Klaus Mattis

Curriculum Vitae

Contact

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Research Interests

Unstable and Stable (Motivic) Homotopy Theory, Synthetic Deformations, Algebraic K-theory, Algebraic Geometry in positive characteristic.

Education

2023–present **PhD in Mathematics**, *JGU Mainz*
Thesis: *Localization functors in unstable motivic homotopy theory*
Advisor: Tom Bachmann

2022 **MSc in Mathematics (grade: 1.0)**, *LMU Munich*
Thesis: *Isomotives of Dimension at most 1*
Advisor: Fabien Morel

2021 **BSc in Mathematics**, *LMU Munich*
Thesis: *Examples of étale (φ, Γ)-modules*
Advisor: Werner Bley

2017–2022 **Studies in Mathematics**, *LMU Munich*

Publications

2026 **Unstable arithmetic fracture squares in ∞-topoi**, *Journal of Homotopy and Related Structures*, arXiv:2404.18618

2025 **The derived ∞-category of Cartier Modules**, *(with Timo Weiß)*, *Journal of Pure and Applied Algebra*, arXiv:2410.17102

Preprints

2025 **Nilpotence of η in étale motivic spectra**, *(with Swann Tubach)*, submitted, arXiv:2511.09476

2025 **Monadic resolutions for generalized spaces**, *(with Tom Bachmann and Anton Engelmann)*, preprint, arXiv:2511.07064

2025 **The derived ∞-category of Frobenius Modules**, *(with Timo Weiß)*, submitted, arXiv:2510.23267

2025 **Unstable étale motives**, submitted, arXiv:2507.20320

2024 **The pro-Nisnevich topology**, submitted, arXiv:2404.17314

2024 **Unstable p-completion in motivic homotopy theory**, submitted, arXiv:2401.17848

Selected Talks

Feb 2026 **Monadic resolutions for generalized spaces**, Universität Wuppertal
Jan 2026 **Monadic resolutions for generalized spaces**, University of Copenhagen
July 2025 **Étale rigidity for motivic spaces**, Motives and Arithmetic Geometry, Darmstadt
June 2025 **Canonical resolutions for motivic spaces**, Young Topologists Meeting, Stockholm
April 2025 **Étale rigidity for motivic spaces**, École Normale Supérieure, Lyon
April 2025 **Étale rigidity for motivic spaces**, University of Toronto
June 2024 **Proof of the Hopkins-Morel-Hoyois theorem**, International Workshop on Algebraic Topology, Shanghai
Feb 2024 **Unstable p-completion in motivic homotopy theory**, YoungHom Seminar, online

Teaching Experience

Summer 24 **Lecturer (1/3 of course)**, *Algebraic Topology I*, JGU Mainz

Teaching Assistant / Tutor

Winter 25/26 **Teaching Assistant**, *Math for Computer Science 1*, JGU Mainz
Winter 24/25 **Teaching Assistant**, *Math for Computer Science 1*, JGU Mainz
Winter 23/24 **Teaching Assistant**, *Math for Computer Science 2b*, JGU Mainz
Summer 23 **Teaching Assistant**, *Differential Geometry*, JGU Mainz
Summer 21 **Tutor**, *Commutative Algebra*, LMU Munich
Winter 20/21 **Tutor**, *Algebra*, LMU Munich
Summer 20 **Tutor**, *Linear Algebra 2*, LMU Munich
Winter 19/20 **Tutor**, *Linear Algebra 1*, LMU Munich

Organization

2023–2026 **Organizer**, *PhD-Seminar*, JGU Mainz
Summer 25 **Organizer**, *Seminar on motivic spectra*, JGU Mainz
Summer 20 **Organizer**, *Reading Class on Category Theory*, LMU Munich

Academic Service

Oct 2025 **Organizer**, *GAUS Workshop on "Motives and Higher Categories"*, JGU Mainz
Jan 2025 **Organizer**, *GAUS Junior AG: "Maps between spherical group rings"*, JGU Mainz
Mar 2024 **Co-organizer**, *Winter school on unstable motivic homotopy theory*, JGU Mainz

Non-academic Service

2016–present **Volunteer**, *Red Cross (BRK)*, Munich
2016–2023 **Software Developer**, *Microstep AG*
2019–2020 **Volunteer Author**, *Serlo*, Open-source platform for higher mathematics education

Languages

German Native
English Fluent