

CURRICULUM VITAE

Jun.-Prof. Simon Lentner

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Personal: *8.6.1985 in Rosenheim, Germany. One child (8)

Employment.

- 2016 - now Junior Professor (W1) for Algebra and Number Theory, University of Hamburg
- 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 software company PerfectPattern GmbH, Munich,
(a university spinoff company with today 11 employees, see attached reference letter)

Education.

- 2008 - 2012 Ph.D. student in Mathematics at LMU Munich
Thesis: Orbifoldizing Hopf- and Nichols-Algebras (M. Schottenloher)
- 2004 - 2008 Diploma student in Mathematics with minor Theoretical Physics at LMU Munich
Thesis: Vertex Algebras Constructed from Hopf Algebra Structures (M. Schottenloher)
- 2002 - 2004 University during highschool "LMU Schülerstudent" (O. Forster, Y. Sommerhäuser)

Fellowships, Scholarships, Grants (details below).

- 2019 - 2022 Humboldt Institute Partnership Cordoba, Hamburg, Marburg (Hamburg applicant)
- 2016 - now Elected Fellow of the Young Academy of Science (Junge Akademie), Berlin
- 2016 - now 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

- [14] S. Lentner, S. Mierach, C. Schweigert, Y. Sommerhäuser: Hochschild cohomology and the Modular Group, *Journal of Algebra* 507 (2018) p. 400-420, arXiv:1707.04032.
- [13] S. Lentner: The unrolled quantum group inside Lusztig's quantum group of divided powers, *Letters in Mathematical Physics* 109/7 (2019) p. 1665-1682, arXiv:1702.05164.
- [12] I. Flandoli, S. Lentner: Logarithmic conformal field theories of type B_n , $\ell = 4$ and symplectic fermions, *Journal of Mathematical Physics* 59 (2018), arXiv:1706.07994.
- [11] S. Lentner, J. Priel: On monoidal autoequivalences of the category of Yetter-Drinfeld modules over a group: The lazy case, accepted for publication in *Algebra and Representation Theory* (2018) arXiv:1511.03871.
- [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. arXiv:1702.05133.
- [9] S. Lentner, T. Ohrmann: Factorizable R-matrices for small quantum groups, *SIGMA* 13 (2017), arXiv:1612.07960.
- [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. arXiv:1506.07832.
- [7] M. Cuntz, S. Lentner: A simplicial complex of Nichols algebras, *Mathematische Zeitschrift* 4 (2015) p. 1-37. arXiv:1503.08117.
- [6] S. Lentner, D. Nett: New R-matrices for small quantum groups, *Algebras and Representation Theory* 18/6 (2015), p. 1649-1673. arXiv:1409.5824.
- [5] S. Lentner: A Frobenius homomorphism for Lusztig's quantum groups over arbitrary roots of unity, *Communications in Contemporary Mathematics* 18/3 (2015), arXiv:1406.0865.

[4] 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), arXiv:1403.4287.

[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. arXiv:1402.2214.

[2] S. Lentner: Root Systems In Finite Symplectic Vector Space, Communications in Algebra, 43 (2015) p. 4446-4470. arXiv:1307.7151.

[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. arXiv:1306.5684.

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

[7P] S. Lentner, K. Vocke: On Borel subalgebras of quantum groups, Preprint (2019), arXiv: 1905.05867.

[6P] A. Gainutdinov, S. Lentner, T. Ohrmann: Modularization of small quantum groups, Preprint (2018), arXiv: 1809.02116.

[5P] S. Lentner: Quantum groups and Nichols algebras acting on conformal field theories, Preprint (2017), arXiv: 1702.06431.

[4P] S. Lentner, K. Vocke: Constructing new Borel subalgebras of quantum groups with a non-degeneracy property, Preprint (2017), arXiv: 1702.06223.

[3P] E. Kraus, S. Lentner: Nash Equilibria And Partition Functions Of Games With Many Dependent Players, Preprint (2015) arXiv:1504.03965.

