Marie-Charlotte Brandenburg

Curriculum Vitæ

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Education and Professional Experience

2020 – today	**Max Planck Institute for Mathematics in the Sciences** Ph.D. Student Research Group: Non-Linear Algebra Advisor: Rainer Sinn
2019 – 2020	**Berlin Mathematical School | Freie Universität Berlin** Ph.D. Student Research Groups: Discrete Geometry, Discrete Methods in Algebraic Geometry Advisor: Rainer Sinn
2019	**Freie Universität Berlin** M.Sc. Mathematics Master Thesis: *Competitive Equilibrium and Lattice Polytopes* Advisor: Christian Haase
2017	**Freie Universität Berlin** B.Sc. Mathematics Bachelor Thesis: *A 4-Simple 4-Simplicial 8-Polytope* Advisor: Günter M. Ziegler
2016 – 2017	**Minodes GmbH** Data Analyst Business Intelligence

Publications and Preprints

2021	**Intersection Bodies of Polytopes** joint work with Katalin Berlow, Chiara Meroni and Isabelle Shankar *Beiträge zur Algebra und Geometrie (to appear)* arXiv:2110.05996
2021	**Competitive equilibrium always exists for combinatorial auctions with graphical pricing schemes** joint work with Christian Haase and Ngoc Mai Tran arXiv:2107.08813

2021	**Investigation of hydro-mechanical processes in fluid-saturated fractured rock based on numerical model generation**
	joint work with Nele Pollmann, Julia Gallas, Lucas Witte and Tobias Backers
	IOP Conference Series: Earth and Environmental Science, 833(1):012107, August 2021
	doi:10.1088/1755-1315/833/1/012107
2020	**Multivariate Volume, Ehrhart and h^*-Polynomials of Polytropes**
	joint work with Sophia Elia and Leon Zhang
	arXiv:2006.01920

Research Talks

December 2021	**Intersection Bodies of Polytopes**
	Conference for Women in Algebra and Symbolic Computation II
	TU Kaiserslautern, Germany
November 2021	**Intersection Bodies of Polytopes**
	Research Seminar Nonlinear Algebra
	Max Planck Institute for Mathematics in the Sciences, Leipzig, Germany
May 2021	**The Positive Tropicalization of Low Rank Matrices**
	Research Seminar Nonlinear Algebra
	Max Planck Institute for Mathematics in the Sciences, Leipzig, Germany
July 2020	**Multivariate Volume, Ehrhart and h^*-Polynomials of Polytropes**
	Research Seminar Discrete Geometry
	Freie Universität Berlin, Germany
October 2019	**Competitive Equilibrium and Lattice Polytopes**
	Research Seminar Algebra and Geometry
	Otto-von-Guericke-Universität Magdeburg, Germany
December 2018	**Product-Mix Auctions, Competitive Equilibrium and Lattice Polytopes**
	Colloquium
	Graduate School "Facets of Complexity", Berlin, Germany

Posters

December 2019	**Multivariate Volume, Ehrhart and h^*-Polynomials of Polytropes**
	Conference for Women in Algebra and Symbolic Computation I
	TU Kaiserslautern, Germany

Teaching

2020	**Linear Algebra II**
	aimed at first-year math students
	Teaching Assistant
	Freie Universität Berlin

2019   **Panorama der Mathematik**
              aimed at first-year math teachers in training
              Teaching Assistant
              Freie Universität Berlin

2018   **Geometry**
              aimed at advanced bachelor and early master students
              Teaching Assistant
              Freie Universität Berlin

Organization

2022   **AlToGeLiS**
              Consotrium for revealing structures of data with algebra, topology, and geometry

2019   **MATH+ Algebraic Geometry Research Retreat**
              Workshop within the MATH+ Thematic Einstein Semester on Algebraic Geometry

Extended Stays

June 2019 –   **Max Planck Institute for Mathematics in the Sciences**
September 2019   Leipzig, Germany
                   Research Group: Non-Linear Algebra

January 2019 –   **Simons Institute for the Theory of Computing**
February 2019   Berkeley, CA, USA
                   Program: Geometry of Polynomials