SUSANNA ZIMMERMANN

Full Professor, University of Paris-Saclay   susanna.zimmermann@universite-paris-saclay.fr

Research interests: birational geometry, Cremona groups, algebraic groups, algebraic geometry

Academic Career

2.2025–	Full Professor, Dpt Mathematik und Informatik, University of Basel
9.2022–	Full Professor, Mathematical Institute of Orsay, University of Paris-Saclay
10.2022–9.2027	Honorary Junior Member of Institut Universitaire France (IUF)
8.9.2021	Defence of Habilitation. Jury: Paolo Cascini (rapporteur), Damien Calaque, Serge Cantat (rapporteur), Ilia Itenberg, Rahul Pandharipande, Stefan Schröer, Claire Voisin (rapporteur)
9.2017–8.2022	Associate Professor (Maître de Conférence), LAREMA, Université d'Angers
10.2016–8.2017	Postdoc with Prof. S. Lamy, Université de Toulouse III Paul Sabatier; funded by Swiss National Science Foundation
8.9.2016	PhD defended with *summa cum laude*. Examinators: Prof. J. Blanc, Prof. I. Dolgachev, Prof. Y. Prokhorov
2.2013–9.2016	PhD candidate supervised by Prof. J. Blanc, Dept. Mathematics and Computer Science, University of Basel. 8.9.2016: PhD defence, *summa cum laude*. Examinators: Prof. J. Blanc, Prof. I. Dolgachev, Prof. Y. Prokhorov; Thesis: *Compositions and relations in the Cremona groups.*

Preprints

[4] F. BERNASCONI, A. FANELLI, J. SCHNEIDER, S. ZIMMERMANN: Explicit Sarkisov program for regular surfaces over arbitrary fields and applications. arXiv:2404.03281

[3] R. TERPEREAU, S. ZIMMERMANN: Real forms of Mori fiber spaces with many symmetries. arXiv:2403.14493.

[2] A. FANELLI, E. FLORIS, S. ZIMMERMANN: Maximal subgroups in the Cremona groups. arXiv:2311.04703

[1] S. ZIMMERMANN: Finding normal subgroups of Cremona groups. Survey.

Publications

[18] I. CHELTSOV, F. MANGOLTE, E. YASINSKY, S. ZIMMERMANN: Birational involutions of the real projective plane. arXiv:2208.00217, to appear in JEMS

[17] H. BERGNER, S. ZIMMERMANN: Properties of the Cremona group endowed with the Euclidean topology. Bull. of the Lond. Math. Soc. (to appear)

[16] H.-Y. LIN, E. SHINDER, S. ZIMMERMANN: Factorization centers in dimension two and the Grothendieck ring of varieties. Accepted in Algebraic Geometry.

[15] H. KRAFT, A. REGETA, S. ZIMMERMANN: Small G-varieties. Accepted in Canadian J. of Math.

[14] S. ZIMMERMANN: A remark on Geiser involutions. Special New Zealand volume, Europ. J. of Math, vol. 8, issue 3 (2022), 1291–1306.

[13] S. ASGARLI, K.-W. LAI, M. NAKAHARA, S. ZIMMERMANN: Biregular Cremona transformations of the plane. Selecta Math. (to appear)

[12] J. SCHNEIDER, S. ZIMMERMANN: Algebraic subgroups of the plane Cremona group over a perfect field. EpiGA, vol. 5 (2021), no. 14

[11] C. URECH, S. ZIMMERMANN: Continuous automorphisms of Cremona groups. Int. J. Math., vol. 32, no.4 2021

[10] J. BLANC, S. LAMY, S. ZIMMERMANN: Quotients of higher dimensional Cremona groups. Acta Math. Vol. 226, No. 2 (2021), pp. 211-318.

[9] S. ZIMMERMANN: The real plane Cremona group is a non-trivial amalgam. Annales de l'Institut Fourier, Volume 71 (2021) no. 3, pp. 1023–1045

[8] S. LAMY, S. ZIMMERMANN: Signature morphisms from the Cremona group over a non-closed field. J. Eur. Math. Soc. 22 (2020), 3133–3173.

