

CURRICULUM VITAE

Jun.-Prof. Simon Lentner

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Born 8. June 1985 in Rosenheim (Germany), three children.

Employment.

- 2026 - Staff Scientist for Chiral Representation Theory (T. Arakawa), OIST, Okinawa.
- 2016 - 2026 Junior Professor (W1) for Algebra and Number Theory, University of Hamburg
- 2022 - 2023 Visiting professor at the University of Alberta (T. Gannon, T. Creutzig)
- 2021 - 2022 Substitute Professor for Algebra, Christian-Albrechts-Universität Kiel
- 2015 - 2016 Postdoctoral researcher, Lebedev Physical Institute, Moscow (B. Feigin, A. Semikhatov)
- 2013 - 2015 Postdoctoral assistant, University of Hamburg, Mathematics (C. Schweigert)
- 2011 - 2013 Founder of the successful software company Vernaio GmbH, Munich,
(modules for combinatorial optimization and AI in certain industry processes)

Education.

- 2008 - 2012 Ph.D. student in Mathematics at University of Munich
Thesis: Orbifoldizing Hopf- and Nichols-Algebras (M. Schottenloher)
- 2004 - 2008 Diploma student in Mathematics with Theoretical Physics at LMU Munich
Thesis: Vertex Algebras Constructed from Hopf Algebra Structures (M. Schottenloher)

Fellowships, Scholarships, Grants (details below).

- 2024, 2025 Teaching prizes of the physics department for outstanding lecture (Math for Physicists 1+2).
- 2022 University didactics prize for the project Virtual Rubik's Cube
- 2024 - now Affiliated member of the SFB 1624 "Higher structures, moduli spaces and integrability"
- 2022 - 2023 Feodor-Lynen fellowship at the University of Alberta (T. Gannon, T. Creutzig)
- 2019 - 2022 Hamburg main applicant Humboldt Institute Partnership Cordoba/Hamburg/Marburg
- 2016 - 2021 Elected Fellow of the Young Academy of Science (Junge Akademie), Berlin
- 2016 - 2020 Principal investigator in the DFG Research Training Group 1670
"Mathematics inspired by string theory and quantum field theory"
- 2015 - 2016 Research Grant ("Prime", DAAD, BMBF, EU Marie Curie Actions)
- 2012 - 2013 Startup Grant ("Flügge", Ministry of Science StMWFK)
- 2011 - 2012 Startup Scholarship ("Exist", Ministry of Economy BMWi)
- 2008 - 2011 Doctorate Scholarship (Studienstiftung des deutschen Volkes)

LIST OF PUBLICATIONS

[5P] C. Galindo, S. Lentner, S. Möller: Modular \mathbb{Z}_2 -Crossed Tambara-Yamagami-like Categories for Even Groups, accepted for publication in *Advances in Mathematics* (2026).

[26] B. Feigin, S. Lentner: Coupling a vertex algebra to a large center, *Analysis and Mathematical Physics* 16/17 (2025).

[25] B. Feigin, S. Lentner: Twisted vertex algebra modules for irregular connections: A case study, *International Mathematics Research Notices* 23 (2025)

[24] R. Allen, S. Lentner, C. Schweigert, S. Wood: Duality structures for module categories of vertex operator algebras and the Feigin Fuchs boson, *Selecta Mathematica* 31, 36 (2025).

[23] M. Mombelli, S. Lentner: Fibre functors and reconstruction of Hopf algebras, *Canadian Journal of Mathematics* 77/5 (2025), 1718-1761.

[22] B. Feigin, S. Lentner: Vertex algebras with big center and a Kazhdan-Lusztig Correspondence, *Advances in Mathematics* 457 (2024), 109904.

[21] S. Lentner, K. Vocke: On Borel subalgebras of quantum groups, *Communications in Contemporary Mathematics* (2024), 2450028.

