

Curriculum Vitae

Prof. Dr. Henning Krause

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born 1962 in Bremerhaven
married, two children



Studies

- 1998 Habilitation in Mathematics, Universität Bielefeld (*The spectrum of a module category*)
- 1991 Doctorate in Mathematics, Universität Bielefeld (*Endomorphismen von Worten in einem Köcher*, Professor C. M. Ringel)
- 1988 – 1991 Doctoral studies, University of Liverpool and Universität Bielefeld
- 1988 Diplom in Mathematics, FU Berlin (*Darstellungsendliche zweireihige Algebren*, Professor H. Kupisch)
- 1981 – 1988 Studies in Mathematics and Sociology, FU Berlin

Career

- since 2010 Professor (W3) für Mathematik, Universität Bielefeld
- 2008 – 2010 Prodekan für Mathematik, Universität Paderborn
- 2003 – 2010 Professor (C4) für Mathematik, Universität Paderborn
- 2002 – 2003 University Research Fellow, University of Leeds
- 2001 – 2002 Mitarbeiter der Firma *software design & management AG*, München (temporarily on leave)
- 1999 – 2002 Oberassistent, Fakultät für Mathematik, Universität Bielefeld (temporarily on leave)
- 1999 – 1999 Guest Professor, University of California, Santa Barbara
- 1991 – 1992 Postdoctoral Fellow, Brandeis University
- 1991 – 1999 Wissenschaftlicher Assistent, Fakultät für Mathematik, Universität Bielefeld (temporarily on leave)

Distinctions

- since 2017 Fellow of the American Mathematical Society
2012 – 2015 Guest Professor, University of Science and Technology of China, Hefei

Grants (since 2011)

- 2013 – 2017 DFG Sonderforschungsbereich 701, Teilprojekt *Topological and spectral structures in representation theory* and *Local cohomology and support in representation theory*
2012 – 2015 DFG Projekt *Quiver representations, singularity categories, and monoidal structures*
2009 – 2015 DFG Schwerpunktprogramm *Representation theory* (member of the steering committee)

Editorial board member

- since 2018 *Science China Mathematics*, Springer Verlag
since 2015 *Documenta Mathematica*, Deutsche Mathematiker-Vereinigung
since 2015 *Algebras and Representation Theory*, Springer Verlag
2012 – 2017 *Communications in Mathematics and Statistics*, Springer Verlag
since 2009 *Advances in Mathematics*, Elsevier
since 2007 *Applied Categorical Structures*, Springer Verlag

Supervised PhDs

- 08/2019 Biao Ma: *Faithfully balanced modules and applications in relative homological algebra*, Bielefeld (joint with Julia Sauter)
09/2018 Ögmundur Eiriksson: *Quasi-hereditary algebras and the geometry of representations of algebras*, Bielefeld (joint with Julia Sauter)
12/2017 Apolonia Gottwald: *Submodule closed subcategories of module categories*, Bielefeld
12/2017 Fajar Yuliawan: *Actions of Hochschild cohomology and local duality in modular representation theory*, Bielefeld
06/2017 Florian Gellert: *Sequential structures in cluster algebras and representation theory*, Bielefeld (joint with Philipp Lampe)
07/2016 Cosima Aquilino: *On strict polynomial functors: monoidal structure and Cauchy filtration*, Bielefeld
06/2016 Rebecca Reischuk: *The Monoidal Structure on Strict Polynomial Functors*, Bielefeld

