Florian Eisele

Curriculum Vitae

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Education

2008-2012 **PhD in mathematics**, *RWTH Aachen University*,
graduated "mit Auszeichnung" (with distinction).
Thesis title: *"Group Rings over the p-Adic Integers"*, defended in March 2012.
Supervisor: Professor Gabriele Nebe
Awarded "Borchers Badge" for an outstanding dissertation in mathematics.

2004–2008 **Student of mathematics**, *RWTH Aachen University*,
graduated "mit Auszeichnung" (with distinction).
Thesis title: *"Algorithmische Behandlung p-adischer ganzzahliger Gruppenringe"* (*"Algorithmic treatment of p-adic integral group rings")*
Supervisor: Professor Gabriele Nebe

Employment

2021– **Lecturer in Pure Mathematics**, *University of Manchester*.

2020–2021 **Postdoctoral researcher**, *City, University of London*.
with Professor Radha Kessar

2019 **Lecturer in Mathematics**, *University of Glasgow*.
Fixed-term position (1 year)

2015–2018 **Postdoctoral researcher**, *City, University of London*.
with Professor Markus Linckelmann (3 years)

2012–2015 **Postdoctoral researcher**, *Vrije Universiteit Brussel*, Brussels, Belgium.
with Professor Eric Jespers (3.5 years)

2009–2012 **Research assistant**, *RWTH Aachen University*.
Funded by the German Research Foundation (DFG) in the framework of the priority program *Representation Theory*, 0.75 FTE

2010–2012 **Teaching assistant**, *RWTH Aachen University*.
In addition to the above, 0.25 FTE

2008–2009 **Teaching assistant**, *RWTH Aachen University*.
Invariant theory tutorials, 0.5 FTE

2007–2008 **Student teaching assistant**, *RWTH Aachen University*.
Linear algebra tutorials for two terms and Maple tutorials for one term

Awards and Distinctions

2020 **Reinhold Baer Prize**
awarded annually by *AGTA - Advances in Group Theory and Applications*.

Publications

[1] *Arbitrarily large Morita Frobenius numbers*, with M. Livesey
to appear in **Algebra & Number Theory**, `arXiv:2006.13837` (2020)

[2] *Bijections of silting complexes and derived Picard groups*
to appear in **J. Lond. Math. Soc.**, `arXiv:2101.06258` (2021)

[3] *On the geometry of lattices and finiteness of Picard groups*
J. Reine Angew. Math. (Crelle's Journal), vol. 2022, no. 782 (2022), pp. 219-233.

[4] *The Picard group of an order and Külshammer reduction*
Algebr. Represent. Th. 24, pages 505–518 (2021)

[5] *On solvability of the first Hochschild cohomology of a finite-dimensional algebra*, with T. Raedschelders
Trans. Amer. Math. Soc. 373, 7607–7638 (2020)

[6] *Donovan's conjecture, blocks with abelian defect groups and discrete valuation rings*, with C.W. Eaton, M. Livesey
Math. Z., Vol. 295 (2020)

[7] *A Counterexample to the First Zassenhaus Conjecture*, with L. Margolis
Adv. Math., Vol. 339 (2018), pp 599–641

[8] *A reduction theorem for τ-rigid modules*, with G. Janssens, T. Raedschelders
Math. Z., Vol. 290 (2018), Issue 3–4, pp 1377–1413

[9] *On Tate duality and a projective scalar property for symmetric algebras*, with M. Geline, R. Kessar, M. Linckelmann
Pac. J. Math. Vol. 293 (2018), No. 2, pp 27–300

[10] *Blocks with a generalized quaternion defect group and three simple modules over a 2-adic ring*
J. Algebra 456 (2016), pp 294–322

[11] *Describing units of integral group rings up to commensurability*, with A. Kiefer, I. Van Gelder
J. Pure Appl. Algebra, Volume 219 (2015), Issue 7, pp 2901–291

