

CURRICULUM VITAE - DANIELE AGOSTINI

December 19, 2024

CONTACT INFORMATION

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POSITIONS

July 2022 - : Junior Professor (W1 Tenure-Track W3) at the Department of Mathematics of the Universität Tübingen.

July 2022 - December 2022: Researcher at the Max-Planck-Institut for Mathematics in the Sciences, Leipzig.

October 2020 - June 2022: Research Group Leader (W2) at the Max-Planck-Institut for Mathematics in the Sciences, Leipzig.

October 2018 - September 2020: Postdoc in the Algebraic Geometry group at the Humboldt-Universität zu Berlin.

April 2018 - September 2018: Postdoc in the Nonlinear Algebra group at the Max-Planck-Institut for Mathematics in the Sciences, Leipzig.

EDUCATION AND DEGREES

August 2014 - July 2018 : PhD studies in Mathematics at the Humboldt-Universität zu Berlin. Advisor: Prof. Dr. Gavril Farkas. Member of the Berlin Mathematical School, of the IRTG 1800 and of the DFG Schwerpunkt 1489.

October 2011 - December 2014 : *Diploma di Licenza* in Mathematics at the Scuola Normale Superiore, Pisa. Mark: 70 /70.

October 2011 - May 2014 : MSc (*Laurea Magistrale*) in Mathematics at the University of Pisa. Mark: 110/110 cum laude. Title of thesis: *Asymptotic syzygies of algebraic varieties*. Advisor: Prof. Giorgio Ottaviani.

October 2008 - September 2011 : BSc (*Laurea Triennale*) in Mathematics at the University of Pisa. Mark: 110/110 cum laude. Title of thesis: *Normalization of Noetherian rings* (in italian). Advisor: Prof. Patrizia Gianni.

GRANTS AND AWARDS

2025 - 2029: *SFB-TRR 195* PhD position for 4 years.

2024 - 2027: *POK0 - Positivity on K-trivial Varieties* PhD position for 3 years. This is a project funded by the ANR and the DFG, together with S. Boissiere (U Poitiers), E. Floris (U Poitiers), A. Küronya (U Frankfurt am Main), V. Lazć (U. Saarlandes), C. Lehn (U Bochum), A. Höring (U Nice), G. Pacienza (U Lorraine), A. Sarti (U Poitiers).

2024: Baden-Württemberg Stipendium for a research stay of three months for Nigerian students in Tübingen.

2023 - 2024: *SFB-TRR 195* Postdoc position for 18 months.

April 2022 - December 2022: *SAXAG (Saxonian Algebraic Geometry)* grant from the SMWK (Sächsisches Staatsministerium für Wissenschaft, Kultur und Tourismus), together with C. Lehn (TU Chemnitz) and R. Sinn (U Leipzig).

October 2017 - November 2017: DAAD scholarship for a research visit at Stony Brook University, USA.

August 2014 - July 2017 : PhD scholarship of the International Training and Research Group *Moduli and Automorphic Forms* of the DFG.

October 2011 - December 2014 : *Allievo Ordinario* at the Scuola Normale Superiore di Pisa.

