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Stefano Filipazzi

Curriculum Vitae

Research interests

Algebraic geometry, with main focus on: Minimal Model Program and its applications, birational geometry of Calabi–Yau and Fano varieties, boundedness questions in algebraic geometry, moduli spaces, topology of singularities.

Employment

07/2025–Present **Assistant Professor**, *Duke Univeristy*, Durham NC, USA

07/2021–06/2025 **Collaborateur Scientifique (postdoc)**, *EPFL*, Lausanne, CH
Mentor: Zsolt Patakfalvi

07/2019–06/2021 **Hedrick Assistant Adjunct Professor**, *UCLA*, Los Angeles CA, USA
Mentor: Burt Totaro

Education

2014–2019 **PhD in Mathematics**, *The University of Utah*, Salt Lake City, USA
Thesis: *Generalized pairs in birational geometry*. Advisor: Prof. Christopher D. Hacon

2009–2015 **Diploma**, *IUSS - Institute for Advanced Studies*, Pavia, ITA, Excellent
Thesis: *An introduction to derived categories: the Bondal–Orlov reconstruction theorem*. Advisor: Prof. Alberto Canonaco

2012–2014 **Master's Degree in Mathematics**, *Università degli studi di Pavia*, Pavia, ITA, 110/110 *cum laude*
Thesis: *The tautological ring of a jacobian*. Advisors: Prof. Gavril Farkas, Prof. Gian Pietro Pirola

10/2013–05/2014 **Erasmus exchange program**, *Humboldt Universität zu Berlin*, Berlin, GER

2009–2012 **Bachelor's Degree in Mathematics**, *Università degli studi di Pavia*, Pavia, ITA, 110/110 *cum laude*
Thesis: *Dal problema di Hermite al concetto di dimensione essenziale*. Advisor: Prof. Gian Pietro Pirola

Awards, Fellowships, Grants

Travel grants and funding for academic events

March 2022 **Grant #550**, Co-PI, Foundation Compositio, 9500 EUR
for the organization of the workshop *Foliations in Algebraic and Birational Geomety*.

February 2022 **Grant**, Co-PI, Bernoulli Center for Fundamental Studies, 35000 CHF
for the organization of the workshop *Foliations in Algebraic and Birational Geomety*.

2020–2022 **AMS Simons travel grant**, American Mathematical Society, 5000 USD
Two-years travel grant for early career mathematician (2021–2022 withdrawn due to move to Europe).

Fellowships and Scholarships

01/2025–Present **EMS Young Academy (EMYA) member**, European Mathematical Society (EMS)
Nominated member of the 2025 cohort of the EMS Young Academy (EMYA), established by the European Mathematical Society (EMS) with the aim of strengthening the role in the mathematical community and the perspective of the generation of young mathematicians in Europe.

2018–2019 **Graduate Research Fellowship**, The University of Utah, 18500 USD
Fellowship awarded by The University of Utah; 12 to 15 awards given annually across all graduate programs.

2009–2014 **IUSS - Institute for Advanced Studies**, Pavia
Merit alumn at IUSS. Fellowship accorded by the Institute of Advanced Studies through national competition.

2009–2014 **Almo Collegio Borromeo**, Pavia
Fellow of Almo Collegio Borromeo, Pavia. The fellowship is assigned through a national competition.

2009–2012 **INdAM scholarship**, Istituto Nazionale di Alta Matematica
Scholarship to pursue a bachelor's degree in mathematics. Withdrawn due to incompatibility with other scholarships awarded.

2013–2014 **Università degli studi di Pavia**, Pavia
Erasmus scholarship to write the master's thesis in mathematics at Humboldt Universität zu Berlin.

Habilitations

10/2023 **Abilitazione scientifica nazionale**, *funzione di professore associato*, settore concorsuale 01/A2, (Italian national habilitation to the ranking of associate professor in Algebra and Geometry).

Visiting positions

11/2023 **Participant**, *Junior Trimester Term "Algebraic geometry: derived categories, Hodge theory, and Chow groups"*, Hausdorff Research Institute for Mathematics, Bonn, GER.