- 05/2014 Phillip Linke: *Coherence in generic representation theory*, Bielefeld
- 02/2014 Reiner Hermann: *Monoidal categories and the Gerstenhaber bracket in Hochschild cohomology*, Bielefeld (joint with Ragnar-Olaf Buchweitz)
- 07/2013 Zhe Han: *The homotopy categories of injective modules of derived discrete algebras*, Bielefeld
- 12/2011 Claudia Köhler: *A combinatorial classification of thick subcategories of derived and stable categories*, Bielefeld
- 06/2010 Karsten Dietrich: *Representation theory of EI-categories*, Paderborn
- 07/2009 Nikolay Dichev: *Thick subcategories of quiver representations*, Paderborn
- 05/2009 Stefan Wolf: *The composition algebra and the composition monoid of a tame quiver*, Paderborn (joint with Andrew Hubery)
- 12/2007 Karsten Schmidt: *Auslander-Reiten theory for simply connected differential graded algebras*, Paderborn
- 07/2007 Kristian Brüning: *Subcategories of triangulated categories and the smashing conjecture*, Paderborn
- 04/2007 Birgit Huber: *Realisability and localisation*, Paderborn
- 04/2006 Jue Le: *Auslander-Reiten theory for complexes of modules*, Beijing Normal University (joint with Yingbo Zhang)

Organisation of meetings (since 2011)

- 08/2020 Workshop *Cohomology of Finite Groups: Interactions and Applications*, Oberwolfach
- 07/2020 *ICRA 2020 – Workshop and International Conference on Representations of Algebras*, Trieste
- 01/2020 Workshop *Representation Theory of Quivers and Finite Dimensional Algebras*, Oberwolfach
- 10/2019 Workshop *Algebraic Representation Theory and Related Topics*, Sanya
- 09/2019 Conference *50 Years of Mathematics at Bielefeld – the Unity of Mathematics*, Bielefeld
- 09/2019 Workshop *Representation Theory in Bielefeld – Past and Future*, Bielefeld
- 09/2019 Workshop *Tilting Theory, Singularity Categories, and Noncommutative Resolutions*, Oaxaca
- 05/2019 Workshop *Computational Applications of Quiver Representations: TDA and QPA*, Bielefeld
- 04/2019 CIMPA School *Advanced School on Representations of Algebras*, Isfahan
- 04/2018 Workshop *Discrete Categories in Representation Theory*, Bielefeld
- 03/2018 Workshop *Chromatic Phenomena and Duality in Homotopy Theory and Representation Theory*, Oberwolfach

- 05/2017 Conference *Triangulated Categories and Geometry – A conference in honour of Amnon Neeman*, Bielefeld
- 02/2017 Workshop *Representation Theory of Quivers and Finite Dimensional Algebras*, Oberwolfach
- 03/2016 Workshop *Weighted Projective Spaces and Representation Theory*, Hefei
- 03/2016 Workshop *Triangulated Categories and Geometry*, Bielefeld
- 12/2015 Workshop *Representations, Support, and Cohomology (in honour of Rolf Farnsteiner)*, Bielefeld
- 06/2015 Conference *Groups, Representations, and Cohomology (in honour of Dave Benson)*, Isle of Skye
- 05/2015 Workshop *Cohomology of Finite Groups: Interactions and Applications*, Oberwolfach
- 06/2014 Workshop *Non-crossing partitions in representation theory*, Bielefeld
- 02/2014 Workshop *Representation Theory of Quivers and Finite Dimensional Algebras*, Oberwolfach
- 11/2013 Workshop *Polynomial functors and Schur algebras*, Bielefeld
- 09/2013 Workshop *Matrix Factorizations in Algebra, Geometry, and Physics*, Oberwolfach
- 05/2013 *Conference in memoriam of Dieter Happel*, Chemnitz
- 12/2012 Workshop *Infinite Dimensional Analysis and Representation Theory*, Bielefeld
- 08/2012 *ICRA 2012 – Workshop and International Conference on Representations of Algebras*, Bielefeld
- 08/2012 Summer School and Workshop *Cohomology and Support in Representation theory*, Seattle
- 03/2012 *Groups 2012 – A conference in honour of the 75th birthday of Bernd Fischer*, Bielefeld
- 09/2011 *Workshop on Representation Theory: Cohomology and Support*, Morning-side Center of Mathematics, Beijing
- 05/2011 Workshop *Matrix Factorizations*, Bielefeld
- 02/2011 Workshop *Representation Theory of Quivers and Finite Dimensional Algebras*, Oberwolfach