PUBLICATIONS AND PREPRINTS

21. D. Agostini, I. Barros, K.-W. Lai. *On the irrationality of moduli spaces of projective hyperkähler manifolds*, *EPIGA* (to appear) arXiv:2307.07391.
20. D. Agostini, T. Çelik, J. B. Little, *On algebraic theta divisors and rational solutions of the KP equation*, *International Mathematics Research Notices* (2024).
19. D. Agostini, C. Fevola, A.-L. Sattelberger, S. Telen. *Vector spaces of generalized Euler integrals*, *Communications in Number Theory and Physics*, vol. 18 (2024), 327 – 370.
18. D. Agostini, H. Markwig, C. Nollau, V. Schleis, J. Sendra-Arranz, B. Sturmfels. *Recovery of Plane Curves from Branch Points*, *Discrete and Computational Geometry*, vol. 72, 451–475, (2024).
17. D. Agostini, *The Martens-Mumford Theorem and the Green-Lazarsfeld Secant Conjecture*, *Journal of Algebraic Geometry*, vol. 33 (2024), 629-654.
16. D. Agostini, T. Brysiewicz, C. Fevola, L. Kühne, B. Sturmfels, S. Telen. *Likelihood degenerations*, *Advances in Mathematics*, vol. 414 (2023), 108863.
15. D. Agostini, I. Barros, K.-W. Lai. *On the irrationality of moduli spaces of K3 surfaces*, *Transactions of the American Mathematical Society*, vol. 376 (2023), 1407-1426.
14. D. Agostini, T. Çelik, D. Eken. *Numerical reconstruction of curves from their Jacobians*, *Proceedings of the Conference "Arithmetic, Geometry, Cryptography, and Coding Theory 2021"*, *AMS Contemporary Mathematics*, vol 779 (2022) 1-12.
13. D. Agostini, C. Fevola, Y. Mandelstham, B. Sturmfels. *KP Solitons from Tropical Limits*, *Journal of Symbolic Computation*, vol. 114 (2023) 282-301.
12. D. Agostini, T. O. Çelik, B. Sturmfels. *The Dubrovin threefold of an algebraic curve*, *Nonlinearity*, vol. 34 (2021) 3783–3812..

11. D. Agostini, I. Barros. *Pencils on surfaces with normal crossings and the Kodaira dimension of $\overline{\mathcal{M}}_{g,n}$* , Forum of Mathematics SIGMA, vol. 9 (2021), 1-22.
10. D. Agostini, L. Chua. *Computing Theta Functions with Julia*, Journal of Software for Algebra and Geometry, vol. 11 (2021), 41-51.
9. D. Agostini. *Asymptotic syzygies and higher order embeddings*, IMRN, vol. 2022 (2022), 2934–2967.
8. D. Agostini, T. O. Çelik, J. Struwe, B. Sturmfels. *Theta surfaces*, Vietnam Journal of Mathematics, vol. 49, (2021), 319–347 .
7. D. Agostini, C. Améndola, K. Ranestad. *Moment identifiability of homoscedastic Gaussian mixtures*, Foundations of Computational Mathematics, vol. 21, (2021), 695–724
6. D. Agostini. *On the Prym map for cyclic covers of genus two curves*, Journal of Pure and Applied Algebra, vol. 224 (2020).
5. D. Agostini, L. Chua. *On the Schottky problem for genus five Jacobians with a vanishing theta null*, Ann. Scuola Norm. Scienze, vol. 22 (2021), 333-350.
4. D. Agostini, C. Améndola. *Discrete Gaussian distributions and theta functions*, SIAGA, vol. 3 (2019), 1-30.
3. D. Agostini, A. Küronya, V. Lozovanu. *Higher syzygies on surfaces with numerically trivial canonical bundle*, Math. Zeit., vol 293 (2019), 1071-1084.
2. D. Agostini. *A note on homogeneous ideals of polarized abelian surfaces*, Bull. London Math. Soc., vol. 49 (2017), 220-225.
1. D. Agostini, D. Alberelli, F. Grande, P. Lella. *The maximum likelihood degree of Fermat hypersurfaces*, Journal of Algebraic Statistics, vol. 6 (2015), 108-132.

24. D. Agostini, L. Ramesh, D. Shen. *Points on rational normal curves and the ABCT variety*, arXiv:2412.12514.
23. D. Agostini, D. Plaumann, R. Sinn, J. Wesner. *Plane quartics and heptagons*, arXiv:2408.15759.
22. D. Agostini, M. Kummer. *Secant varieties of curves, Ulrich bundles and the arithmetic writhe*, arXiv:2307.07543.

ORGANIZATIONAL ACTIVITIES

October 11, 2023: Organizer of a Syzygy Day at the Universität Tübingen.

July 10-14, 2023: Organizer of a minisymposium at the SIAM Conference in Applied Algebraic Geometry, Eindhoven. Together with Mario Kummer and Rainer Sinn.

November 7, 2022: Organizer of a *Moduli Day* in Leipzig, together with Christian Lehn and Rainer Sinn.

May 6, 2022: Organizer of a *K3 Day* in Leipzig, together with Christian Lehn and Rainer Sinn.

