

# Manuel Karl-Heinz Müller

## Curriculum Vitae

Sapienza Università di Roma  
Dipartimento di Matematica "Guido Castelnuovo"  
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### Research Interests

Number theory, Automorphic forms, Weil representation, Theta series, Complex geometry

### Positions

- 10/2025 – present **Walter Benjamin Fellowship**, Sapienza Università di Roma, Italy.  
Research fellowship of the German Research Foundation - Project number 566117541
- 12/2024 – 09/2025 **Postdoc position**, Technische Universität Darmstadt, Germany.
- 12/2021 – 12/2024 **Ph.D. position**, Technische Universität Darmstadt, Germany.  
Advisor: Nils Scheithauer

### Education

- 10/2021 – 12/2024 **Ph.D. in Mathematics**, Technische Universität Darmstadt, Germany, Final mark: „With distinction“ (Summa cum laude), Title: *Generating systems for modular forms for the Weil representation and Hecke operators for orthogonal modular forms*.  
Advisor: Nils Scheithauer
- 10/2019 – 07/2021 **M.Sc. in Mathematics**, Technische Universität Darmstadt, Germany.  
Advisor: Nils Scheithauer
- 10/2016 – 10/2019 **B.Sc. in Mathematics**, Technische Universität Darmstadt, Germany.  
Advisor: Yingkun Li
- 08/2013 – 06/2016 **Abitur**, Oberstufengymnasium Babenhausen, Germany.  
Highschool education

### Publications

#### Peer reviewed

C. Huang, Z. Li, M. K.-H. Müller and Z. Ye, *The Picard group of the Baily-Borel compactification of the moduli space of polarized K3 surfaces and generalizations*, accepted for publication in J. Reine Angew. Math. (Crelle's Journal), arXiv: 2411.12931.

M. K.-H. Müller and N. R. Scheithauer, *The invariants of the Weil representation of  $SL_2(\mathbb{Z})$* , Commun. Contemp. Math. **27** (2025), no. 9, Paper No. 2550013, arXiv: 2208.01921.

M. K.-H. Müller, *Generating systems for modular forms for the Weil representation and Hecke operators for orthogonal modular forms*, Ph.D. thesis, TU Darmstadt, 2024. Available at <https://tuprints.ulb.tu-darmstadt.de/entities/publication/7660e93f-cd99-4a09-a928-5a06d7a8fb50>

M. K.-H. Müller, *Modular forms for the Weil representation induced from isotropic subgroups*, J. Number Theory **263** (2024), 206–233, arXiv: 2312.01443.

## Preprints

M. K.-H. Müller, *Linear independence of theta series of positive-definite, unimodular even lattices*, preprint, submitted, arXiv: 2602.14746.

M. K.-H. Müller, *The basis problem for modular forms for the Weil representation*, preprint, submitted, arXiv: 2407.01205.

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## Presentations

### Conferences and Workshops

- 06/2026 Vertex algebras, automorphic forms and combinatorics (Luminy)
- 09/2025 International Workshop on Automorphic Forms (Les Diablerets)
- 04/2025 Automorphic Forms Workshop (Denton)
- 08/2023 ENTR-Workshop (Bielefeld)
- 05/2023 Automorphic Forms Workshop (Baton Rouge)
- 10/2022 ENTR-Workshop (Darmstadt)

### Seminars

- 02/2026 Winter Seminar (Manigod)
- 11/2025 Seminario di Algebra e Geometria (Rome)
- 03/2025 Winter Seminar (Manigod)
- 06/2024 Number Theory Seminar (Cologne)
- 03/2024 Winter Seminar (Manigod)
- 06/2023 Seminar of AG Alfes (Bielefeld)
- 03/2023 Winter Seminar (Manigod)
- 11/2022 International Seminar on Automorphic Forms (Online)

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## Teaching Experience

### Teaching assistant for the following courses

- Winter 2024/25 Algebra
  - Summer 2024 Introduction to Algebra
- Winter 2023/24 Geometry for Teachers
  - Summer 2023 Mathematics II for Computer Science,  
Linear Algebra II for Physicists and Teachers
- Winter 2022/23 Linear Algebra I for Physicists and Teachers
  - Summer 2022 Mathematics II for Civil Engineering

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