Carolin Hartung

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Research interests

Representation theory of finite-dimensional algebras, quivers and their homological and combinatorial properties.

Academic appointments

Since 2026 **Hausdorff Doctoral Position in Mathematics, University of Bonn, Advisor: Jan Schröer**

Education

2024 - 2026 **University of Bonn: MSc Mathematics**
Master's thesis: "Symmetries for the E-invariant of modules over finite-dimensional algebras" supervised by Jan Schröer

2024 – 2025 **University of Cambridge: MASt in Pure Mathematics**
Essay: "Group Schemes and Representations" supervised by Stuart Martin

2021 - 2024 **University of Bonn: BSc Mathematics**
Bachelor's thesis: "Projective presentations and varieties of modules over Nakayama algebras" supervised by Jan Schröer

Teaching Experiences

Tutor for Introduction to Representation Theory (Mathematical Institute, Bonn), Winter 2026/27
Tutor for Linear Algebra II (Mathematical Institute, Bonn), Summer 2026
Tutor for Galois Theory (Mathematical Institute, Bonn), Winter 2025/26
Tutor for Mathematics for Physicists (Mathematical Institute, Bonn), Winter 2023/24
Tutor for Algorithmic Mathematics I (Institute for Discrete Mathematics, Bonn), Winter 2023/24

Invited Conferences

10/2025 **Junior Research Retreat in Burbach for Representation Theory and Combinatorics**
09/2025 **Junior Research Retreat in Bad Boll for Representation Theory and Combinatorics**

Talks and Presentations

1. **Resolution Forests and the Higher Gorenstein property in Nakayama algebras**
   Algebra and Representation theory group seminar, University of Bonn, July 2026
2. **E-invariants of quiver algebras**
   Junior Algebra and Representation Theory Seminar, University of Oxford, May 2026
3. **Projective Presentations over quasicompact algebras**
   Algebra and Representation theory group seminar, University of Bonn, April 2026
4. **Ringel's homological bijection is stabilized interval free**
   Algebra and Representation theory group seminar, University of Bonn, February 2026
5. **Introduction to quivers and Gabriel's theorem**
   Part III Seminar Series at University of Cambridge, November 2024

Grants and Awards

2024 – 2025 **Scholarship for study abroad by the German Academic Scholarship Foundation**

- covering part of tuition fees and monthly stipend for living costs

2021 - 2026 **Scholarship from the German Academic Scholarship Foundation**

- Scholarship for academic excellence during BSc and MSc

Outreach

Since 2021 **Student Council of the Mathematics Department at the University of Bonn**

- Head of the department for PhD students since 01/2026
- Organizer of Tea Time with Women in Mathematics since 10/2025
- Deputy Head of the Student Body of Mathematics from 12/2022 to 12/2023
- Head of department for cultural activities and part of the department for publicity from 12/2021 to 12/2023
- Member of the department for freshmen in 2022

References

Jan Schröer, Professor at the Department of Mathematics, University of Bonn, schroer@math.uni-bonn.de
Stuart Martin, Professor of Pure Mathematics and Senior Tutor at Magdalene College, University of Cambridge, sm137@cam.ac.uk