# Curriculum Vitae

Thomas Nikolaus

February 15, 2019

## Personal Data

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| Name: | Thomas Nikolaus |
| Address: | FB Mathematik und Informatik |
| | Universität Münster |
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| Date and Place of Birth: | 06.06.1984 in Esslingen am Neckar, Germany |
| Nationality: | German |

## Positions

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|---|---|
| 2018 - | Professor (W2) at University of Münster |
| 2017 - 2018 | Nachwuchsgruppenleiter (W2) at MPIM Bonn |
| 2015 - 2016 | Postdoc at MPIM Bonn |
| 2014 - 2015 | Vertretungsprofessor at University of Bonn |
| 2011 - 2014 | Akademischer Rat auf Zeit (Postdoc) at University of Regensburg |
| 2010 - 2011 | Research associate at the Landesexzellenzcluster |
| | "Connecting particles with the cosmos" at University of Hamburg |
| 2009 - 2010 | Research associate at the DFG collaborative research centre 676 |
| | "Particles, Strings, and the Early Universe" at University of Hamburg |

## Education

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| 2011 | PhD in Mathematics at University of Hamburg |
| | Advisor: Christoph Schweigert |
| | Thesis: "Higher Categorical Structures in Geometry |
| |       - General Theory and Applications to Quantum Field Theory" |
| 2009 | Diploma in Mathematics at University of Hamburg |
| | Advisor: Christoph Schweigert |
| | Thesis (in German): "Äquivariante Gerben und Abstieg" |
| 2003 | Abitur at Otto-Hahn-Gymnasium Gifhorn |

## Third party funding and organization

- Since 2019: Principle investigator in the cluster of excellence "Mathematics Münster: Dynamics - Geometry - Structure"

- Organizer of the Oberwolfach Arbeitsgemeinschaft Oberwolfach Arbeitsgemeinschaft, April 2019.

- Organizer of the 'European Autumn School in Topology 2017' in Utrecht, September 2017.

- Organizer of the 'Conference on invertible objects and duality in derived algebraic geometry and homotopy theory' in Regensburg, to come in April 2017.

- Organizer of the 'European Autumn School in Topology 2016' in Utrecht, September 2016.

- Organizer of the conference 'Modular Invariants in Topology and Analysis' in Regensburg, September 2014.

- Principle investigator in the SFB 1085 "Higher Invariants Interactions between Arithmetic Geometry and Global Analysis " in Regensburg.

- Organizer of the conference "From Poisson to String Geometry" in Erlangen, September 2012.

- Main applicant of the third party funded DFG research network "String Geometry".

- Scholar of the German National Academic Foundation 2006 - 2009.

## Teaching

1. WS 2011/12

   - Exercises for Differentialgeometrie I (by U. Bunke)
   - Oberseminar: 'Topologische Modulformen' (with U. Bunke)

2. SS 2012

   - Seminar 'Moderne Kryptographie mit elliptischen Kurven'
   - Oberseminar: 'Orientierungen von Ringspektren' (with U. Bunke)

3. WS 2012/13 and

   - Vorlesung: 'Mathematische Grundlagen der Physik' (with K. Waldorf)
   - Seminar: Chromatic stable homotopy theory (with U.Bunke)

4. WS 2013/14

   - Seminar 'Factorization Algebras in Quantum Field Theory'

- Proseminar: 'Fraktale Geometrie'

5. SS 2014

   - Seminar 'Fuktionentheorie auf Riemannschen Flächen'
   - Oberseminar: TMF and logarithmic structures (with U. Bunke and N. Naumann)

6. WS 2014/15

   - Lecture Topologie I
   - Seminar 'Differentialtopologie'

7. SS 2015

   - Lecture Topologie II
   - Seminar 'Characteristic classes'

8. SS 2016

   - Advanced lecture course 'Rational and p-adic homotopy theory'

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9. WS 2016/17

   - Lecture Algebraic Topology II

10. SS 2018

   - Lecture Complex Analysis
   - Seminar 'Topological Hochschild homology and Hodge-de Rham degeneration'

11. WS 2017/18

   - Lecture Topology I
   - Seminar 'Derived algebraic geometry and elliptic cohomology'

## List of Publications

[1]   J. Fuchs et al. "Bundle gerbes and surface holonomy". In: *European Congress of Mathematics*. Ed. by A. Ran, H. te Riele, and J. Wiegerinck. EMS Publishing House, 2008, pp. 167 –197.

[2]   T. Nikolaus. "Algebraic models for higher categories". In: *Indag. Math. (N.S.)* 21.1-2 (2011), pp. 52–75.

[3]   T. Nikolaus and C. Schweigert. "Equivariance in higher geometry". In: *Adv. Math.* 226.4 (2011), pp. 3367–3408.