[12] *The p-adic group ring of $SL_2(p^f)$*
J. Algebra 410 (2014), pp 421–459

[13] *Defect Two Blocks of $\mathbb{Z}_p\Sigma_n$*
Comm. Algebra 42 (2014), no. 7, pp 2890–290

[14] *On the IYB-property in some solvable groups*
Arch. Math. (Basel), Volume 101 (2013), Issue 4, pp 309–318

[15] *p-Adic lifting problems and derived equivalences*
J. Algebra 356 (2012), pp 90–114

Teaching Experience

W = autumn/winter, S = spring/summer

S 2022 **Lecture "Sequences and Series"** (second half)
(unit lead, ∼ 400 students)
Supervision "Linear Algebra B"

W 2021 Supervision for "Foundations of Pure Mathematics A".
Organised reading group on profinite groups.

W 2020 **Lecture "Mathematics for Economists Post A-Level"**
(module leader, ∼ 175 students, taught remotely).

2020/21 Organised reading groups on deformation theory *(in spring '20)*, A_∞-algebras *(autumn '20)* and tilting theory *(spring '21)*.

W 2019 **Lecture "Engineering Mathematics 1"**
(first block, two sections comprising ∼ 200 students each).
Tutorials for "Algebra".
Marking first year feedback assignments and participation in "Maths hub" *(1st and 2nd year).*

S 2019 **Lecture "1S"**
(first year algebra & calculus module; I was lecturing the calculus section; ∼ 100 students).
Tutorials for "1S", "1Y" (similar to "1S") and "Methods in Complex Analysis".

S 2018 **Lecture "Number Theory & Cryptography"**
(sole responsible; > 60 students; student feedback results: 4.2/5 overall; 1st year course).

W 2016 **Lecture "Number Theory & Cryptography"**
(sole responsible; > 60 students; student feedback results: 4.1/5 overall; 1st year course).

W 2014 Tutorials for "Algebra II" and "Affine and projective geometry".

W 2013 Tutorials for "Algebra II" *(included drafting and invigilating the written exam).*

W 2010–W 2011 Maple lab classes *(administered weekly oral exams for first year mathematics students).*

W 2008 Tutorials for "Invariant theory" *(included setting homework exercise sheets).*

S 2008 Maple lab classes
(assisted students with their assignments; covered wide range of mathematical topics).

W 2007 Tutorials for "Linear algebra II".

S 2007 Tutorials for "Linear algebra for computer scientists".

Supervision

BSc

2013 BSc project: Doryan

MSc

2022 MSc projects: Junyue, Luke

2022 MSc dissertations: Junyue, Luke

PhD

2022- Joel (main supervisor)

Invited Talks

Jun 2022 ARTIN New Arrivals meeting, Edinburgh: *What we know about Donovan's conjecture*

Apr 2022 Group Theory Seminar, ICMAT Madrid: *What we know about Donovan's conjecture*

Jan 2022 Greek Algebra & Number Theory Seminar: *Bijections of silting complexes and derived Picard groups* (virtual)

Oct 2021 Algebra Seminar, University of Manchester: *Blocks of group algebras and silting theory*

Jul 2021 Oberseminar Algebra, University of Stuttgart: *Bijections of silting complexes and derived Picard groups* (virtual)

Jun 2021 Reinhold Baer Prize 2020 - Awards Ceremony: *Units of group algebras and automorphism groups* (virtual)

Oct 2019 Number Theory Seminar, University of Exeter: *Picard groups of group algebras*

Jun 2019 **Keynote address** at conference "Groups, Rings and Associated Structures 2019", Spa: *On the first Zassenhaus conjecture*

Mar 2019 Oberwolfach workshop "Representations of Finite Groups": *Self-equivalences of blocks*

Feb 2019 17th Triangle meeting, University of Birmingham: *Picard groups of blocks and Donovan's conjecture*