[7] C. URECH, S. ZIMMERMANN: A new presentation of the plane Cremona group. Proc. of the AMS, vol 147, no 7, 2019, 2741–2755.

[6] T. DUCAT, I. HEDÉN, S. ZIMMERMANN: The decomposition groups of plane conics and plane rational cubics. Math. Res. Lett., 26(1) (2019), 35–52.

[5] M.F. ROBAYO, S. ZIMMERMANN: Infinite algebraic subgroups of the real Cremona group. Osaka J. of Math., vol.55, no.4 (2018), 681–712.

[4] J. BLANC, S. ZIMMERMANN: Topological simplicity of the Cremona groups. Amer. J. Math. 140 (2018), no. 5, 1297–1309.

[3] S. ZIMMERMANN: The Abelianisation of the real Cremona group. Duke Math. J. vol. 167, no.2 (2018), 211–267.

[2] I. HEDÉN, S. ZIMMERMANN: The Decomposition group of a line. Proc. Amer. Math. Soc. 145 (2017), no. 9, 3665–3680.

[1] S. ZIMMERMANN: The Cremona group is compactly presented. J. of the London Math. Soc., **93**, no.1 (2016), 25–46.

Prices

2024	ICBS Frontiers of Science Award in Mathematics with J. Blanc and S. Lamy for our article *Quotients of higher dimensional Cremona groups.* Acta Math. Vol. 226, No. 2 (2021), 211-318.
2022-27	ERC StG Saphidir
2022-27	Honorary Junior Member of Institut Universitaire France (IUF)
2020	Médaille Bronze du CNRS

Fundings

1.2022-27	ERC StG Saphidir	1'485'725€
10.2022-27	IUF	75 000€ and teaching reduction
3.2022–3.2024	CNRS	Tremplin-ERC, 112 000€
1.2020–12.2021	Région Pays de la Loire	Projet Etoiles montantes, 110 900€
9.2019–2.2020	Université d'Angers	Sabatical (CRCT)
2019	CNRS	projet PEPS 2019
2018–22	Projet "jcjc" ANR	Project FIBALGA
2018	CNRS	projet PEPS 2018 with E. Floris (Univ. de Poitiers) and R. Terpereau (Univ. de Bourgogne)
2016–17	Swiss National Science Foundation	Early.Postdoc-Mobility grant No. P2BSP2_168743
2015	Equal Opportunity Office University of Basel	Member of antelope program; Funding of research stay in 2.2016 at Centro de Matemàtica Universidad de la Repùblica Uruguay

Organisation of recurrent scientific events

2021-24	Lectures Sophie Kowalevski (Masterclasse, niveau M1), with C. Fermanian Kammerer (Univ. Angers, 2022–), N. Raymond (Univ. Angers, 2021–)
2017-23	6th–12th swiss-french workshop in Algebraic Geometry, Charmey (Switzerland), with Prof. J. Blanc (Univ. Basel, 2012–17), A. Dubouloz (Univ. Bourgogne, 2012–17), A. Fanelli (Univ. Bordeaux, 2023–), Prof. P. Habgegger (Univ. of Basel, 2016–), R. Terpereau (Univ. Bourgogne, 2018–23), J. Schneider (EPFL, 2023–)
2017–22	Organisor of Seminar Géométrie Algébrique, LAREMA, Univ. Angers

2014–16 Graduate seminar *Bernoullis Tafelrunde*, University of Basel, founded and organised with C. Urech (Univ. Basel)

Organisation of non-recurrent scientific events

2025 Thematic semester on K-stability and birational geometry of real Fano threefolds at CIRM, Luminy, with I. Cheltsov and F. Mangolte

9.-13.9.2024 Birational geometry and K-Stability, Cetraro, with I. Cheltsov (Edinburgh) and A. Fanelli (Bordeaux)

10.-14.6.2024 EpiGA conference, IHP, Paris, with S. Boucksom (CNRS, Jussieux, Paris)

