

Michael Neururer

Curriculum Vitae

Fachbereich Mathematik, S2/15: Büro 441
Technische Universität Darmstadt

✉ neururer@mathematik.tu-darmstadt.de

📄 www3.mathematik.tu-darmstadt.de/hp/algebra/

Employment

- From 10.2017 **Postdoctoral researcher**, *Technische Universität Darmstadt*.
DFG Forschergruppe 1920
- 10.2016–
10.2017 **Postdoctoral researcher**, *University of Nottingham*.
EPSRC project 'Explicit methods for Jacobi forms over number fields'
- 10.2015–
10.2016 **Postdoctoral researcher**, *Technische Universität Darmstadt*.

Education

- 10.2012– **Ph.D.**, *University of Nottingham*.
01.2016 Thesis: *Products of Eisenstein series, their L -functions, and Eichler cohomology for arbitrary real weights* (Advisor: Nikolaos Diamantis)
- 2011–2012 **M2 Analyse, Arithmétique et Géométrie**, *Paris Sud University, Orsay*.
Fondation Hadamard scholarship, Final grade: 17.33/20
Thesis: *Higher local fields* (Advisor: Christophe Soulé)
- 2010–2011 **MASt in Pure Mathematics (a.k.a. PART III)**, *Christ's College, University of Cambridge*.
Final grade: Distinction
Essay: *Modular curves and the class number one problem* (Advisor: Tom Fisher)
- 2007–2010 **BSc.**, *Technical University of Vienna*.
Final grade: Distinction

Research

- 2018 **Computing the local component and Weil–Deligne representation of a newform**, with *Martin Dickson*.
In preparation
- 2018 **Degree 2 Quotients of L -Functions**, joint with *Thomas Oliver*.
In preparation
- 2018 **Fourier expansions at cusps**, with *François Brunault*.
Preprint available at [arxiv:1807.00391](https://arxiv.org/abs/1807.00391)
- 2017 **Mahler measures of elliptic surfaces**, with *François Brunault*.
To appear at AMS Transactions, preprint available at [arxiv:1710.04602](https://arxiv.org/abs/1710.04602)
- 2016 **Spaces generated by products of Eisenstein series**, with *Martin Dickson*.
Journal of Number Theory, Vol 188, p. 137-164

- 2015 **A correspondence of modular forms and applications to values of L -series**, with Nikolaos Diamantis and Fredrik Strömberg.
Research in Number Theory, volume 1, p. 1-12, 2015
- 2015 **Eichler cohomology in general weights using spectral theory**.
The Ramanujan Journal, p. 1-27, 2016

Awards

- 2016 **LMS Research in Pairs**, Grant for a joint project with T. Oliver.
2011–2012 **Fondation Hadamard scholarship**.

Research Talks (* if invited)

- 27.03.2018*, *Mahler measures of elliptic surfaces*, Special values of L -functions workshop, Durham University.
- 15.03.2018*, *Fourier expansions of modular forms at cusps*, Jacobi forms workshop, Nottingham University.
- 16.01.2018*, *Mahler measures of elliptic surfaces*, Universität zu Köln
- 06.07.2017, *Mahler measures of elliptic surfaces*, Journées arithmétiques, Université de Caen.
- 09.03.2017, *A converse theorem for Maaß forms*, Automorphic forms workshop, East Tennessee State University.
- 08.02.2017*, *Mahler measures of elliptic surfaces*, Heilbronn Seminar, Bristol University.
- 24.05.2016*, *Products of Eisenstein series and Mahler measures*, Arithmetic L -functions and Differential Geometric Methods, Institut de Mathématiques de Jussieu.
- 31.03.2016*, *Spaces generated by products of Eisenstein series*, Universität Basel.
- 03.03.2016*, *Spaces generated by products of Eisenstein series*, Université de Lyon.
- 26.08.2015*, *Produkte von Eisensteinreihen und ihre L -Funktionen*, AG Seminar-Algebra, TU Darmstadt.
- 01.07.2015, *Spaces generated by products of two Eisenstein series*, Nottingham University number theory seminar.
- 14.10.2014*, *Eichler cohomology in arbitrary weight*, Arithmetic study group, Durham University.
- 20.09.2014, *Eichler cohomology in arbitrary weight*, Student Conference on Automorphic Forms and Eisenstein Series, TU Darmstadt.
- 17.09.2014, *Eichler cohomology in arbitrary weight*, Nottingham University number theory seminar.
- 12.06.2014, *Modular forms of arbitrary real weight and Eichler cohomology*, Colloque de jeunes chercheurs en théorie de nombres, Institut de Mathématiques de Bordeaux

Other Talks

- 2018, *The topology of algebraic varieties*, Darmstadt-Frankfurt Seminar.
- 2017, *Was ist das Kugelpackungsproblem?*, What Is Seminar, TU Darmstadt.
- 2017, *Die étale Fundamentalgruppe und unverzweigte Erweiterungen*, Darmstadt-Frankfurt Seminar.
- 2017, *Galois representations associated to modular forms of weight ≥ 2* , Nottingham number theory study group.
- 2016/2017, *Modular curves over \mathbb{Z} and the Tate curve*, Nottingham number theory study group.
- 2016, *Modular forms and applications*, Bernoulli's Tafelrunde, Universität Basel.

