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

Intersection Bodies of Polytopes

2021	Conference for Women in Algebra and Symbolic Computation
	Bad Dürkheim, Germany

2021	Research Seminar Nonlinear Algebra
	Max Planck Institute for Mathematics in the Sciences, Leipzig, Germany

The Positive Tropicalization of Low Rank Matrices

2021	Research Seminar Nonlinear Algebra
	Max Planck Institute for Mathematics in the Sciences, Leipzig, Germany

Multivariate Volume, Ehrhart and h^*-Polynomials of Polytropes

2020	Research Seminar Discrete Geometry
	Freie Universität Berlin, Germany

Product-Mix Auctions, Competitive Equilibrium and Lattice Polytopes

2019	Reseach Seminar Algebra and Geometry
	Otto-von-Guericke-Universität Magdeburg, Germany

2018	Colloquium
	Gradute School "Facets of Complexity", Berlin, Germany

Posters

2019	**Multivariate Volume, Ehrhart and h^*-Polynomials of Polytropes**
	Conference for Women in Algebra and Symbolic Computation
	Bad Dürkheim, 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

Service

2019 - 2021   Co-organizer for a reading group on toric geometry
2019   Co-organizer of the Workshop *MATH+ Algebraic Geometry Research Retreat*

Extended Stays

06/2019 –   **Max Planck Institute for Mathematics in the Sciences**
09/2019   Leipzig, Germany
            Research Group: Non-Linear Algebra

01/2019 –   **Simons Institute for the Theory of Computing**
02/2019   Berkeley, CA, USA
            Program: Geometry of Polynomials