Invited conference talks and lecture series (since 2011)

- 06/2019 Workshop *Triangulated categories in geometry and representation theory*, Sydney
- 04/2019 CIMPA School *Advanced School on Representations of Algebras*, Isfahan
- 11/2018 Workshop *Combinatorial Categories in Algebra and Topology*, Osnabrück

- 09/2018 Conference *Advances in Representation Theory of Algebras, VII*, Mexico City
- 06/2018 CIMPA School *Geometric and Homological Methods in the Representation Theory of Associative Algebras and their Applications*, Medellín
- 05/2018 Workshop *Stable Cohomology: Foundations and Applications*, Snowbird
- 05/2017 *Idun 75 – A conference on representation theory of artin algebras on the occasion of Idun Reiten's birthday*, Trondheim
- 03/2017 Masterclass *Stratifications and duality in modular representation theory*, Copenhagen
- 03/2017 *Conference in Representation Theory of the Americas – In celebration of the 70th birthday of Edward Green*, Vitoria de Espirito Santo, Brazil
- 09/2016 Conference *Non-commutative, derived and homotopical methods in geometry*, Antwerp
- 08/2016 Workshop *Geometric and Topological Aspects of the Representation Theory of Finite Groups*, PIMS, Vancouver
- 04/2016 *Maurice Auslander Distinguished Lectures*, Woods Hole
- 10/2015 Workshop *Preprojective Algebras Interacting with Singularities, Cohen-Macaulay Modules and Weighted projective Spaces*, Oaxaca
- 09/2015 Workshop *Infinite-dimensional Representations of Finite-dimensional Algebras*, Manchester
- 06/2015 *CT2015 – International Category Theory Conference*, Aveiro
- 09/2014 *47th symposium on ring theory and representation theory*, Osaka
- 08/2014 *International Conference on Representations of Algebras (ICRA 2014)*, Sanya
- 06/2014 Summer School *Derived Categories*, Nantes
- 05/2014 Workshop *Interactions between Algebraic Geometry and Noncommutative Algebra*, Oberwolfach
- 11/2013 *38th ARTIN Meeting*, Aberdeen
- 10/2013 *XXVth Meeting on Representation Theory of Algebras*, Sherbrooke
- 09/2013 Conference *Advances in Representation Theory of Algebras*, Torun
- 05/2013 Workshop *Matrix factorizations*, ESI, Wien
- 02/2013 Workshop *Representation Theory, Homological Algebra, and Free Resolutions*, MSRI, Berkeley
- 01/2013 Conference *Singularity categories in algebra and geometry*, Indian Institute of Technology Madras, Chennai
- 12/2012 Conference *Advances in Representation Theory of Algebras*, CIMAT, Guanajuato
- 09/2012 Conference *Categorical Methods in Representation Theory*, Bristol

- 05/2012 Conference *Commutative Algebra and Its Interactions with Algebraic Geometry, Representation Theory, and Physics*, CIMAT, Guanajuato
- 05/2012 Workshop *Linking representation theory, singularity theory and non-commutative algebraic geometry*, Banff
- 04/2012 *Maurice Auslander Distinguished Lectures and International Conference*, Woods Hole
- 09/2011 Conference *Representation Theory of Algebras*, Jiao Tong University, Shanghai
- 09/2011 *Workshop on Representation Theory: Cohomology and Support*, Morning-side Center of Mathematics, Beijing
- 09/2011 Workshop *Derived categories in Algebraic Geometry*, Steklov Institute, Moscow
- 06/2011 Conference *Abel Symposium 2011: Algebras, quivers and representations*, Balestrand
- 06/2011 Workshop *Triangulated Categories and Applications*, Banff
- 03/2011 Workshop *Interaction of Representation Theory with Geometry and Combinatorics*, HIM, Bonn

Published Articles (selection)

