

CURRICULUM VITAE

ANNA-LAURA SATTELBERGER, DR. RER. NAT.

BORN DECEMBER 27, 1991

CONTACT

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EDUCATION AND ACADEMIA

09/21 – 12/21 **Research stay** with Prof. Wojciech Chachólski
Brunner & Partners MathDataLab, KTH Royal Institute of Technology, Stockholm

07/19 – today **Postdoctoral researcher** in the field of algebraic and topological data analysis
Research Group in Nonlinear Algebra of Prof. Bernd Sturmfels
Max Planck Institute for Mathematics in the Sciences, Leipzig, Germany

10/15 – 05/19 **Doctoral studies in mathematics** in the field of algebraic analysis
Thesis: *Topological Computation of Stokes Data of Weighted Projective Lines*
Advisors: Prof. Marco Hien and Prof. Maxim Smirnov
University of Augsburg, Germany

10/13 – 07/15 **Master of Science with Honors** in mathematics within the program *TopMath*
Thesis: *From Turrittin–Levelt to the lower semi-continuity of families of \mathcal{D} -modules*
Technical University of Munich, Germany

10/12 – 09/13 **Additional certificate: Elite Bachelor** in the program *TopMath* of the *Elite Network of Bavaria*
University of Augsburg/Technical University of Munich, Germany

10/10 – 08/13 **Bachelor of Science** in mathematics, minor subject: philosophy
Thesis: *Irregularity and spectral norm of differential modules*
University of Augsburg, Germany

PUBLICATIONS AND PREPRINTS

2021 **The Shift-Dimension of Multipersistence Modules** (with W. Chachólski and R. Corbet). arXiv:2112.06509, 2021. Submitted.

2021 **Nonlinear Algebra and Applications** (with P. Breiding, T. Çelik, T. Duff, A. Heaton, A. Maraj, L. Venturello, and O. Yürük). arXiv:2103.16300, 2021.
To appear in *Numerical Algebra, Control and Optimization*.

2021 **Combinatorial Differential Algebra of \mathbf{x}^P** (with R. Ait El Manssour). arXiv:2102.03182, 2021. Submitted.

2021 **Maximum Likelihood Estimation from a Tropical and a Bernstein–Sato Perspective** (with R. van der Veer). arXiv:2101.03570, 2021. Submitted.

2021 **Algebraic Analysis of the Hypergeometric Function ${}_1F_1$ of a Matrix Argument** (with P. Görlach and C. Lehn). *Beiträge zur Algebra und Geometrie*, 62:397–427, 2021.

2020 **Algebraic Analysis of Rotation Data** (with M. F. Adamer, A. C. Lőrincz, and B. Sturmfels). *Algebraic Statistics*, 11(2):189–211, 2020.

2019 **D-Modules and Holonomic Functions** (with B. Sturmfels). arXiv:1910.01395, 2019.
To appear in *Varieties, polyhedra, computation of EMS Series of Congress Reports*.

2021 **Topological computation of Stokes matrices of some weighted projective lines**. *Manuscripta mathematica*, 164(3):327–347, 2021.

TEACHING AND WORK EXPERIENCE

- 12/2020 – today **Equal Opportunity Representative**
Max Planck Institute for Mathematics in the Sciences, Leipzig, Germany
- 09/15 – 06/19 **Research assistant** of Prof. Marco Hien at the University of Augsburg, Germany
 ◇ Tutoring diverse lectures in Mathematics
 ◇ Tutoring and organizing a help desk for students of Mathematics
 ◇ Tutoring and organizing a study program for pupils
- 08/13 – 08/15 **Scientific assistant in the project *Best MINT*** of the Bavarian State Ministry for Education, Science and the Arts at the University of Augsburg, Germany
- 08/12 – 09/12 **Intern** at *SGL Carbon* in Meitingen, Germany
Mathematical modeling of the extrusion of ceramic materials
- 10/11 – 07/13 **Student assistant** at the University of Augsburg, Germany
Tutoring lectures on Linear Algebra and Commutative Algebra

