

# Birte Ostermann

## Curriculum Vitae

Technische Universität Braunschweig  
Institut für Analysis und Algebra  
AG Algebra  
Universitätsplatz 2  
38106 Braunschweig, Germany  
✉ birte.ostermann@tu-bs.de

### Employment and Education

- Since Feb 2023 **PhD student**, *Department of Mathematics, Technische Universität Braunschweig, Braunschweig, Germany.*  
Advisor: Timo de Wolff
- Oct 2020 – Jan 2023 **Master of Science in Mathematics**, *Technische Universität Braunschweig, Braunschweig, Germany.*  
Advisor: Sebastian Stiller
- Aug 2019 – Jan 2020 **Exchange student**, *Syddansk Universitet, Odense, Denmark.*
- Oct 2017 – Aug 2020 **Bachelor of Science in Mathematics**, *Technische Universität Braunschweig, Braunschweig, Germany.*  
Advisor: Harald Löwe
- Oct 2016 – July 2017 **Leibniz Kolleg**, *Eberhard Karls Universität Tübingen, Tübingen, Germany.*  
Program of General Studies

### Awards and Scholarships

#### Scholarships

- Dec 2017 – Jan 2023 **Scholarship of the *Studienstiftung des deutschen Volkes*.**  
German Academic Scholarship Foundation

### Publications

#### Preprints

1. **Revealing Hidden Physical Nonclassicality with Nonnegative Polynomials**  
with T.-A. Ohst, B. Yadin, T. de Wolff, O. Gühne, H.-C. Nguyen, see [ArXiv 2403.09807](#)
2. **A Speed-up for Helsgaun's TSP Heuristic by Relaxing the Positive Gain Criterion**  
with S. Ammann, S. Stiller and T. de Wolff, see [ArXiv 2401.16149](#)

#### Theses

1. **Grover Type Speedups and Traveling Salesman Problem**  
Master's thesis, 2023
2. **Das Zahlkörpersieb und Kryptographie**  
Bachelor's thesis, 2020

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## Talks & Presentations

- Apr 10, 2024 **Graduate Student Meeting on Applied Algebra and Combinatorics**, *Freie Universität*, Berlin, Germany.  
A Speed-up for Helsgaun's TSP Heuristic by Relaxing the Positive Gain Criterion  
(Poster Presentation)
- Feb 16, 2024 **Workshop on Applied Algebra, Inverse Problems and Image Processing**, *Technische Universität Braunschweig*, Braunschweig, Germany.  
SONC Decompositions with Symbolic Coefficients in Applications
- Jun 21, 2023 **Special Seminar**, *Max Planck Institute for Mathematics in the Sciences*, Leipzig, Germany.  
My Research in Eight Minutes

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## Activities & Past Events

- Apr 10-12, 2023 **Graduate Student Meeting on Applied Algebra and Combinatorics**, *Freie Universität*, Berlin, Germany.
- July 10-14, 2023 **SIAM Conference on Applied Algebraic Geometry (AG23)**, *Eindhoven University of Technology*, Eindhoven, The Netherlands.
- Jun 12-23, 2023 **MSRI-MPI Leipzig Summer Graduate School on Algebraic Methods for Biochemical Reaction Networks**, *Max Planck Institute for Mathematics in the Sciences*, Leipzig, Germany.  
Teaching Assistant
- Apr 26-28, 2023 **Graduate Student Meeting on Applied Algebra and Combinatorics**, *KTH*, Stockholm, Sweden.
- Mar 13-14, 2023 **Research Data in Discrete Mathematics**, *Max Planck Institute for Mathematics in the Sciences*, Leipzig, Germany.
- Aug 14-19, 2022 **Bad Honnef Summer School on Quantum Computing**, *Physikzentrum Bad Honnef*, Bad Honnef, Germany.

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## Teaching

### [Technische Universität Braunschweig](#)

- Winter 21/22 **Numerical Analysis for Computer Scientists**, *Teaching Assistant*.  
lecturer: Matthias Bollhöfer
- Summer 21 **Linear Algebra 2**, *Teaching Assistant*.  
lecturer: Bettina Eick
- Winter 20/21 **Linear Algebra 1**, *Teaching Assistant*.  
lecturer: Bettina Eick
- Summer 20 **Algebra for Computer Scientists**, *Teaching Assistant*.  
lecturer: Bettina Eick
- Summer 19 **Linear Algebra 2**, *Teaching Assistant*.  
lecturer: Dirk Lorenz
- Winter 18/19 **Discrete Mathematics for Computer Scientists**, *Teaching Assistant*.  
lecturer: Tobias Moede