- 2016, *Periods à la Kontsevich-Zagier*, What Is Seminar, TU Darmstadt.
- 2016, *The sphere packing problem in dimension 8 and 24*, Darmstadt-Frankfurt Seminar.
- 2015, *Theta functions*, What Is Seminar, TU Darmstadt.
- 2015, Talks on the work of Manjul Bhargava, Nottingham number theory study group.
- 2014, Talks on Shimura varieties, modular forms, and the Gross-Zagier formula, Nottingham number theory study group.
- 2013, Talks on étale cohomology, abelian varieties, and the Weil conjectures, Nottingham number theory study group.

Teaching

Courses

- 2017–2018 Darstellende Geometrie and Lineare Algebra, Assistant, TU Darmstadt.
- 2015–2016 Darstellende Geometrie and Lineare Algebra, Assistant, TU Darmstadt.
- 2012–2015 Demonstrating and marking, Assistant for various courses, University of Nottingham.
- 2008–2010 Teaching assistant, Technical University of Vienna.

Thesis Supervision

- ongoing MSc, Hendrik Tautz: *Congruences of Fourier coefficients of modular functions*.
- 2017 M2, Matthieu Olivé: *The Hasse–Minkowski theorem and local-global principles*.
- 2016 BSc., Franziska Klimmek: *Period Polynomials and Manin's Period Theorem*.

Professional Services

Referee for *International Journal of Number Theory*, *Journal of Mathematical Analysis and Applications*, *Journal of Physics A*, and *Annali dell'Università di Ferrara*.

Conferences Attended

- June 2017, *Journées arithmétiques*, Université de Caen.
- May 2017, *Modular forms are everywhere*, Max Planck Institute for Mathematics, Bonn.
- March 2017, *Automorphic Forms Workshop*, East Tennessee State University.
- May 2016, *Arithmetic L-functions and Differential Geometric Methods*, Institut de Mathématiques de Jussieu.
- April 2016, *Moduli spaces and Modular forms*, Mathematisches Forschungsinstitut Oberwolfach.
- February 2016, *L-Functions and Automorphic Forms*, Int. Wissenschaftszentrum Heidelberg.
- May 2015, *Formes automorphes: avancées et applications*, CIRM, Luminy.
- March 2015, *Characters of Representations and Modular Forms*, MPIM, Bonn.
- September 2014, *Arithmetic of Eisenstein series*, TU Darmstadt.
- September 2014, *WaNDS Seminar*, University of Sheffield.
- September 2014, *Advanced School and Workshop on L-functions and modular forms*, ICTP Trieste.
- August 2014, *Sage Days 61*, University of Copenhagen.
- July 2014, *Workshop on Bianchi and Siegel modular forms*, University of Sheffield.
- July 2014, *Summer school and workshop on automorphic forms*, University of Bristol.
- June 2014, *Colloque de jeunes chercheurs en théorie de nombres*, Institut de Mathématiques de Bordeaux.
- May 28th 2014, *WaNDS Seminar*, Nottingham University.

- June 6th 2013, *WaNDS Seminar*, Durham University.
- April 2013, *Characteristic p methods in algebraic geometry*, Imperial College London.

Additional Skills

Languages German (native), Greek (native), English (fluent), French (fluent), Spanish (basic).
Computing Proficient in SageMath, Python, MATLAB, pari/gp. Have programmed in Maple, C, and MAGMA.

Referees

- **Prof. Nikolaos Diamantis**, University of Nottingham, Associate Professor.
Room C22 The Mathematical Sciences, University Park, NG7 2RD Nottingham, United Kingdom.
nikolaos.diamantis@nottingham.ac.uk
- **Prof. Fredrik Strömberg**, University of Nottingham, Assistant Professor.
Room B12 The Mathematical Sciences, University Park, NG7 2RD Nottingham, United Kingdom.
fredrik.stromberg@nottingham.ac.uk
- **Prof. Jan Hendrik Bruinier**, TU Darmstadt, Professor.
Office S2|15 411, Fachbereich Mathematik, Schloßgartenstr. 7, 64289 Darmstadt, Germany.
bruinier@mathematik.tu-darmstadt.de