March 14-18, 2022: Organizer of the *Leipzig Lectures on Theta* in Leipzig (**canceled due to COVID**).

November 25, 2021: Organizer of the *Mini-Workshop on Curves and Riemann Surfaces* in Leipzig.

September 30 - October 4, 2019: Organizer of the *Fall School Algebraic Geometry+* in Berlin.

July 9 -10, 2019: Organizer of a minisymposium on *Riemann Surfaces* at the *SIAM Applied Algebraic Geometry* conference in Bern.

February 17 -19, 2016 : Organizer of the *4th BMS Student Conference* at the TU Berlin.

January 2015 - July 2017 : Organizer of the Student Seminar in Algebraic Geometry at the Humboldt-Universität zu Berlin.

INVITED TALKS AT WORKSHOPS, CONFERENCES AND OTHER EVENTS

September 29 - October 3, 2025: Retreat of the *POK0 Project*, Cetraro, Italy.

September 7 - 12, 2025: *Moduli, Hilbert schemes and singularities*, Cluj/Kolozsvár.

August 25 - 29, 2025: *Computations in Algebraic Geometry: Complex, Real, and Tropical*, ETH Zürich.

November 18 - 22, 2024: Retreat of the *POK0 Project*, Bochum.

September 30 - October 11, 2024: thematic program *Syzygies and Secants*, KAIST, Daejeon, Korea.

September 24 - 29, 2024: *Syzygies and Hilbert Schemes*, Krakow.

September 9 - 13, 2024: *Integral structures in geometry and representation theory*, Minisymposium. Paderborn.

December 2023: minicourse at the Institute Élie Cartan, Université de Lorraine, Nancy.

July 10 - 14, 2023: *Minisymposium on Algebraic Curves, Integrable Systems and Computer Algebra*, SIAM AG Conference, Eindhoven.

July 2023: *Algebra, Topology and Applications*, Ibadan. Lecturer of a minicourse.

June 18 - 24, 2023: *Recent Trends in Algebraic Geometry*, Oberwolfach.

January 6 - 7, 2023: *JMM 2023 - Special session on applications of Riemann Surfaces*, Boston.

December 12 - 16, 2022: *Birational complexity of algebraic varieties*, Stony Brook (invited participant).

November 28 - 30, 2022: *Pfaffians, tensors and applications*, Leipzig.

March 16, 2022: *Integrability and Applied Algebraic Geometry*, Edinburgh (virtual).

September 20 - 24, 2021: *Riposte Armonie: algebraic geometry together with Ciro Ciliberto*, Cetraro.

June 20 - 26, 2021: *Classical Algebraic Geometry*, Oberwolfach.

August 26 - 28, 2020: *A workshop on abelian varieties*, Roma (postponed).

July 13 - 16, 2020: *International Congress on Mathematical Software*, Braunschweig.

June 11 - 13, 2020: *Algebraic and Arithmetic Geometry Meeting*, München (canceled).

October 7 - October 11, 2019: *Algebraic Geometry+ Workshop*, Berlin.

April 15 - 19, 2019: *Rationality of algebraic varieties*, Schiermonnikoog.

May 29 - June 1, 2018: *Giornate di Geometria Algebrica ed Argomenti Correlati XIV*, Genova.

December 22, 2016: *Algebraic Geometry and Representation Theory in Rome*, Roma.

Various seminar talks in Europe, the USA, South Korea and Japan.

VISITS

September 2024: Visiting Prof. Jinhyung Park at KAIST, Daejeon.

February 2023: Visiting Prof. Jinhyung Park at KAIST, Daejeon.

March 2020: Visiting Prof. Bernard Deconinck at the University of Washington, Seattle.

October - December, 2017: Visiting Prof. Robert Lazarsfeld at Stony Brook University.

April - September, 2016: Visiting Prof. Dr. Carel Faber at the Universiteit Utrecht.

April - July, 2014: Visiting Prof. Dr. Frank-Olaf Schreyer at the Universität des Saarlandes.

TEACHING ACTIVITY

Winter Semester 2025-2025: Course *Geometrie* at the Universität Tübingen.

Summer Semester 2024: Course *Lineare Algebra I* at the Universität Tübingen.

