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Education

Freie Universität Berlin Germany

Ph.D. in Mathematics, Defended March 2022 2018 – 2022

Dissertation: *Three Ehrhart Theories & Simplicial Hyperplane Arrangements*

Advisors: Christian Haase and Jean-Philippe Labbé

Freie Universität Berlin Germany

Master of Science in Mathematics 2016 – 2018

Master's Thesis: *A Survey of Quotient Posets*

Advisor: Jean-Philippe Labbé

University of California, Berkeley USA

Bachelor of Arts in Pure Mathematics (graduated with honors) 2012 – 2016

Honors Bachelor's Thesis: *Realizing Regular Embeddings of Complete Graphs*

Advisors: Kathryn Mann and Bernd Sturmfels

Research Interests

Discrete geometry, algebraic and enumerative combinatorics, Ehrhart theory

Honors

Scholar of the Facets of Complexity Research Training Group 2018 – 2022

Scholarship holder (Berlin Mathematical School) 2016 – 2018

Haas Scholar (2015), Bergeron Scholar (2015), Cal NERD Scholar (2015),

PROTON Scholar (2015), Cal Alumni Leadership Award Scholar (2012),

Davis-Bahcall Scholar (2012)

Publications

Congruence Normality of Simplicial Hyperplane Arrangements via Oriented Matroids

With Michael Cuntz and Jean-Philippe Labbé

Annals of Combinatorics, 2021, DOI: 10.1007/s00026-021-00555-2

Rational Ehrhart Theory

With Matthias Beck and Sophie Rehberg

To appear in Proceedings of the 34th International Conference FPSAC 2022,

October 2021, arXiv:2110.10204, 21 pages

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

With Marie-Charlotte Brandenburg and Leon Zhang

To appear in the Journal of Symbolic Computation special issue for MEGA 2021,

August 2021, arXiv:2006.01920, 19 pages

Publications Cont.	Techniques in Equivariant Ehrhart Theory With Donghyun Kim and Mariel Supina May 2022, arXiv:2205.05900, 35 pages	
Selected Talks		
<i>Invited Seminar</i>	Combinatorics Seminar, KTH, Stockholm	2022
	Algebra and Discrete Mathematics Seminar, UC Davis	2022
	Graduate Online Combinatorics Colloquium	2020
	Applied Algebra Seminar, York University, Canada	2020
	Doctorants en Géométrie Combinatoire, Sorbonne Université, Paris	2020
<i>Conference</i>	Convex and Discrete Day, FU Berlin	2022
	(Polytop)ics Conference, Max Planck Institute, Leipzig, Online	2021
<i>Expository</i>	<i>The Classification of Finite Reflection Groups</i> , PhD Defense, FU Berlin	2022
	Discrete Geometry Graduate Student Seminar, FU Berlin: <i>Coxeter Groups</i>	2022
	<i>Equivariant Ehrhart Theory: Using Symmetric Decompositions</i>	2021
Teaching Experience	Bachelor's Thesis Co-Advisor (with Prof. Matthias Beck) Student: Nikolaj Gus, Topic: exponential generating functions	Summer 2021
	Organizer, Discrete Geometry Graduate Student Seminar	2020 – 2022
	Grader, Mathematics (Freie Universität Berlin) Discrete Geometry 3, Course instructor: Matthias Beck	Winter 2019 – 2020
Industry experience	Vantage Point History Scientific Consultant, As needed Create explanations of research in the physical sciences for the layperson. Prepare historians with scientific background. Organize data in spreadsheets.	Rapid City, South Dakota 2021-2022
	Lawrence Berkeley National Laboratory Student Researcher for the Majorana Demonstrator Experiment Analyze the dead layer within the experiment's germanium detectors. Characterize front end electronics' noise performance.	Berkeley, California 2013-2016
Conference Organization	Organizer, Berlin Mathematical School Student Conference	2020
Other Conferences	SageDays100: Geometry and Dynamics of Surfaces, Bonn	2019
	SageDays98: Women in Sage, Crete	2019
	Encuentro Colombiano de Combinatoria, Colombia	2018

Service & Outreach

Reviewer for Annals of Combinatorics

2022

Berlin Mathematical School Student Representative

2018 – 2020

Represent BMS students at Board Meetings, present motions on students' behalf, organize BMS student conference, lead social activities

Berlin Mathematical School Peer Mentor

2018 – 2019

Mentor an incoming BMS student with similar interests

Skills

Programming

Contributor to SageMath:

Authored tickets (available at [https://trac.sagemath.org/ticket/\[ticket number\]](https://trac.sagemath.org/ticket/[ticket number])):

#27637: *Compute the equivariant Ehrhart H^* -vector* 2021

#28247: *Parametrize the hypercube functions in the library of polytopes* 2020

#28413: *Compute the Ehrhart h^* -vector for rational polytopes* 2020

#18957: *Compute the Ehrhart polynomial for polytopes defined over \mathbb{Q}* 2019

Proficient in: python, \LaTeX , GitHub

Languages

English (native), German (advanced), Italian (basic)

Other Interests

Music, knitting, film photography, flora of California