[20] I. Angiono, S. Lentner, G. Sanmarco: Pointed Hopf algebras over non-abelian groups with non-simple standard braidings, *Proceedings of the London Mathematical Society* 3/127 (2023), 1185–1245

[19] S. Lentner: Combinatorial Principles that enforce a group structure, *Proceedings for the CRM topic month "Quantum Symmetries"*, *AMS Contemporary Mathematics* (2023).

[18] S. Lentner, S. Mierach, C. Schweigert, Y. Sommerhäuser: Hochschild Cohomology, Modular Tensor Categories, and Mapping Class Groups, *Springer Briefs in Mathematical Physics* 44 (2022), ISSN 2197-1757.

[17] S. Lentner, I. Flandoli: Algebras of non-local screenings and diagonal Nichols algebras, SIGMA 18 (2022).

[16] S. Lentner: Quantum groups and Nichols algebras acting on conformal field theories, Advances in Mathematics 378 (2021) 107517.

[15] S. Lentner, K. Vocke: A family of new Borel subalgebras of quantum groups, Algebra and Representation Theory (2020), p. 473-503.

[14] S. Lentner: The unrolled quantum group inside Lusztig's quantum group of divided powers, Letters in Mathematical Physics 109/7 (2019), p. 1665-1682.

[13] S. Lentner, S. Mierach, C. Schweigert, Y. Sommerhäuser: Hochschild cohomology and the Modular Group, Journal of Algebra 507 (2018), p. 400-420.

[12] I. Flandoli, S. Lentner: Logarithmic conformal field theories of type B_n , $\ell = 4$ and symplectic fermions, Journal of Mathematical Physics 59 (2018), 071101.

[11] S. Lentner, J. Priel: On monoidal autoequivalences of the category of Yetter-Drinfeld modules over a group: The lazy case, Algebra and Representation Theory 22/4 (2018), p. 1017-1049.

[10] S. Lentner, J. Priel: Three natural subgroups of the Brauer-Picard group of a Hopf algebra with applications, Bull. Belg. Math. Soc. Simon Stevin 24 (2017), p. 1-34.

[9] S. Lentner, T. Ohrmann: Factorizable R-matrices for small quantum groups, SIGMA 13 (2017).

[8] S. Lentner, J. Priel: A decomposition of the Brauer-Picard group of the representation category of a finite group, Journal of Algebra 489 (2017), p. 264-309.

[7] S. Lentner, A. Lochmann: Factorization of graded traces on Nichols algebras, Axioms 6/4, Special Issue "Hopf Algebras, Quantum Groups and Yang-Baxter Equations" (2017), 32.

[6] S. Lentner: A Frobenius homomorphism for Lusztig's quantum groups over arbitrary roots of unity, *Comm. in Contemporary Mathematics* 18/3 (2016), 1550040.

[5] M. Cuntz, S. Lentner: A simplicial complex of Nichols algebras, *Mathematische Zeitschrift* 4 (2015), p. 1-37.

[4] S. Lentner, D. Nett: New R-matrices for small quantum groups, *Algebras and Representation Theory* 18/6 (2015), p. 1649-1673.

[3] A. Barvels, S. Lentner, C. Schweigert: Partially dualized Hopf algebras have equivalent Yetter-Drinfel'd Modules, *Journal of Algebra* 430 (2015), p. 303-342.

[2] S. Lentner: Root systems in finite symplectic vector space, *Communications in Algebra*, 43 (2015), p. 4446-4470.

[1] **S. Lentner: New large-rank Nichols algebras over nonabelian groups with commutator subgroup \mathbb{Z}_2 , *Journal of Algebra* 419C (2014), p. 1-33.**

Recent Preprints. All preprints can be retrieved at http://arxiv.org/a/lentner_s_1

[5P] **S. Lentner: A conditional algebraic proof of the logarithmic Kazhdan-Lusztig correspondence, Preprint (2025) arXiv:2501.10735**

[4P] **C. Galindo, S. Lentner, S. Möller: Computing G -Crossed Extensions and Orbifolds of Vertex Operator Algebras, Preprint (2024) arXiv:2409.16357.**

[3P] **T. Creutzig, S. Lentner, M. Rupert: An algebraic theory for logarithmic Kazhdan-Lusztig correspondences, Preprint (2023) arXiv:2306.11492.**

[2P] T. Creutzig, S. Lentner, M. Rupert: Characterizing braided tensor categories associated to logarithmic vertex operator algebras, Preprint (2021), arXiv:2104.13262.