Feb 2019 Algebra and Number Theory Seminar, University of Glasgow: *A counterexample to the first Zassenhaus conjecture*

Oct 2018	Algebra Seminar, University of Cambridge: *A counterexample to the first Zassenhaus conjecture*
Jun 2018	79th BLOC meeting, University of Oxford: *A counterexample to the first Zassenhaus conjecture*
Feb 2018	Algebra Seminar, University of Manchester: *Blocks as orders over a p-adic ring*
Jan 2018	Seminar on Groups and Representations, University of Kaiserslautern: *A counterexample to the first Zassenhaus conjecture*
Dec 2017	London Algebra Colloquium: *A counterexample to the first Zassenhaus conjecture*
Oct 2017	Algebra Seminar, University of Aberdeen: *On the Zassenhaus Conjecture*
Nov 2016	London Algebra Colloquium: *Tame blocks*
Oct 2016	Algebra Seminar, University of York: *Tame blocks*
Sep 2016	Algebra Seminar, University of Murcia: *Tame blocks*
Feb 2016	Workshop "Computational Methods for Representations and Group Rings", Stuttgart: *Virtually irreducible lattices for symmetric orders*
Jan 2015	Oberseminar Algebra/Zahlentheorie, University of Jena: *Basic algebras of blocks over a p-adic ring*
Nov 2014	Algebra Seminar, University of Antwerp: *Representation theory of finite groups over a p-adic ring*
Dec 2013	Colloquium of the "Graduiertenkolleg", RWTH Aachen University: *Einheitengruppen von ganzzahligen Gruppenringen endlicher Gruppen*
June 2010	Representation Theory Seminar, University of Oxford: *Defect two blocks of symmetric groups over the p-adic integers*
July 2009	Oberseminar Algebra, University of Stuttgart: *p-adische Gruppenringe mit Zerlegungszahlen 0 und 1*

Research Stays

18–23 Apr 2022	ICMAT Madrid, hosted by L. Margolis (work on unit groups)
5–9 Mar 2018	University of Glasgow, collaboration with T. Raedschelders and G. Janssens (work on τ-tilting theory)
6–8 Feb 2018	University of Manchester, hosted by C. Eaton und M. Livesey (work on Donovan's conjecture for abelian defect groups)
15–21 Oct 2017	University of Murcia, hosted by Leo Margolis (work on Zassenhaus conjecture)
18–24 Sep 2016	As part of the semester program "Local representation theory and simple groups", EPFL, Lausanne
10–16 Sep 2017	University of Murcia, hosted by Leo Margolis (work on Zassenhaus conjecture)
Apr–Oct 2010	Research stay with Karin Erdmann, University of Oxford

Attended Conferences & Contributed Talks

Jul 2022	Conference "Groups St Andrews", Newcastle Talk: *On Donovan's conjecture and Picard groups*
Sep 2019	Conference "Groups and Representation Theory, a Conference in Memory of Kay Magaard", Warwick
Jun 2019	Conference "Groups, Rings and Associated Structures 2019", Spa Talk: *On the first Zassenhaus conjecture*
Mar 2019	Workshop "Representations of Finite Groups", Oberwolfach Talk: *Self-equivalences of blocks*
Aug 2018	ICRA, Prague Talk: *Picard groups of orders and Külshammer reduction*
Apr 2018	Workshop "Representations of Finite and Algebraic Groups", Berkeley