Winter Semester 2023: Course on *Algebraic Structure*, part of *Linear Algebra II* at the Universität Tübingen.

Summer Semester 2023: Seminar on *Concrete Algebraic Geometry* at the Universität Tübingen.

Winter Semester 2022-2023: Course on *Algebraic Curves* at the Universität Tübingen.

Summer Semester 2022: Reading group on *Algebraic Geometry* at the Universität Tübingen.

Summer Semester 2021 - Wintersemester 2021/22: Organizer of a reading group on *Foundations of Algebraic Geometry* at the MPI-MiS Leipzig.

Winter Semester 2020 - 2021: Teacher of the course *Riemann Surfaces and Algebraic Curves*, together with Prof. Rainer Sinn, of the Universität Leipzig

Summer semester 2020: Teaching assistant for the course *Linear Algebra II*, at the Humboldt-Universität zu Berlin. Instructor: Prof. Dr. Bruno Klingler. Teaching assistant for the course *Algebraic Geometry II*, at the Humboldt-Universität zu Berlin. Instructor: Prof. Dr. Gavril Farkas.

Winter semester 2019-2020: Teaching assistant for the course *Linear Algebra I*, at the Humboldt-Universität zu Berlin. Instructor: Prof. Dr. Bruno Klingler.

Summer semester 2019: Teacher of the course *Algebraic Number Theory*, at the Humboldt-Universität zu Berlin. This course was voted by the students as the **second best** in the whole department.

Winter semester 2018-2019: Teaching assistant for the course *Analysis I*, at the Humboldt-Universität zu Berlin. Instructor: Dr. Alexander Fauck.

2012-2013: Tutor for the course *Algebra 1*, at the University of Pisa. Instructor: Prof. Ilaria del Corso.

SUPERVISION AND MENTORING

PhD students

- Kees Heesterbeek (2024-2027 expected) at the Universität Tübingen. Funded by the DFG.
- Clemens Nollau (2023-2026 expected) at the Universität Tübingen. Funded by the Universität Tübingen.
- Javier Sendra-Arranz (2021-2024) at the MPI Leipzig and at the Universität Tübingen. Funded by the Universität Tübingen, the MPI Leipzig and the “La Caixa” foundation.
- Claudia Fevola (2020-2023) together with Bernd Sturmfels at the MPI Leipzig. Funded by the IMPRG Graduate School. Otto Hahn medal of the Max Planck Society for 2024.

Postdocs:

- Felix Röhrle (Uni Tübingen), funded by the SFB-TRR 195.
- Angel Rios Ortiz (MPI Leipzig), funded by the MPI and the SAXAG grant. Next position: postdoc Université Paris-Saclay.
- Leonid Monin (MPI Leipzig), funded by the MPI. Next position: postdoc KU Leuven.
- Enis Kaya (MPI Leipzig), funded by the MPI. Next position: postdoc EPF Lausanne.

I have mentored PhD students at the MPI Leipzig and at the HU Berlin.

I have supervised 3 Bachelor theses in Mathematics at the HU Berlin, 1 Bachelor thesis in Physics at the Universität Leipzig and 1 Bachelor thesis in Mathematics at the Universität Tübingen. I have supervised a Master thesis at the Universität Tübingen and I have co-advised one Master Thesis at the HU Berlin.

SERVICE AND OTHER ACTIVITIES

October 2022 - : International Coordinator of the Institute of Mathematics, Universität Tübingen.

October 2021 - December 2021: Member of the Postdoc admission committee at the MPI Leipzig.

October 2020 - December 2020: Member of the Postdoc admission committee at the MPI Leipzig.

October 2018 - September 2020: Postdoctoral member of the MATH+ Excellence initiative in Berlin. In particular, I was involved in the organisation of the special semester in Algebraic Geometry of the MATH+ initiative.

January - December, 2015: Student representative at the Berlin Mathematical School.

Reviewer for various international publications.

November 10 - 30, 2012: Popularization activities within the exhibit *Poliedri in Pezzi*, Pisa, Italy.

OTHER SKILLS

Native speaker of Italian. Very good knowledge of English and good knowledge of German.

Programming experience in Macaulay2, Julia, Python.