07/2017 **Visitor**, SISSA, Trieste, ITA, Host: R. Svaldi.

Publications

Articles

- *On semi-ampleness of the moduli part*, with C. Spicer, arXiv: 2212.03736 [math.AG], to appear in Moduli.

- *Boundedness of elliptic Calabi–Yau threefolds*, with C. D. Hacon and R. Svaldi, J. Eur. Math. Soc. 27 (2025), no. 9, 3583–3650, DOI 10.4171/JEMS/1467.
- *Rational points on 3-folds with nef anti-canonical class over finite fields*, with F. Bernasconi, Proc. Lond. Math. Soc. 130 (2025), no. 1, e70014, DOI 10.1112/plms.70014.
- *Index of coregularity zero log Calabi–Yau pairs*, with M. Mauri and J. Moraga, Algebra Number Theory 19 (2025), no. 2, 383–413, DOI 10.2140/ant.2025.19.383.
- *Complements and coregularity of Fano varieties*, with F. Figueroa, J. Moraga, and J. Peng, Forum Math. Sigma 13 (2025), e39, 1–55, DOI doi:10.1017/fms.2024.69.
- *Connectedness principle in characteristic* $p > 5$, with J. Waldron, Michigan Math. J. 74 (4) (2024), 675-701, DOI 10.1307/mmj/20216143.
- *On the boundedness of* n*-folds with* $\kappa(X) = n - 1$, Algebr. Geom. 11 (2024), no. 3, 318–345, DOI 10.14231/AG-2024-011.
- *Moduli of* $\mathbf{Q}$*-Gorenstein pairs and applications*, with G. Inchiostro, J. Algebraic Geom. 33 (2024), 347-399, DOI 10.1090/jag/823.
- *Arithmetic and geometric deformations of 3-folds*, with F. Bernasconi and I. Brivio, Bull. Lond. Math. Soc. 56 (2024), no. 1, 423-443, DOI 10.1112/blms.12942.
- *On the connectedness principle and dual complexes for generalized pairs*, with R. Svaldi, Forum Math. Sigma, 11 (2023), e33, DOI 10.1017/fms.2023.25.
- *The Jordan property for local fundamental groups*, with L. Braun, J. Moraga and R. Svaldi, Geom. Topol. 26 (2022), no. 1, 283–319, DOI 10.2140/gt.2022.26.283.
- *Invariance of plurigenera and boundedness for generalized pairs*, with R. Svaldi, Matemática Contemporânea, Vol. 47 (2020), 114-150, DOI 10.21711/231766362020/rmc476.
- *Strong* (δ, n)*-complements for semistable morphisms*, with J. Moraga, Doc. Math. 25 (2020), 1953-1996, DOI 10.25537/dm.2020v25.1953-1996.
- *On a generalized canonical bundle formula and generalized adjunction*, Ann. Sc. Norm. Super. Pisa Cl. Sci. (5) 21 (2020), 1187-1221, DOI 10.2422/2036-2145.201810_001.
- *Some remarks on the volume of log varieties*, Proc. Edinb. Math. Soc. (2) 63 (2020), no. 2, 314-322, DOI 10.1017/S0013091519000397.
- *Boundedness of log canonical surface generalized polarized pairs*, Taiwanese J. Math. 22 (2018), no. 4, 813-850, DOI 10.11650/tjm/171204.
- *An example of Berglund–Hübsch mirror symmetry for a Calabi–Yau complete intersection*, with F. Rota, Matematiche (Catania) 73 (2018), no. 1, 191-209, DOI 10.4418/2018.73.1.14.
- *Generic vanishing fails for surfaces in positive characteristic*, Boll. Unione Mat. Ital. 11 (2018), no. 2, 179-189, DOI 10.1007/s40574-017-0120-6.

Preprints

- *Boundedness of some fibered* K*-trivial varieties*, with P. Engel, F. Greer, M. Mauri, and R. Svaldi, arXiv: 2507.00973 [math.AG], submitted.