17.-22.3.2024 K-Stability, Birational Geometry and Mirror Symmetry, Oberwolfach, with T. Delcroix (Montpellier) and L. Heuberger (Bath)

12.-16.12.2022 Workshop Birational Complexity of Algebraic Varieties, with Ignacio Barros (Antwerp), Robert Lazarsfeld (Stonybrook), Olivier Martin (Stonybrook), David Stapleton (Michigan)

5.-9.12.2022 Graduate Workshop on the Birational Complexity of Algebraic Varieties, with Ignacio Barros (Antwerp), Robert Lazarsfeld (Stonybrook), Olivier Martin (Stonybrook), David Stapleton (Michigan)

6.-10.6.2022 Conference in enumerative, real and birational geometry, Le Croisic, with E. Burgallé (Univ. Nantes) and F. Mangolte (Univ. Angers/Univ. Marseille)

24.-26.11.2021 Journées GDR GACG in Angers, with S. Druel (CNRS, Institut Camille Jordan, Lyon)

14.-18.6.2021 Conference Algebraic Geometry Angers, with E. Floris (Univ. Poitiers)

20.–21.5.2019 FIBALGA à Angers, with Ronan Terpereau (Univ. Bourgogne)

3.–4.12.2018 Journée réelle du CHL, Angers

5.–6.6.2018 Rencontre Angers–Poitiers en Géométrie Algébrique, Université d'Angers, with E. Floris (Univ. Poitiers)

5.–16.9.2016 Cremona conference Basel 2016, with Prof. J. Blanc, M. Hemmig, C. Urech (Univ. Basel)

4.–5.9.2014 13th Graduate Colloquium, University of Basel, with M.F. Robayo (Univ. of Basel)

Scientific committee of events

2026 Rencontre GAGC 2026

9.-13.9.2024 Birational geometry and K-Stability, Cetraro

10.-14.6.2024 EpiGA conference, IHP, Paris

17.-22.3.2024 K-Stability, Birational Geometry and Mirror Symmetry, Oberwolfach

5-10.6.2023 Birational Geometry and biregulous functions, Le Croisic, France

2017–23 6th-12th swiss-french workshop in Algebraic Geometry

12.-16.12.2022 Workshop Birational Complexity of Algebraic Varieties

5.-9.12.2022 Graduate Workshop on the Birational Complexity of Algebraic Varieties

6.-10.6.2022 Conference in enumerative, real and birational geometry, Le Croisic

14.-18.6.2021 Conference Algebraic Geometry Angers

20.–21.5.2019 FIBALGA à Angers

3.–4.12.2018 Journée réelle du CHL, Angers

5.–6.6.2018 Rencontre Angers–Poitiers en Géométrie Algébrique, Université d'Angers

5.–16.9.2016 Cremona conference Basel 2016

4.–5.9.2014 13th Graduate Colloquium, University of Basel

Academic and administrative responsabilities

2025– Member of pilot committee of LYSM

2024– Member of scientific committee of the french research network RT GAS

2023-27 Editor of Gazette de la Société Mathématiques France

2023-27 Editor of Épijournal de Géométrie Algébrique

2021/22 Deputy director of the Department of Mathematics at Université d'Angers

2019– Member of hiring committee for
- Assistant Professor (Maître de Conférence): Université d'Angers (2021), Université de Lille (2021), Université Bretagne-Sud (2021), Université de Bordeaux (2020), Université de Bourgogne (2025), Université de Lorraine (2020, 2022), Université de Nice (2019), Université Paris 13 (2023)
- Chair Professeur Junior (tenure track): CNRS (2024)
- Professors: Université d'Artois (2024), Université Grenoble (2024), Université de Lille (2023), Université de Nantes (2025), Université de Strasbourg (2023)

2018–22 INSMI parity referent at LAREMA

2017–22 Organisor of Seminar Géométrie Algébrique, Angers

2016– Member of PhD thesis defence jury:
5.12.2023 Jules Chenal, Université Lyon 1 (présidente du jury)
4.12.2023 Luigi Martinelli, Université Paris-Saclay
8.7.2023 Marc Abboud, Université de Rennes 1
5.12.2022 Thi-Ngoc Anh Nguyen, Université de Nantes (Présidente du jury)
21.11.2022 François Bernard, Université d'Angers
11.12.2017 Clément Fromenteau, Université d'Angers
14.9.2017 Anne Lonjou, Université de Toulouse III