Aug 2017	Conference “Groups St Andrews”, Birmingham Talk: *Tame blocks*
June 2017	Conference “Groups, Rings and the Yang-Baxter equation”, Spa Talk: *Computing with lattices over group rings of finite groups*
Jan 2017	Conference “Darstellungstheorietage”, Wuppertal
Aug 2016	“17th Workshop and International Conference on Representations of Algebras”, Syracuse Talk: *Knoerr lattices for symmetric orders*
Jul 2016	Workshop “Advanced lectures on local representation theory”, Lausanne
Feb 2016	Workshop “Computational Methods for Representations and Group Rings”, Stuttgart
Feb 2016	Conference “Representation Theory of Symmetric Groups and Related Topics”, Kaiserslautern
Nov 2015	Darstellungstheorietage, Stuttgart
July 2015	Conference “Blocks of Finite Groups and Beyond”, Jena
Sep 2014	Conference “DMV-PTM Joint Meeting”, Poznań Talk: *Involutive Yang-Baxter groups*
Aug 2014	“XVI International Conference on Representations of Algebras”, Sanya Talk: *Lifting group rings and tame blocks*
July 2014	Conference “Brock International Conference on Groups, Rings and Group Rings”, St. Catharines Talk: *Units of integral group rings of finite groups up to commensurabilty*
Dec 2013	Darstellungstheorietage and Nikolaus Conference, Aachen
Aug 2013	Conference “Groups St Andrews”, St Andrews
July 2013	LMS/EPSRC Short Instructional Course “Computational Group Theory”, St Andrews
July 2013	Conference “Classical Aspects of Ring Theory and Module Theory”, Bedlewo Talk: *On the Involutive Yang-Baxter Property in Finite Groups*
June 2013	Conference “Advances in Group Theory and Applications”, Porto Cesareo
June 2013	Conference “Recent Trends in Rings and Algebras”, Murcia Talk: *On the Involutive Yang-Baxter Property in Finite Groups*
Nov 2012	Darstellungstheorietage, Magdeburg
Oct 2012	Symposium in honor of F. Van Oystaeyen, Antwerp
Jun 2012	Workshop “Group Rings and related topics”, Stuttgart
Sep 2011	DMV Jahrestagung, Köln Talk: *Lifting Algebras to Orders*
Aug 2011	Summer School on Computational Group Theory, Kirchberg/Hunsrück
Aug 2011	Summer School on Polynomial Representations of the General Linear Group, Bad Driburg Talk: *Definition of $V_{\lambda,K}$ and its Properties as a Weyl Module*
July 2011	Groups, Rings, and Group-Rings, Edmonton Talk: *Lifting Algebras to Orders*
Mar 2011	Darstellungstheorie Schwerpunkttagung, Münster
May 2010	Conference on Arithmetic of Group Rings and Related Objects, Aachen Talk: *Defect two blocks of symmetric groups over the p-adic integers*
Apr 2010	Darstellungstheorie Schwerpunkttagung, Bad Honnef
May 2009	CMS session on Groups & Hopf algebras, St. John’s Talk: *Algorithms for p-Adic Group Rings*
Sep 2007	Summer School on Algorithmic D-Module Theory, Kleinwalsertal Talk: *Very basic intersection theory and Serre’s formula*

Leadership and administrative roles

2022- UG admissions tutor

Service

- I have refereed articles for: *Journal of Algebra*, *Proceedings of the LMS*, *Bulletin of the LMS*, *Quarterly Journal of Mathematics*, *Osaka Journal of Mathematics*, *Journal of Pure and Applied Algebra*, *Proceedings of the AMS*, *Transactions of the AMS*, *Math. Proc. Camb. Philos. Soc.*, *Annals of Combinatorics*, *Pacific Journal of Mathematics*, *Archiv der Mathematik*.
- Co-organiser of the workshop "Structure of Group Algebras over Local Rings" in Ambleside, 2022.
- Local organiser for the conference "Arithmetic of Group Rings and Related Objects" in Aachen, 2010.

Computer Algebra

- I have experience with the following computer algebra systems: GAP, MAPLE, MAGMA.
- I wrote a GAP-package that deals with orders over the p-adic integers, and lattices over such orders. The package can be downloaded here: `https://github.com/feisele/orders/`

Languages

- German (native)
- English (fully proficient)
- Dutch (fully proficient; CNaVT certificate C1)
- French (fluent)