- *A counterexample to the log canonical Beauville–Bogomolov decomposition*, with F. Bernasconi, Zs. Patakfalvi, and N. Tsakanikas, arXiv: 2407.17260 [math.AG], submitted.
- *Log canonical 3-fold complements*, with J. Moraga and Y. Xu, preprint, arXiv: 1909.10098 [math.AG].

Invited Talks (* denotes online talks)

Invited conference talks

10/2024 Higher-dimensional log Calabi–Yau pairs, American Institute of Mathematics, *A tour of boundedness*.

09/2023 Giornate di Geometria Algebrica e Argomenti Correlati XVI, Cetraro, *Circa l'indice di coppie log Calabi–Yau di massima intersezione*.

03/2023 Workshop on dynamics and birational geometry, King's College London, *On semi-ampleness of the moduli part*.

06/2022 Birational Geometry Conference of the Swiss Mathematical Society, EPFL, *On the boundedness of elliptic Calabi–Yau threefolds*.

02/2022 The 7th "Kyoto Top Global University" Mathematics Workshop for Young Researchers, Kyoto University, *On the boundedness of elliptic Calabi–Yau threefolds*.*

08/2021 Generalised Pairs and Applications at Morningside Center of Mathematics, Chinese Academy of Sciences, *On the connectedness principle and dual complexes for generalized pairs*.*

02/2021 Fano varieties and birational geometry at the University of Nottingham, *On the connectedness principle and dual complexes for generalized pairs*.*

11/2019 AMS Sectional Meeting at UC Riverside, *On the connectedness principle and dual complexes for generalized pairs*.

10/2019 Southern California Algebraic Geometry Seminar, *On the connectedness principle and dual complexes for generalized pairs*.

12/2018 London–Tokyo Workshop in Birational Geometry II at Imperial College, *On a generalized canonical bundle formula and generalized adjunction*.

04/2018 AMS Sectional Meeting at Portland State University, *Generic vanishing fails for surfaces in positive characteristic*.

Invited seminar talks

05/2024 University of Glasgow, *On the Albanese fibration for singular varieties with nef anticanonical divisor*.

11/2023 Hausdorff Research Institute for Mathematics, *On the boundedness of elliptic Calabi–Yau threefolds*.

06/2023 Università degli Studi di Milano, *On the index of log Calabi–Yau pairs of maximal intersection*.

11/2022 Roma Tor Vergata, *On the boundedness of elliptic Calabi–Yau threefolds*.

04/2022 Séminaire de géométrie algébrique de Jussieu, *On the boundedness of elliptic Calabi–Yau threefolds*.

01/2022 Northwestern University, *On the boundedness of elliptic Calabi–Yau threefolds.*[*]

11/2021 Universität des Saarlandes, *On the boundedness of elliptic Calabi–Yau threefolds.*[*]

11/2021 Universität Basel, *On the boundedness of elliptic Calabi–Yau threefolds.*

09/2021 ZAG (Zoom Algebraic Geometry Seminar), *On the boundedness of elliptically fibered varieties.*[*]

05/2021 UCLA, *On the boundedness of elliptically fibered varieties.*[*]

03/2021 Università degli Studi di Pavia, *On the boundedness of elliptically fibered varieties.*[*]

02/2021 Washington University in St. Louis, *On the boundedness of elliptically fibered varieties.*[*]

02/2021 EPFL, *On the boundedness of elliptically fibered varieties.*[*]

09/2020 Rutgers University, *On the boundedness of n-folds of Kodaira dimension $n-1$.*[*]

07/2020 Leibniz Universität Hannover, *On the boundedness of n-folds of Kodaira dimension $n-1$.*[*]

06/2020 Online AG Seminar (run by Y. Liu at Yale and C. Xu at Princeton via Zoom), *On the boundedness of n-folds of Kodaira dimension $n-1$.*[*]

11/2018 Johns Hopkins University, *On a generalized canonical bundle formula and generalized adjunction.*