Scientific mini-courses

16.-20.2025 Workshop on Cremona groups, Univ. Grenoble

7.-11-4.2025 Workshop on real algebraic geometry, Trieste

19.-23.8.2024 V ELGA, Brazil, *Quotients of groups of birational transformations*

15.-17.5.2023 Real and complex birational geometry, Milano, *Classifying real birational involutions of the plane*

28.11.-2.12.2022 Rencontre GACG, CIRM, Lumini (Marseille), France, *Involutions of the real plane*

13.–15.6.2022 Masterclass Univ. Lorraine, Nancy, *À la découverte du groupe de Cremona*

6.–10.1.2020 Winter school on Cremona groups, Cuernavaca, Mexico, *Cremona groups in Higher dimensions*

9.–13.12.2019 Algebraic Geometry in Auckland, Auckland, *The real Cremona group of the plane*

26.–30.11.2018 Rencontre Del Duca, Rennes, *The Cremona groups are not simple* with J. Blanc and S. Lamy

17.–19.5.2017 Rencontre del Duca, Université de Rennes 1, *The group of birational transformations of the real projective plane.*

Selection of invited scientific talks

28.7.1.8.2025 Brasilian Mathematical Colloquium, IMPA - *talk cancelled due to maternaty leave*

21.7.-8.8.2025 2025 Algebraic Geometry SRI, Colorado State University - *talk cancelled due to pregnancy*

28.-10.-1.11.2024 Workshop on Birational Geometry and Number Theory, ICM Edinburgh

2024 ICBS, Frontiers of Sciences Award winner talk

5.-8.5.2024 Conference Algebraic Transformation groups, Monte Verita, Switzerland

21.-25.8.2023 4th Korea-France Conference in Mathematics

19.-21.6.2023 AGGITatE workshop, Essex, *Real birational involutions of rational conic fibrations*

5.-9.6.2023 Birational Geometry and biregulous functions, Le Croisic, France, *Biregulous functions, but also imperfect fields*

15.2.2023 Seminar Raconte-moi, ENS Paris, *...le théorème de Noether-Castelnuovo*

25.1.2023 Algebraic Geometry Seminar, Saarbrücken, *Involutions of the real plane*

20.1.2023 Joint Seminar on Complex Algebraic Geometry and Complex Analysis, Cologne, *Birational involutions of the real plane*

19.1.2023 Algebraic Geometry Seminar, Univ. Essen, *Birational involutions of real conic fibrations*

9.-13.1.2023 Representation theory and geometry of loop spaces, *Cremona groups and Groethendieck rings*

8.-9.12.2022 Journées réelles, Univ. d'Angers, *Which algebraic groups act birationally on the real plane?*

17.11.2022 Séminaire Géométrie, algèbre, dynamique et topologie, Univ. de Bourgogne, *The classification of involutions of the real plane*

6.10.2022 Séminaire francophone en-ligne de groupes et géométrie, *Involutions du plan projectif*

29.9.2022 Séminaire Géométrie Algébrique, Sophie Germain, Paris *Involutions of the real projective plane*

28.6.–2.7.2022 Recent Advances in Classical Algebraic Geometry, Satelline conference of ICM, Krakow, *Involutions of the real plane*

13.–17.6.2022 Birational geometry conference, EPFL Lausanne, *Real birational involutions of the plane*

19.-20.5.2022 Journées d'étude du GDR TLAG, Grenoble, *Algebraic groups acting birationally on rational surfaces*

7.-9.3.2022 Conférence ANR Foliage, Quimper, *Involutions of the real projective plane*

23-25.2.2022 MPS Conference on Higher Dimensional Geometry, Simons Foundation, New York, *Algebraic groups acting birationally on the plane over a non-closed field*

