Marie-Charlotte Brandenburg

Curriculum Vitæ

Inselstr. 22
04103 Leipzig
marie.brandenburg@mis.mpg.de
mariebrandenburg.github.io

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 – 2019
Freie Universität Berlin
Student Assistant
Research Group: Discrete Geometry

2016 – 2017
Minodes GmbH
Data Analyst
Business Intelligence

2016
Freie Universität Berlin
B.Sc. Mathematics
Bachelor Thesis: *A 4-Simple 4-Simplicial 8-Polytope*
Advisor: Günter M. Ziegler

Publications

2022
Intersection Bodies of Polytopes
with Katalin Berlow, Chiara Meroni and Isabelle Shankar
Beiträge zur Algebra und Geometrie / Contributions to Algebra and Geometry, January 2022
doi:10.1007/s13366-022-00621-7

2021
Investigation of hydro-mechanical processes in fluid-saturated fractured rock based on numerical model generation
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

Preprints

2021 **Competitive equilibrium always exists for combinatorial auctions with graphical pricing schemes**
with Christian Haase and Ngoc Mai Tran
arXiv:2107.08813

2020 **Multivariate Volume, Ehrhart and h^*-Polynomials of Polytropes**
with Sophia Elia and Leon Zhang
arXiv:2006.01920

Research Talks

February 2022 **Intersection Bodies of Polytopes**
Colloqium
Graduate School "Facets of Complexity", Berlin, Germany

December 2021 **Intersection Bodies of Polytopes**
Conference for Women in Algebra and Symbolic Computation II
Technische Universität 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**
Teaching Assistant
for a class for first-year math students
Freie Universität Berlin

2019 **Panorama der Mathematik**
Teaching Assistant
for a class for first-year math teachers in training
Freie Universität Berlin

2018 **Geometry**
Teaching Assistant
for a class for advanced bachelor and early master students
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 – September 2019 **Max Planck Institute for Mathematics in the Sciences**
Leipzig, Germany
Research Group: Nonlinear Algebra

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