10/2018 Princeton University, *On a generalized canonical bundle formula and generalized adjunction.*

10/2018 The University of Utah, *On a generalized canonical bundle formula and generalized adjunction.*

10/2018 UC San Diego, *On a generalized canonical bundle formula and generalized adjunction.*

05/2017 SISSA Trieste, *Some facts about generalized polarized pairs.*

05/2017 Università degli Studi di Pavia, *Generic vanishing fails for surfaces in positive characteristic.*

Contributed talks

07/2022 Recent Advances in Classical Algebraic Geometry, Krakow, *On the boundedness of elliptic Calabi–Yau threefolds.*

05/2018 Midwest Algebraic Geometry Graduate Conference at UIC, *Some facts about generalized pairs.*

Posters

10/2018 *WAGS* at University of Oregon, *On a generalized canonical bundle formula.*

06/2018 *GAeL XXVI*, Strasbourg, France, *Boundedness of log canonical surface generalized pairs.*

10/2017 *WAGS* at UCLA, *Generic vanishing fails for surfaces in positive characteristic.*

06/2017 Linear Systems on Irregular Varieties in Como, Italy, *Generic vanishing fails for surfaces in positive characteristic.*

Teaching

EPFL

Fall 2024 **Instructor**, *Algebraic Geometry II - Schemes and Sheaves*

Fall 2023 **Instructor**, *Algebraic Geometry II - Schemes and Sheaves*

Spring 2023 **Head Assistant**, *Introduction to differential geometry*

Fall 2022 **Head Assistant**, *Structures Algébriques*

Fall 2021 **Head Assistant**, *Analyse I (Anglais)/Analysis I (English)*

UCLA

Spring 2021 **Instructor**, *Analysis*, MATH 131A

Winter 2021 **Instructor**, *Analysis*, MATH 131A

Fall 2020 **Instructor**, *Calculus of Several Variables*, MATH 32A, 2 sections

Summer 2020 **Instructor**, *Linear Algebra and Applications*, MATH 33A

Spring 2020 **Instructor**, *Analysis*, MATH 131A

Winter 2020 **Instructor**, *Analysis*, MATH 131A, 2 sections

Fall 2019 **Instructor**, *Linear Algebra and Applications*, MATH 33A

The University of Utah

Fall 2017 **Instructor**, *Calculus 2*, MATH 1220

Fall 2016 **Instructor**, *Calculus 1*, MATH 1210

Spring 2016 **Instructor**, *College Algebra for Business and Social Sciences*, MATH 1090

Fall 2015 **Instructor**, *College Algebra for Business and Social Sciences*, MATH 1090

Spring 2015 **Teaching Assistant**, *Engineering Calculus 1*, MATH 1310, 2 sections

Fall 2014 **Teaching Assistant**, *Engineering Calculus 1*, MATH 1310, 2 sections

Università degli studi di Pavia

Spring 2013 **Teaching Assistant**, *Geometry 1*, mathematics bachelor's program

Fall 2012 **Teaching Assistant**, *Linear Algebra*, mathematics and physics bachelor's program

Spring 2012 **Teaching Assistant**, *Geometry 1*, mathematics bachelor's program

Fall 2011 **Teaching Assistant**, *Linear Algebra*, mathematics and physics bachelor's program

Student supervision

Thesis supervision

Fall 2023 **Aliaksandra Novik**, MA thesis, *Interactions between Birational Geometry and Derived Categories*, EPFL.
Next: Ph.D. student at Imperial College London under Soheyla Feyzbakhsh and Richard Thomas.

Spring 2022 **Matthias Schuller**, BA project (equivalent to a bachelor's thesis), *Toric varieties*, EPFL.
Next: Master's student at EPFL.

2021–2022 **Gianni Petrella**, MA thesis, *Models of Trigonal Elliptic K3 Surfaces*, EPFL.
Next: Ph.D. student at the University of Luxembourg under Pieter Belmans.

Study project supervision

Spring 2025 **Romain Möri**, MA project (one semester project), main topic: Kodaira's vanishing theorem, EPFL.

