

CURRICULUM VITAE - DANIELE AGOSTINI

September 21, 2023

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

2023 - 2024: Baden-Württemberg Stipendium for a research stay of Nigerian students in Tübingen.

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

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* (2023).
17. D. Agostini, *The Martens-Mumford Theorem and the Green-Lazarsfeld Secant Conjecture*, *Journal of Algebraic Geometry*, to appear.
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. Mandelstam, 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.
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22. D. Agostini, M. Kummer. *Secant varieties of curves, Ulrich bundles and the arithmetic writhe*, arXiv:2307.07543.
 21. D. Agostini, I. Barros, K.-W. Lai. *On the irrationality of moduli spaces of projective hyperkähler manifolds*, arXiv:2307.07391.
 20. D. Agostini, C. Fevola, A.-L. Sattelberger, S. Telen. *Vector spaces of generalized Euler integrals*, arXiv:2208.08967.
 19. D. Agostini, T. Çelik, J. B. Little, *On algebraic theta divisors and rational solutions of the KP equation*, arXiv:2112.03147.

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

- 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 and Japan.

- September 24-28, 2018:** short talk at the *Summer school in Algebraic Statistics, University of Tromsø, Tromsø.*
- July 17, 2018:** Short talk at *Classical Algebraic Geometry, Oberwolfach.*
- October 14, 2017:** Poster at *AGNES, Northeastern University.*
- September 7, 2017:** Poster at the *School (and Workshop) on Syzygies, Trento.*

VISITS

- 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 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

- Clemens Nollau (2023-2026 expected) at the Universität Tübingen. Funded by the Universität Tübingen.
- Javier Sendra-Arranz (2021-2024 expected) 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 expected) together with Bernd Sturmfels at the MPI Leipzig. Funded by the IMPRG Graduate School.

Postdocs:

- 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 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.