[2P] S. Lentner: Quantum affine algebras at small root of unity, Preprint (2014) arXiv:1411.2959.

[1P] S. Lentner, D. Nett: A theorem on roots of unity and a combinatorial principle, Preprint (2014) arXiv:1409.5822.

Author of company patents (pending).

- 10 2013 101 604.9 Combinatorial optimization of printing layouts
(S. Lentner)
- 10 2013 103 167.6 Combinatorial optimization of wood cutting
(M. Schottenloher, S. Lentner, L. Lentner, C. Paleani, R. Meißner)
- 10 2013 103 169.2 Combinatorial optimization of cutting processes
(M. Schottenloher, S. Lentner, L. Lentner, C. Paleani, R. Meißner)

GRANTS

Leading applicant for successful grants.

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" (BMWi Germany) Three scholarships (including my own)

TEACHING EXPERIENCE

Independently taught classes (Hamburg/Munich).

SS 2019	Seminar (for teachers) <i>Elementary number theory</i>
SS 2019	Seminar <i>Algebra and tensor categories</i>
WS 2018/19	(no teaching, research semester with stay 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 2017/18	Lecture <i>Elliptic curves and modular forms</i>
SS 2017	Lecture: <i>Complex analysis</i>
2016-2017	(no teaching, research position in Moscow)
SS 2015	Seminar: <i>Root systems and Lie algebras</i>
WS 2014/15	Seminar: <i>Representation theory of finite groups</i>
WS 2014/15	Preparation Course: <i>Master Mathematical Physics</i>
WS 2013/14	Preparation Course: <i>Master Mathematical Physics</i>
SS 2011	Lecture: <i>Finite groups and their Nichols Algebras</i>
WS 2010/11	Seminar: <i>Game Theory with Many Players and Statistical Physics</i>
SS 2010	Lecture: <i>Hopf Algebras Generating Fusion Rings & Topological Invariant</i>

Upon request I will gladly make existing evaluations available.

Tutorials and seminars as teaching assistant (Hamburg/Munich).

WS 2014/15	Lecture: <i>Advanced algebra II</i>
SS 2014	Lecture: <i>Mathematics 4 for Physicists</i>
WS 2013/14	Lecture: <i>Mathematics 3 for Physicists and Geoscientists</i>
SS 2013	Lecture: <i>Mathematics 2 for Physicists and Geoscientists</i>
SS 2013	Seminar: <i>Representation Theory of groups and Lie algebras</i>
SS 2010	Lecture: <i>Quantum Field Theory in Curved Spacetime</i>

Student theses supervision (Hamburg).

ongoing	Daniela Rehbock (Bachelor Lehramt Mathematik) <i>Elementar group theory in school</i>
ongoing	Johann Hespen (Bachelor in mathematics) <i>Modular forms for zeta-function of one polynomial in one variable</i>
ongoing	Ilaria Flandoli (PhD) <i>Nichols algebras and logarithmic conformal field theories</i>
7/2018	Matthias Lienau (Bachelor in mathematics) <i>Representations of groups and Hopf algebras</i>
6/2018	Tobias Ohrmann (PhD, joint with Prof. Schweigert) <i>Factorizable (quasi-)quantum groups</i>
7/2017	Ilaria Flandoli (Master in mathematical physics, Erasmus) <i>Logarithmic conformal field theory of type $B_n, \ell = 4$ and symplectic fermions</i>

Participation in student theses (Hamburg/Munich).

