

Florian Eisele

Curriculum Vitae

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Personal Details

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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: Prof. Gabriele Nebe
Awarded “Borchers medal” 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: Prof. Gabriele Nebe

Employment

- 2019– **Lecturer in Mathematics**, *University of Glasgow*.
Temporary position
- 2015–2018 **Postdoctoral researcher**, *City, University of London*.
Research group of Prof. Markus Linckelmann (3 years)
- 2012–2015 **Postdoctoral researcher**, *Vrije Universiteit Brussel*, Brussels, Belgium.
Research group of Prof. 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

Publications

Preprints

- [1] F. Eisele, T. Raedschelders, *On solvability of the first Hochschild cohomology of a finite-dimensional algebra*, preprint, [arXiv:1903.07380](https://arxiv.org/abs/1903.07380) (2019)
- [2] F. Eisele, *The Picard group of an order and Külshammer reduction*, preprint, [arXiv:1807.05110](https://arxiv.org/abs/1807.05110) (2018)

Published or accepted for publication

- [3] C. W. Eaton, F. Eisele, M. Livesey, *Donovan's conjecture, blocks with abelian defect groups and discrete valuation rings*, to appear in Math. Z. (2019), arXiv:1809.08152
- [4] F. Eisele, L. Margolis, *A Counterexample to the First Zassenhaus Conjecture*, Adv. Math., Vol. 339 (2018), pp 599–641
- [5] F. Eisele, G. Janssens and T. Raedschelders, *A reduction theorem for τ -rigid modules*, Math. Z., Vol. 290 (2018), Issue 3–4, pp 1377–1413
- [6] F. Eisele, M. Geline, R. Kessar, M. Linckelmann, *On Tate duality and a projective scalar property for symmetric algebras*, Pac. J. Math. Vol. 293 (2018), No. 2, pp 27–300
- [7] F. Eisele, *Blocks with a generalized quaternion defect group and three simple modules over a 2-adic ring*, 2015, J. Algebra 456 (2016), pp 294–322
- [8] F. Eisele, A. Kiefer, I. Van Gelder, *Describing units of integral group rings up to commensurability*, J. Pure Appl. Algebra, Volume 219 (2015), Issue 7, pp 2901–291
- [9] F. Eisele, *The p -adic group ring of $SL_2(p^f)$* , J. Algebra 410 (2014), pp 421–459
- [10] F. Eisele, *Defect Two Blocks of $\mathbb{Z}_p\Sigma_n$* . Comm. Algebra 42 (2014), no. 7, pp 2890–290
- [11] F. Eisele, *On the IYB-property in some solvable groups*, Arch. Math. (Basel), Volume 101 (2013), Issue 4, pp 309–318
- [12] F. Eisele, *p -Adic lifting problems and derived equivalences*, J. Algebra 356 (2012), pp 90–114

Teaching Experience

- W 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”.
- W 2018 Lecture “Number Theory & Cryptography” (sole responsible; > 60 students; student feedback results: 4.2/5 overall; lecture for first year BSc students and all associated responsibilities)
- W 2016/17 Lecture “Number Theory & Cryptography” (sole responsible; > 60 students; student feedback results: 4.1/5 overall)
- W 2014/15 “Algebra II” tutorials (as in 2013/14) and “Affine and projective geometry” tutorials
- W 2013/14 “Algebra II” (ring and module theory) tutorials (tutorials & drafting and administering the written exam)
- S 2013 Supervised bachelor student's thesis project. Title “Discrete valuatieringen” (“Discrete valuation rings”)
- W 2010/11– W 2011/12 Maple lab classes (administering weekly oral exams for first year mathematics students)
- W 2008/09 Invariant theory tutorials (giving weekly tutorials & setting homework exercise sheets & marking homework)
- S 2008 Maple lab classes (answering students' questions about their assignments; covered wide range of mathematical topics)
- W 2007/08 “Linear algebra II” tutorials (holding weekly tutorials & marking homework)
- S 2007 Linear algebra for computer scientists tutorials (giving weekly tutorials & marking homework)

Invited Talks

- 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*
- 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

- 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

- 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 "Darstellungstheoretage", 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 Darstellungstheoretage, 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 commensurability*

Dec 2013 Darstellungstheoretage 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 Darstellungstheoretage, 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*

Other Responsibilities

- I have refereed articles for: *Journal of Algebra*, *Proceedings of the LMS*, *Quarterly Journal of Mathematics*, *Osaka Journal of Mathematics*, *Journal of Pure and Applied Algebra* and *Proceedings of the AMS*.
- I was a 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)