7.2.2022 Séminaire commun de Géométrie, Inst. Elie Cartan, Nancy, *Involutions du plan*

31.1.2022 Séminaire Algèbre et géométries, Institut Fourier, Grenoble, *Groupes algébriques qui agissent birationnellement sur le plan*

2.12.2021 Séminaire de Géométrie Analytique, Rennes, *Quelques groupes algébriques qui agissent birationellement sur le plan projectif*

18.11.2021 Algebraic Geometry and Number Theory Seminar, IST Austria, *Algebraic groups acting birationally on the plane*

16.11.2021 Seminar Algebraic Geometry, Basel, *Algebraic subgroups of the plane Cremona group over a perfect field*

12.11.2021 Mini-workshop on Cremona groups and Grothendieck rings at Orsay, *The plane Cremona group and Grothendieck rings*

22.10.2021 Séminaire Géométries, Institut Camille Jordan, Lyon, *Groupes algébriques agissant birationnellement sur le plan*

10.-18.6.2021 Recent Developments in Algebraic Geometry, Arithmetic and Dynamics Part 1, *Algebraic groups acting birationally on surfaces*

19.5.2021 Séminaire Quadratic forms, Linear algebraic groups and Beyond (Lyon–British Columbia–Ottawa), *Algebraic groups acting birationally on surfaces over a perfect field*

13.4.2021 Séminaire Géométrie Complexe, Marseille, *Groupes affines qui agissent birationnellement sur le plan*

1.4.2021 Séminaire Arithmétique et Géométrie, Strasbourg, *Groupes algébriques des transformations birationnelles sur un corps parfait*

30.3.2021 Algebraic Geometry Seminar, POSTECH, Korea, *Algebraic groups acting on the plane over a perfect field*

12.3.2021 Geometry seminar, Trento, *Algebraic groups acting birationally on the plane*

8.3.2021 Séminaire géométrie complexe, Nancy, *Groupes algébriques agissant sur le plan projectif*

3.12.2020 Algebra y Geometría, Cuernavaca, *Symmetries and finite fields*

19.11.2020 Séminaire Algèbre Géométrie Algébrique Topologie Algébrique, Montpellier, *Sous-groupes algébriques du groupe de Cremona*

14.-17.9.2020 DMV Annual Meting 2020, Chemnitz, *Some properties of Cremona groups*

2.7.2020 Zoom Algebraic Geometry Seminar, *Finite quotients of Cremona groups*

14.5.2020 Zoomerfest, *Cremona groups and some quotients*

20.–23.1.2020 Real and Enumerative Geometries, Nantes, *Quotients of Cremona groups*

21.11.2019 Algebraic Geometry seminar, Oslo, *Birational permutations of the projective plane*

22. 10.2019 Séminaire Arithmétique et Géométrie Algébrique, Orsay, *Quotients de groupes des transformations birationnelles*

15.10.2019 Séminaire géométrie algébrique, Lille, *Morphismes de signature des groupes de Cremona*

17.–20.6.2019 Discrete groups and Moduli, Nagoya (Japan), *Cremona groups in higher dimensions*

2.5.2019 Séminaire Arithmétique et géométrie algébrique, Strasbourg, *Groupes de Cremona de dimension supérieure*

1.–4.4.2019 Higher dimensional complex geometry, Saarland University, *Non-Simplicity of Cremona groups*

20.–22.3.2019 Women in Homotopy Theory and Algebraic Geometry II, Freie Universität Berlin, *Birational symmetries of projective spaces*

15.3.2019 London Geometry and Topology Seminar, Imperial College, *Higher dimensional Cremona groups*

28.2.–1.3.2019 GLEN Seminar, Manchester, *Quotients of plane Cremona groups*

23.1.2019 Seminar Algebraic and Complex Geometry, Saarland University, *Relations between Sarkisov links*

5.–9.11.2018 Constructions and obstructions in birational geometry, Edinburgh, *Quotients of Cremona groups*

30.–2.10.2018 workshop Fano varieties and their automorphisms, Loughborough University, *Abelian quotients of the Cremona groups in higher dimension*