1. Auslander-Reiten duality for Grothendieck abelian categories, *Trans. Amer. Math. Soc.* 371 (2019), 2455–2472.
2. (With D. Benson, S. B. Iyengar, and J. Pevtsova) Stratification for module categories of finite group schemes, *J. Amer. Math. Soc.* 31 (2018), 265–302.
3. (With D. Benson, S. B. Iyengar, J. Pevtsova) Colocalising subcategories of modules over finite group schemes, *Ann. K-Theory*, 2 (2017), 387–408.
4. (With A. Hubery) A categorification of non-crossing partitions, *J. Eur. Math. Soc.* 18 (2016), 2273–2313.
5. Deriving Auslander’s formula, *Documenta Math.* 20 (2015), 669–688.
6. Koszul, Ringel, and Serre duality for strict polynomial functors, *Compos. Math.*, 149 (2013), 996–1018.
7. (With D. J. Benson and S. B. Iyengar) Colocalizing subcategories and cosupport, *J. Reine Angew. Math.*, 673 (2012), 161–207.
8. Approximations and adjoints in homotopy categories, *Math. Annalen*, 353 (2012), 765–781.
9. (With D. J. Benson and S. B. Iyengar) Stratifying modular representations of finite groups, *Ann. of Math.*, 174 (2011), 1643–1684.
10. (With J. Stovicek) The telescope conjecture for hereditary rings via Ext-orthogonal pairs, *Adv. Math.* 225 (2010), 2341–2364.

11. (With D. Benson and S. B. Iyengar) Local cohomology and support for triangulated categories, *Ann. Sci. Ecole Norm. Sup.*, 41 (2008), 573–619.
12. Derived categories, resolutions, and Brown representability, in: *Interactions between homotopy theory and algebra*, 101–139, *Contemp. Math.*, 436, Amer. Math. Soc., Providence, RI, 2007.
13. (With S. B. Iyengar) Acyclicity versus total acyclicity for complexes over noetherian rings, *Documenta Math.* 11 (2006), 207–240.
14. The stable derived category of a noetherian scheme, *Compos. Math.* 141 (2005), 1128–1162.
15. (With D. J. Benson and S. Schwede) Realizability of modules over Tate cohomology, *Trans. Amer. Math. Soc.* 356 (2004), 3621–3668.
16. (With Ø. Solberg) Applications of cotorsion pairs, *J. London Math. Soc.* 68 (2003), 631–650.
17. A Brown representability theorem via coherent functors, *Topology* 41 (2002), 853–861.
18. (With D. J. Benson) Pure injectives and the spectrum of the cohomology ring of a finite group, *J. reine angew. Math.* 542 (2002), 23–51.
19. The spectrum of a module category, *Mem. Amer. Math. Soc.* 149 (2001), no. 707, x+125 pp.
20. On Neeman's well generated triangulated categories, *Documenta Math.* 6 (2001), 119–125.
21. Smashing subcategories and the telescope conjecture – an algebraic approach, *Invent. Math.* 139 (2000), 99–133.
22. Generic modules over artin algebras, *Proc. London Math. Soc.* 76 (1998), 276–306.
23. Stable equivalence preserves representation type, *Comment. Math. Helv.* 72 (1997), 266–284.

Books

1. (With P. Littelmann, G. Malle, K.-H. Neeb, C. Schweigert) *Representation Theory – Current Trends and Perspectives*, EMS Publishing House, 2017, 773 pp.
2. (With D. J. Benson and A. Skowronski) *Advances in Representation Theory of Algebras*, EMS Publishing House, 2013, 378 pp.
3. (With D. J. Benson and S. B. Iyengar) *Representations of finite groups: Local cohomology and support*, *Oberwolfach Seminars* 43, Birkhäuser Verlag, 2012, 111 pp.
4. (With L. Angeleri Hügel and D. Happel) *Handbook Tilting Theory*, Cambridge University Press (2007), *LMS Lecture Notes Series* 332, 480 pp.
5. (With C. M. Ringel) *Infinite length modules*, *Proceedings of the Euroconference 'Infinite length modules' 1998 in Bielefeld*, Birkhäuser Verlag (2000), *Trends in Mathematics*, 440 pp.