[1P] A. Gainutdinov, S. Lentner, T. Ohrmann: Modularization of small quantum groups, Preprint (2018), arXiv: 1809.02116.

GRANTS

Leading applicant for successful grants.

2022 - 2023 € 58.000	Feodor-Lynen scholarship for experienced scientists, Humboldt Foundation Research stay at the University of Alberta (T. Gannon, T. Creutzig)
2022 - 2023 € 8.000	University didactics funding for the Virtual Rubik's Cube Class set of bluetooth cubes and programming assistance.
2019 - 2022 € 55.000	Humboldt program for institute partnerships Cordoba, Hamburg, Marburg (main responsible applicant for Hamburg) Travel- and workshop costs
2015 - 2016 € 121.814	Postdoc Research grant "Prime" (DAAD, BMBF, Marie Curie actions) Own position for Moscow and later Hamburg. <i>Quantum groups and logarithmic conformal field theories</i>
2013 - 2015 € 219.536	University part in Joint Project "KMU-Innovativ" (BMBF) Product development between LMU, PerfectPattern GmbH & Intomedia GmbH <i>Entwicklung einer ressourcenoptimierten Zuschnittsteuerung für die Druckbranche</i>
2012 - 2014 € 113.230	Technology Transfer Project "Flügge" (StMWFK Bavaria) Three E13/2 positions (including my own) for company foundation <i>Projekt PerfectPrintPattern / Gründung PerfectPattern GmbH</i>
2011 - 6/2012 € 97.100	StartUp Foundation Program "Exist" (BMW Germany) Three scholarships (including my own)

CONFERENCES AND RESEARCH STAYS

Conferences as main organizer.

22.5. - 26.5. 2023	University of Marburg (Humboldt Institute Partnership) <i>Hopf Algebra and Tensor Categories II</i>
17.8. - 21.8. 2020	Hybrid Conference, University of Hamburg (Humboldt Institute Partnership) <i>Hopf Algebra and Tensor Categories</i>
26.8. - 30.8. 2019	Summerschool, University of Hamburg <i>Algebraic Structures in Quantum Field Theory</i>
12.8. - 16.8. 2019	Workshop, FU Berlin <i>Path integrals and their applications</i>

TEACHING EXPERIENCE

Lectures and Seminars.

