

Dominic Bunnett

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Institut für Mathematik
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Education

- **Freie Universität Berlin**
Doctor of Philosophy in Mathematics
October 2015-July 2019 .
Thesis: Moduli of hypersurfaces in toric orbifolds
Advisor: Prof. Victoria Hoskins.
 - **University of Warwick**
BSc and MMath, 2011-2015, 1st class.
Thesis: Hodge theory and the Torelli theorem for curves
Advisor: Prof. Miles Reid.
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Positions held

- **Technische Universität Berlin** October 2021 - Current
Postdoc
Mentor: Peter Bürgisser
 - **Makerere University Kampala** April 2022 - January 2023
Lecturer
 - **Technische Universität Berlin** August 2019 - May 2021
Postdoc in Einstein Fellowship
Mentors: Michael Joswig and Bernd Sturmfels
 - **University of Oxford** April - June 2019
Visiting Researcher
Visiting: Frances Kirwan
 - **Freie Universität Berlin** September 2015 - March 2019
Doktorand / Wissenschaftlicher Mitarbeiter
Advisor: Victoria Hoskins
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Papers

- On the moduli of hypersurfaces in toric orbifolds. *Proceedings of the Edinburgh Mathematical Society.* 2024; 67(2): 577-616.
- Determinantal representations of the cubic discriminant - *joint with Hanieh Keneshlou.* *Le Matematiche*, Vol. 75, 2020.
- Generalised cone complexes and tropical moduli in polymake. *joint with Michael Joswig and Julian Pfeifle.* In *Proceedings of the 2023 International Symposium on Symbolic and Algebraic Computation (ISSAC '23).* Association for Computing Machinery, New York, NY, USA, 100–106.

Preprints

- Moduli of Bridgeland semistable triples *joint with Alejandra Rinco-Hidalgo.*
- Embeddings of weighted projective spaces *joint with Praise Adeyemo and Fabián Levicán-Santibáñez.* arXiv:2510.05076

Research Visits

- Isaac Newton Institute, *New Equivariant Methods in Geometry*, January-June 2024
- AIMS Rwanda, *visiting* Jan Hazla, January 2023
- Essex Univeristy, Colchester, *visiting* Jesus Martinez Garcia, April 2022
- International Centre of Theoretical Physics, Trieste, *visiting* Alejandra Rincon, March 2022
- University of Oxford,, *visiting* Praise Adeyemo and Balázs Szendrői, January 2022
- Mathematisches Forschungsinstitut Oberwolfach, Reseach in Pairs, September 2021
- AIMS Ghana, Guest Lecturer: Introduction to algebraic geometry, Winter Semester 2020
- International Centre of Theoretical Physics, Trieste, *visiting* Tarig Abdelgadir, January 2019

Software - Available at github.com/dombunnett

- Reduced submodules of finite dimensional polynomial modules, `python`
- Determinantal representations of the cubic discriminant, `M2`
- Automorphism group of a projective toric orbifold, `polymake`
- Non-normal simplices and weighted projective spaces, `polymake`

Organisational Work

- Organiser: Workshop on homological algebra and discrete geometry, Makerere university, Kampala 2021
- Organiser: Workshop on Nonlinear algebra, TU Berlin, 2020
- Group Leader: Cubic surfaces workshop, University of Oslo, 2019
- Facilitator: EAUMP-ICTP Summer school on Homological Methods in Algebra and Geometry, University of Dar-es-Salaam, 2018
- Organiser: Research seminar - Further topics in geometric invariant theory, Freie Universität Berlin, Summer Semester 2016

Teaching

- Summer Semester 2023, Algebra II (Commutative Algebra), TU Berlin
- Summer Semester 2022, Algebraic Geometry, Makerere University
- Winter semester 2021/22, Algebra I (Galois Theory, auf Deutsch), TU Berlin
- Intro to Homological algebra, December 2021 workshop EAALG
- Polyhedral geometry and polymake, Abram Gannibal workshop, 2020
- Summer Semester 2020, Derived categories in algebraic geometry, Makerere University
- Singularities of affine hypersurfaces, Macaulay2 workshop, 2020
- Winter semester 2017/18, Linear Algebra I (auf Deutsch), FU Berlin
- Summer semester 2017, Linear Algebra II (auf Deutsch), FU Berlin
- Winter semester 2016/17, Differential Geometry I (Berlin mathematics school)
- Summer of 2014, St. Peters Kubatana High School, Harare, Zimbabwe. Advanced level mathematics
- 2014-2015, Tutor for undergraduates - analysis, linear algebra, abstract algebra, calculus, Warwick university
- 2012-2015, Private tutor for a number of A-level and GCSE students, Warwick university

Languages

- English (native)

- German (fluent)
- Lugandan (beginner)