SELECTED TALKS AND SCIENTIFIC ORGANIZING

- Spring 22 **Algebra seminar**
Invited talk: *TBA*
University of Tromsø – The Arctic University of Norway
- 11/2021 **Seminar Applied Combinatorics, Algebra, Topology & Statistics**
Invited talk: *Algebraic Aspects of Multiparameter-TDA*
KTH Royal Institute of Technology, Stockholm
- 08/2021 **SIAM Conference on Applied Algebraic Geometry (AG21)**
Session: Differential Equations in Algebraic Geometry and Beyond
Invited talk: *D-Modules in (Algebraic) Statistics*
Texas A&M University
- 07/2021 **Workshop on Math of Data**
Talk: *Stable Invariants for Multipersistence Modules*
MPI MiS, Leipzig
- 07/2021 **Mathematical Congress of the Americas**
Session: Differential operators in algebraic geometry and commutative algebra
Invited talk: *D-Modules in (Algebraic) Statistics*
University of Buenos Aires
- 06/2021 **Seminar on Nonlinear Algebra**
Talk: *How does an algebraic geometer interpret Taylor series?*
MPI MiS, Leipzig
- 06/2021 **MEGA 2021**
Talk: *Combinatorial Differential Algebra of x^p*
University of Tromsø – The Arctic University of Norway
- 04/2021 **Seminar on the Mathematics of Amplitudes**
Invited Talk: *MLE from a Tropical and a Bernstein–Sato Perspective*
IAS Princeton, MPI MiS Leipzig, and MPP Munich
- 02/2021 **Onlineseminar on Applied Algebra and Analysis**
Invited Talk: *MLE from a Tropical and a Bernstein–Sato Perspective*
TU Braunschweig and Osnabrück University

- 01/2021 **OSCAR rings in the new year**
Software presentation: Singular in OSCAR
MPI MiS, Leipzig
- 11/2020 **Workshop Computational Algebra 2020**
Invited Talk: *Algebraic Analysis of the Hypergeometric Function ${}_1F_1$ of a Matrix Argument*
TU Kaiserslautern
- 09/2020 **Seminar on Nonlinear Algebra**
Talk: *Algebraic Tools for Topological Data Analysis*
MPI MiS, Leipzig
- 07/2020 **ICMS 2020 Session: Computational Algebraic Analysis**
Scientific organization together with Dr. Christoph Koutschan
TU Braunschweig
- 03/2020 **Seminar Number Theory and Algebraic Geometry**
Invited talk: *D-modules: Linear PDEs from an algebraic perspective*
KU Leuven
- 11/2019 **Seminar on Symbolic Computation**
Invited talk: *Computational Algebraic Analysis*
RICAM, Linz
- 11/2019 **Geometric Analysis Seminar**
Invited talk: *D-modules and applications*
Goethe University of Frankfurt
- 10/2019 **European Women in Mathematics: German Chapter Conference 2019**
Talk: *Computational Algebraic Analysis*
MPI MiS, Leipzig
- 09/2019 **Fall School: Varieties, Polyhedra, Computation**
Exercise session accompanying a lecture series on *D-modules and holonomic functions* delivered by Prof. Bernd Sturmfels
Berlin Mathematics Research Center
- 09/2019 **Seminar: Computing with D-modules II**
Scientific organization of the seminar together with Prof. Christian Sevenheck
Talk: *Probability distributions as holonomic functions*
MPI MiS, Leipzig
- 08/2019 **Seminar: Computing with D-modules**
Talk: *How to compute? Part 2: Plural*
MPI MiS, Leipzig
- 05/2019 **Otto–Sturmfels-Day**
Invited talk: *Algebraic Analysis: D-Modules and PDEs*
MPI MiS, Leipzig
- 04/2019 **Workshop: D-modules and the Riemann–Hilbert-correspondence**
Invited talk: *Riemann–Hilbert for D-modules arising from weighted projective lines*
Humboldt University of Berlin
- 07/2018 **Oberseminar Algebra und Theoretische Mathematik**
Invited talk: *Topological Computation of Stokes Data of Weighted Projective Lines*
TU Chemnitz

SCHOLARSHIPS AND ACHIEVEMENTS

2022	Selected candidate for <i>Sign Up! Careerbuilding 2022</i> Career building program of the Max Planck Society in cooperation with EAF Berlin
09/16 – 05/19	German Academic Scholarship Foundation Doctoral scholarship
11/2015	Hurwitz Society of the Technical University of Munich Honoring for the Master's degree passed with distinction
10/12 – 09/15	Max Weber-Program of the German Academic Scholarship Foundation Scholarship
04/11 – 03/13	Deutschlandstipendium

FURTHER QUALIFICATIONS

Language	German (native language) French (advanced; level C1)	English (fluent) Italian (upper intermediate; level B2)
Teaching	Acquisition of the “Certificate for Teaching in Higher Education of the Bavarian Universities” Diverse soft skill courses on rhetoric, voice training, moderation, team heading, consulting students, and many more in the program ProfiLehre	
Interests	<ul style="list-style-type: none"> ◇ Music (playing the piano, base guitar, and ukulele, singing) ◇ Sports (hiking, yoga, climbing, racing bike, swimming) ◇ Painting (partly inspired by mathematics) ◇ Espresso 	

REFERENCES

- ◇ **Prof. Dr. Bernd Sturmfels**
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Inselstraße 22, D-04103 Leipzig
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- ◇ **Prof. Dr. Christian Lehn**
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- ◇ **Prof. Dr. Wojciech Chachólski**
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