WS 2025	Lecture: <i>Nichols algebras</i> (Master Mathematics and Mathematical Physics)
SS 2025	Preparation course: <i>Bachelor in Mathematics</i>
SS 2025	Lecture: <i>Mathematics 2 for Physics, Geoscience, Oceanography, Meteorology</i>
WS 2024	Lecture: <i>Mathematics 1 for Physics, Geoscience, Oceanography, Meteorology</i>
SS 2024	Promeminar for Teachers: Groups and symmetries.
SS 2024	Lecture: Examples of braided tensor categories.
WS 2024	Lecture for teachers: <i>Number theory</i>
SS 2023	(no teaching)
WS 2023	Lecture: <i>Theory of functions in one complex variable</i> (University of Alberta)
SS 2022	Seminar: <i>Permutations and the Rubik cube</i>
SS 2022	Seminar: <i>Representation theory of groups with applications in physics</i>
WS 2021	Lecture for teachers: <i>Algebra</i> (University of Kiel)
WS 2021	Seminar: <i>Hopf algebras and tensor categories</i> (University of Kiel)
SS 2021	Lecture: <i>Mathematics 2 for Physics, Geoscience, Oceanography, Meteorology</i>
WS 2020	Lecture: <i>Mathematics 1 for Physics, Geoscience, Oceanography, Meteorology</i>
SS 2020	Block seminar: <i>Vertex Algebras, Tensor Categories, Quantum groups</i>
WS 2019	Seminar: <i>Representation theory and conformal field theory</i>
WS 2019	2-Week Preparation Course: <i>Bachelor Mathematics</i>
SS 2019	Seminar for teachers: <i>Elementary number theory</i>
SS 2019	Seminar: <i>Algebra and tensor categories</i>
WS 2018	(research semester with stays in USA and Moscow)
SS 2018	Seminar: <i>p-adic analysis and the zeta function</i>
SS 2018	Seminar for teachers: <i>Elementary group theory</i>
SS 2018	Seminar: (softskills) <i>Presentation skills</i>
WS 2017	Lecture: <i>Elliptic curves and modular forms</i>
SS 2017	Lecture: <i>Complex analysis</i>
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2016-2017 research position in Moscow	
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SS 2015	Seminar: <i>Root systems and Lie algebras</i>
WS 2014	Seminar: <i>Representation theory of finite groups</i>
WS 2014	Preparation Course: <i>Master Mathematical Physics</i>
WS 2013	Preparation Course: <i>Master Mathematical Physics</i>
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SS 2011	Lecture: <i>Finite groups and their Nichols Algebras</i>
WS 2010	Seminar: <i>Game Theory with Many Players and Statistical Physics</i>
SS 2010	Lecture: <i>Hopf Algebras Generating Fusion Rings & Topological Invariants</i>
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2010-2015	Teaching assistant for 6 lectures

Student theses supervision (Hamburg).

- ongoing Niklas Burger (Master)
Symplectic fermions deformed by connections
- ongoing Christopher Davies (Master)
A \mathbb{Z}_2 -crossed extension of Tambara Yamagami type
- 9/2025 Thore Sengerhoff (Bachelor for teachers)
Half spin spherical harmonics
- 9/2022 Jannick Görcks (Bachelor)
Generalized Selberg integrals in two examples
- 12/2021 Johann Hespen (Master)
Derived modular tensor categories and the small quantum group
- 6/2020 Ilaria Flandoli (PhD)
Nichols algebras and logarithmic conformal field theories
- 6/2020 Svea Mierach (PhD, joint with Memorial University, Y. Sommerhäuser)
Hochschild cohomology, modular tensor categories and mapping class groups
- 3/2020 Marc Hildebrandt (Bachelor)
Indefinite theta functions and infinite orbifold models.
- 11/2019 Johann Hespen (Bachelor)
L-Reihen und Modulformen im Nulldimensionalen
- 10/2019 Daniela Rehbock (Bachelor for teachers)
joint with Ann Sophie Stuhlmann, Didactics Department
Permutationsgruppen und didaktische Ausgestaltung
- 7/2018 Matthias Lienau (Bachelor)
Representations of groups and Hopf algebras
- 6/2018 Tobias Ohrmann (PhD, joint with C. Schweigert)
Factorizable (quasi-)quantum groups
- 7/2017 Ilaria Flandoli (Master, Erasmus)
Logarithmic conformal field theory of type $B_n, \ell = 4$ and symplectic fermions

Participation in student theses as teaching assistant (Hamburg/Munich).

- 6/2016 Jan Priel (PhD thesis, Prof. Schweigert)
Symmetries of 3d-TQFTs and the Brauer-Picard Group
- 3/2015 Daniel Nett (PhD thesis, Prof. Schweigert)
New R-matrices for small quantum groups
- 7/2014 Alexander Barvels (PhD thesis, Prof. Schweigert)
Equivariantly extended Drinfel'd Centers and Partially dualized Hopf Algebras
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- 12/2011 Lisa Kraus (Diploma thesis, Prof. Schottenloher)
Game-Theory of the Stock Market and Statistical Physics
- 12/2010 Karolina Vocke (Diploma thesis, Prof. Schottenloher)
Anyonmodels from Hopf algebras