[4]    J. Maier, T. Nikolaus, and C. Schweigert. "Equivariant Modular Categories via Dijkgraaf-Witten Theory". In: *Adv. Theor. Math. Phys.* 16.1 (2012), pp. 289–358.

[5]    J. Maier, T. Nikolaus, and C. Schweigert. "Strictification of weakly equivariant Hopf algebras". In: *Bull. Belg. Math. Soc. Simon Stevin* 20.2 (2013), pp. 269–285.

[6]    T. Nikolaus, C. Sachse, and C. Wockel. "A smooth model for the string group". In: *Int. Math. Res. Not. IMRN* 16 (2013), pp. 3678–3721.

[7]    T. Nikolaus and C. Schweigert. "Bicategories in field theories—an invitation". In: *Strings, gauge fields, and the geometry behind.* World Sci. Publ., Hackensack, NJ, 2013, pp. 119–132.

[8]    T. Nikolaus and K. Waldorf. "Four equivalent versions of nonabelian gerbes". In: *Pacific J. Math.* 264.2 (2013), pp. 355–419.

[9]    T. Nikolaus and K. Waldorf. "Lifting problems and transgression for non-abelian gerbes". In: *Adv. Math.* 242 (2013), pp. 50–79.

[10]   M. Bašić and T. Nikolaus. "Dendroidal sets as models for connective spectra". In: *J. K-Theory* 14.3 (2014), pp. 387–421.

[11]   T. Nikolaus. "Algebraic K-theory of $\infty$-operads". In: *J. K-Theory* 14.3 (2014), pp. 614–641.

[12]   T. Nikolaus, U. Schreiber, and D. Stevenson. "Principal $\infty$-bundles: general theory". In: *J. Homotopy Relat. Struct.* (2014), pp. 1–53.

[13]   T. Nikolaus, U. Schreiber, and D. Stevenson. "Principal $\infty$-bundles: presentations". In: *J. Homotopy Relat. Struct.* (2014), pp. 1–58.

[14]   U. Bunke and T. Nikolaus. "T-duality via gerby geometry and reductions". In: *Rev. Math. Phys.* 27.5 (2015), pp. 1550013, 46.

[15]   D. Gepner, M. Groth, and T. Nikolaus. "Universality of multiplicative infinite loop space machines". In: *Algebr. Geom. Topol.* 15.6 (2015), pp. 3107–3153.

[16]   U. Bunke, T. Nikolaus, and M. Völkl. "Differential cohomology theories as sheaves of spectra". In: *J. Homotopy Relat. Struct.* 11.1 (2016), pp. 1–66.

[18]   M. Bašić and T. Nikolaus. "Homology of dendroidal sets". In: *Homology Homotopy Appl.* 19.1 (2017), pp. 111–134.

[19]   D. Gepner, R. Haugseng, and T. Nikolaus. "Lax colimits and free fibrations in $\infty$-categories". In: *Doc. Math.* 22 (2017), pp. 1225–1266.

[20]   M. Land and T. Nikolaus. "On the Relation between K- and L-Theory of $C^*$-Algebras". In: *Math. Ann. (to appear)* (2017). arXiv:1608.02903.

[21]   M. Land, T. Nikolaus, and K. Szumilo. "Localization of cofibration categories and groupoid C$^*$–algebras". In: *Algebr. Geom. Topol.* 17.5 (2017), pp. 3007–3020.

[22]   T. Nikolaus and S. Sagave. "Presentably symmetric monoidal $\infty$–categories are represented by symmetric monoidal model categories". In: *Algebr. Geom. Topol.* 17.5 (2017), pp. 3189–3212.

[23]  B. Antieau, A. Mathew, and T. Nikolaus. "On the Blumberg–Mandell Künneth theorem for TP". In: *Selecta Math. (N.S.)* 24.5 (2018), pp. 4555–4576.

[25]  Ulrich Bunke, Thomas Nikolaus, and Georg Tamme. "The Beilinson regulator is a map of ring spectra". In: *Adv. Math.* 333 (2018), pp. 41–86.

[26]  T. Barthel et al. *The Balmer spectrum of the equivariant homotopy category of a finite abelian group.* To appear in Invent. Math. arXiv: `1709.04828` [`math.AT`].

[27]  U. Bunke and T. Nikolaus. *Twisted differential cohomology.* To appear in Algebr. Geom. Topol. arXiv: `1406.3231` [`math.AT`].

[28]  T. Nikolaus and P. Scholze. *On topological cyclic homology.* To appear in Acta Math. arXiv: `1707.01799` [`math.AT`].

## List of Preprints

[17]  T. Nikolaus. "Stable $\infty$-Operads and the multiplicative Yoneda lemma". Preprint arXiv:1608.02901. 2016.

[24]  B. Antieau and T. Nikolaus. "Cartier modules and cyclotomic spectra". Preprint arXiv:1809.01714. 2018.