As associate postdoc of the DFG Research Training Group 1670, University of Hamburg:

6/2016	Jan Priel (PhD thesis, Prof. Schweigert) <i>Symmetries of 3d-TQFTs and the Brauer-Picard Group</i>
3/2015	Daniel Nett (PhD thesis, Prof. Schweigert) <i>New R-matrices for small quantum groups</i>
7/2014	Alexander Barvels (PhD thesis, Prof. Schweigert) <i>Equivariantly extended Drinfel'd Centers and Partially dualized Hopf Algebras</i>

As member of the research group Thermodynamical Quantum Algorithms, LMU Munich:

12/2011	Lisa Kraus (Diploma thesis, Prof. Schottenloher) <i>Game-Theory of the Stock Market and Statistical Physics</i>
12/2010	Karolina Vocke (Diploma thesis, Prof. Schottenloher) <i>Anyonmodels from Hopf algebras</i>

SCIENTIFIC ACTIVITIES ABROAD

Research Stays Abroad.

- 23.2. - 15.3.2019 HSE Moscow (B. Feigin)
22.9. - 3.11.2018 MIT, Boston and Rutgers, NJ (P. Etingof, Y.-Z. Huang)
21.2. - 16.3. 2018 Lebedev Physical Institute, Moscow (B. Feigin, A. Semikhatov)
25.9. - 5.10. 2017 SUNY, Albany and MIT, Boston (A. Milas, T. Arakawa, P. Etingof)
6.2. - 9.2.. 2017 Philipps-University Marburg (I. Heckenberger)
18.2. - 4.3. 2016 Universities of Córdoba and Buenos Aires (N. Andruskiewitsch, L. Vendramin)
4.5. - 8.5. 2015 Erwin Schrödinger Institute, Vienna, (N. Carqueville)
27.4. - 1.5. 2015 Max Planck Institute, Bonn (I. Angiono, G. Williamson)
25.2. - 14.3. 2015 Universities of Córdoba and Buenos Aires (N. Andruskiewitsch, L. Vendramin)
18.11. - 22.11. 2014 Philipps-University Marburg (I. Heckenberger)
25.9. - 6.10. 2014 Lebedev Physical Institute, Moscow (A. Semikhatov, I. Tipunin)
27.5. - 31.5. 2014 Philipps-University Marburg (I. Heckenberger)

Conference Talks.

- in 6/2019 Conformal field theory, in honor of Yi-Zhi Huang's 60th birthday, Tianjin, China.
Nichols algebras and Screening operators on Vertex algebra representation categories
- 18.2.2019 Preparatory workshop for a planned IRTG Hamburg-Tokyo
Mapping class groups, Hochschild cohomology and modular tensor categories.
- 23.1. 2018 Tensor categories, Hopf algebras and quantum groups, Marburg.
Nichols algebras acting on conformal field theories
- 10.12. 2017 Affine, Vertex and W-algebras, Rome.
Quantum groups and Nichols algebras acting by screening operators
- 23.9. 2015 Annual meeting of the German Mathematical Society (DMV), Hamburg.
Quantum groups and logarithmic conformal field theories
- 5.6. 2015 New trends in Hopf algebras and tensor categories, Brussels.
A decomposition of the Brauer Picard group
- 6.3.2015 Quantum 2015, Córdoba
Quantum groups a small root of unity
- 20.4. 2015 Coideal Subalgebras of Quantum groups, Oberwolfach.
Different types of Quantum groups and the Frobenius homomorphism

- 25.8. 2014 Conformal Field Theory and Nichols Algebras, Rauischholzhausen/Marburg.
Construction of large rank Nichols algebras
- 17.4. 2014 Infinite-dimensional Hopf algebras, Oberwolfach.
Folding Nichols algebras and quantum groups
- 25.3 2014 Annual conference of the DFG SPP 1388 Representation Theory, Soltau
Partially dualized Hopf algebras have equivalent Yetter-Drinfeld modules
- 30.9. 2010 Deformations in Mathematical Physics, Oberwolfach.
Nichols Algebras Over Nilpotent Groups

As main organizer.

- 26.8.2019 - 30.8.2019 Summerschool, University of Hamburg
Summerschool: Algebraic Structures in Quantum Field Theory
- 12.8.2019 - 16.8.2019 Workshop, FU Berlin
Path integrals and their applications