientific committee. Responsible of the columns “L’objet du mois” for “Images des Mathématiques”.
- **Administration** (2011-2013).– In charge of the team “géométrie” (ENS Paris).

Long term scientific visits: 2014, one semester at the IAS Princeton; 2006-2007, year at Cornell University; 1999-2000, year at Ruhr-Universität (Bochum).

Ph.D. Students

- 2004-2007 (with D. Cerveau): Julie Deserti, "Groupe de Cremona, aspect algébriques et dynamiques" (now professor at Orléans).
- 2009-2012: Arnaud Moncet, "Géométrie et dynamique sur les surfaces algébriques réelles" (now professor in "classes préparatoires")
- 2013-2016 (with Frank Loray): Arnaud Girand, “Équations d’isomonodromie, solutions algébriques et dynamique” . (now professor in "classes préparatoires")
- 2013-2017 (with Jérémy Blanc): Christian Urech, “Subgroups of Cremona groups”. Now post-doc in Lausanne (EPFL).

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- 2014-2017: Federico Lo Bianco, “Automorphisms of higher dimensional holomorphically symplectic varieties”. Ingenior at Technicolor.
 - 2017-2020: Shengyuang Zhao, “Birational Kleinian groups in dimension two”. Post-doc at Stony Brook.
 - Present: Marc Abboud, “valuative technics in algebraic and arithmetic dynamics”.

Post-docs: 2014-2015: Junyi Xie, now CNRS researcher.

2017-2019: Olga Paris-Romaskevich, now CNRS researcher.

Teaching: Undergraduate courses, at the Ecole Normale Supérieure, Paris (undergraduate): Diophantine approximation and Markoff spectrum (24h, 2011); Growth and random walks in groups (24h, 2012); Convexity and algebraic equations (12h, 2014); and at the Ecole Normale Supérieure, Rennes: p -adic numbers, application (8h, 2020); Groups of homeomorphisms of the circle (8h, 2018)

Graduate studies: The Zimmer Program (24h, Master2, 2019, Ecole Normale Supérieure, Lyon); Ergodic theory and dynamical systems (Master2, 2015 and 2016, 36h, with F. Maucourant)

Lectures for the doctoral studies, at University Rennes 1 and Ecole Normale Supérieure: The Zimmer Program (Doctoral studies 2018); The polynomial method (Doctoral studies 2016-2017); Groups of automorphisms of the affine space (Doctoral studies 2015); Tits Alternative (Doctoral studies 2013); Classical groups of transformations : $SO_n(\mathbf{R})$, $\text{Diff}(M)$, $\text{Bir}(\mathbb{P}^n)$ (Doctoral studies 2010)

Main publications for the period 2011-2021.– (see my webpage)

- [17] SERGE CANTAT. Sur les groupes de transformations birationnelles du plan, *Annals of Math*, vol 174 (2012), no. 1, 299–340.
- [22] S. CANTAT, S. LAMY. Normal subgroups of the Cremona group, *Acta Mathematica*, 210 (2013), 31-94.
- [24] S. CANTAT, A. ZEGHIB. Holomorphic Actions, Kummer Examples, and Zimmer Program, *Annales scientifiques de l'É. N. S.*, 45 (2012), no. 3, 447–489.
- [25] S. CANTAT, A. DOLGACHEV. Rational Surfaces with a Large Group of Automorphisms, *J. Amer. Math. Soc.*, vol 25 (2012), no. 3, 863-905.
- [28] S. CANTAT. Morphisms between Cremona groups and a characterization of rational varieties, *Compositio Math.*, vol. 150 (2014), p. 1107–1124.
- [31] J. BLANC, S. CANTAT. Dynamical degrees of birational transformations of projective surfaces, *Journal of the AMS*, vol. 29(2016), n. 2, p. 415 - 471.
- [33] S. CANTAT, J. XIE . Algebraic actions of discrete groups: The p -adic method. *Acta Mathematica*, vol. 220(2), p. 239-295, 2018.
- [34] S. CANTAT, C. DUPONT . Automorphisms of surfaces: Kummer rigidity and measure of maximal entropy *J. of the E.M.S.*, 2020, vol. 22, pp. 1289-1351.
- [37] S. CANTAT AND Y. DE CORNULIER . Commensurating actions of birational groups and groups of pseudo-automorphisms *Journal de l'Ecole Polytechnique*, tome 6, 2019, p.767-809.
- [42] S. CANTAT, P. HABEGGER, Z. GAO, AND J. XIE. The geometric Bogomolov conjecture *Duke Math. J.* 170 (2021), no. 2, pp. 247-277.