12.10.2018 Séminaire Géométrie, Université de Lyon 1, *Quotients des groupes de Cremona*

6.–7.9.2018 Rencontre La Rochelle–Bordeaux–Poitiers, *Les groupes de Cremona ne sont pas simples.*

18.–22.2018 Subgroups of the Cremona groups, Oberwolfach, *The Cremona groups are not simple.*

9.–13.4.2018 French-German Meeting in Complex Algebraic Geometry, Luminy (Marseille), *Signature morphisms from the Cremona group.*

12.-16.2.2018 Polynomial Rings and Affine Algebraic Geometry, Tokyo Metropolitan University, *Birational transformations of the affine plane over perfect fields.*

23.1.2018 Oberseminar Algebra and Number theory, University of Cologne, *Birational maps of the plane over a perfect field.*

21.11.2017 Seminar Algebra und Geometry, University of Basel, *Signature morphisms of the Cremona group of the plane.*

8.11.2017 Séminaire de topologie, géométrie et algèbre, Université de Nantes, *Des morphismes du groupe de Cremona réel.*

12.10.2017 Séminaire Groupes, Algèbre et Géométrie, Université de Poitiers, *Des morphismes du groupe de Cremona du plan.*

26.–30.6.2017 Edge Days, University of Edinburgh, *Birational transformations of the plane over a non-closed field.*

10.4.2017 Séminaire Algèbre et géométries, Fourier Institut Grenoble, *Sous-groupes algébriques du groupe de Cremona.*

17.3.2017 Basel-EPFL Meeting, *Algebraic subgroups of the real Cremona group.*

2.3.2017 Séminaire de Géométrie algébrique, Université de Paris Diderot, Institut de Mathématiques Jussieu-Paris Rive Gauche, *Les symétries réelles du plan projectif.*

9.12.2016 Oberseminar: Algebra, Zahlentheorie und algebraische Geometrie, University of Freiburg, *The Cremona group of the real and the complex plane.*

14.–18.10.2016 Groups of birational automorphisms, HSE, Moskow, *The abelianisation of the real Cremona group.*

10.10.2016 Séminaire de Géométrie Algbébrique Réelle Angers-Brest-Rennes, Université Rennes 1, *The Cremona group of the real plane.*

14.3.2016 Séminaire Algèbre et Géométrie, Fourier Institut, Grenoble, *The Cremona group of the real plane.*

13.11.2015 Séminaire de géométrie algébrique, Universtié de Angers, *The Abelianisation of the real plane Cremona group.*

22.–26.6.2015 Second Swissmap Geometry & Topology Conference, Les Diablerets, *Abelian Quotients of the real Cremona group.*

15.6.2015 Joint Seminar in Algebraic Geometry and Complex Geometry (Basel-Freiburg-Nancy-Strasbourg), Université de Strasbourg, *Abelian Quotients of the real Cremona group.*

24.3.2015 Seminar on Algebra, Geometry and Physics, Max-Planck-Institut, Bonn, *Is the Cremona group compactly presented?*

3.3.2015 Séminaire Groupes et Géométrie, Université de Genève, *Compact presentation of the Cremona group.*

11.11.2014 Séminaire Géométrie et Systèmes Dynamiques, Université de Bourgogne, *Compact presentation of the Cremona group.*

13.–16.10.2014 BirPol 8 - PTT, Université de Toulouse Paul Sabatier, *Compact presentation of the Cremona group.*

Popularisation of mathematics

2023-27 Editor of Gazette de la Société Mathématiques France

2023 Ambassador of Maison Poincaré, IHP, Paris

2021 Ambassador of Pays de la Loire for the Fête de la Science

2020 Organisation of the mathematical exposition at Nuit Européenne des Chercheur.e.s in Angers

9.2015 Management and organisation of the Mathematics exposition at Basler Uninacht 2015: organised with Linda Frey, Olivia Ebneter

4.2012 Management of the exposition of the Mathematical Institute at TunBasel organised with Oliver De Capitani, Sabine Schädelin, Nadine Scossa