Spring 2023 **Aliaksandra Novik**, MA project (one semester project), *Derived categories in algebraic geometry*, EPFL.

Fall 2021 **Gianni Petrella**, MA project (one semester project), *Kodaira's classification of algebraic surfaces*, EPFL.

Conferences, Seminars, and Workshops organization

Conferences and Workshops

April 2025 organizer, *Basel–Dijon–EPFL–Neuchâtel–Zŕich meeting* (Bernoulli Center, EPFL).

July 2023 co-organizer, *Collaborative workshop in Birational Geometry* (Bernoulli Center, EPFL).

March 2023 co-organizer, *Basel–Dijon–EPFL meeting* (Bernoulli Center, EPFL).

September 2022 co-organizer, *Foliations in Algebraic and Birational Geomety* (Bernoulli Center, EPFL).

Seminars

Spring 2025 co-organizer, Algebraic Geometry Seminar (EPFL).

Fall 2022 co-organizer, Algebraic Geometry Seminar (EPFL).

Fall 2022 organizer, arXiv preprint seminar (EPFL).

Spring 2022 organizer, arXiv preprint seminar (EPFL).

2019–2020 co-organizer, Algebra Seminar (UCLA).

2016–2018 organizer, Algebraic Geometry Student Seminar (U of Utah).

Service and Outreach

Reviewed papers or provided short opinions for: International Mathematics Research Notices, Annales de l'institut Fourier, Journal of the London Mathematical Society, Duke Mathematical Journal, Journal of Differential Geometry, Electronic Research Archive, International Journal of Mathematics, Crelle's Journal, American Journal of Mathematics, Forum of Mathematics Sigma, Épijournal de Géométrie Algébrique, Advances in Mathematics, Annali della Scuola Normale Superiore di Pisa, Manuscripta Mathematica, L'Enseignement mathématique, Algebra & Number Theory, Proceedings of the London Mathematical Society, Journal of Algebraic Geometry, Pacific Journal of Mathematics, Mathematische Nachrichten, Nagoya Mathematical Journal, Compositio Mathematica, Mathematische Zeitschrift, Journal of Algebra.

Reviewer for Math Reviews.

02/2025 Postdoc Selection Committee for the Chair of Algebraic Geometry (EPFL).

11/2024 Ph.D. Student Selection Committee for the Chair of Algebraic Geometry (EPFL).

04/2024 External examiner for the "Oral Qualifying Exam" of Daniel Apsley, advised by Harold Blum at The University of Utah.

12/2023	Ph.D. Student Selection Committee for the Chair of Algebraic Geometry (EPFL).
05/2022	Talk titled *On the Albanese fibration for singular varieties with nef anticanonical divisor* at the Birational Geometry Seminar (run by J. Moraga at UCLA via Zoom), a learning seminar aimed at graduate students interested in birational geometry.
03/2022	Ph.D. Student Selection Committee for the Chair of Algebraic Geometry (EPFL).
02/2022	Talk titled *The generalized canonical bundle formula* at the MMP Learning Seminar (run by J. Moraga at Princeton via Zoom), a learning seminar aimed at graduate students learning the Minimal Model Program.
01/2022	Postdoc Selection Committee for the Chair of Algebraic Geometry (EPFL).
Spring 2021	Course coordinator for Analysis 1 (MATH 131A) (UCLA).
2020–2021	Member of the Teaching Committee of the math department (UCLA).
Fall 2020	Course coordinator for Calculus of Several Variables (MATH 32A) (UCLA).
2018–2019	Co-founder and co-organizer of the mentorship program for incoming math graduate students (U of Utah).
2017–2018	Co-organizer of the recruitment weekend (U of Utah).
2015–2018	Contact for prospective and incoming international students (U of Utah).
2014–2016	T. Benny Rushing Math Tutoring Center, The University of Utah, tutor.

Languages

Italian	Native
English	Fluent
German	Beginner (A2)
French	Beginner (A2)