

# Curriculum Vitæ

Dmitri Pavlov

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## 1. Research Interests

Quantum field theory, algebraic topology, differential geometry

## 2. Employment

**Texas Tech University:** Assistant Professor of Mathematics and Statistics, September 2017–now.

**University of Regensburg:** Postdoc, October 2015–August 2017.

**Max Planck Institute for Mathematics, Bonn:** Visitor, September 2015.

**Hausdorff Research Institute for Mathematics, Bonn:** Visitor, May 2015–August 2015.

**University of Göttingen:** Postdoc, July 2014–April 2015.

**University of Münster:** Postdoc, July 2011–June 2014.

## 3. Education

**University of California, Berkeley:** August 2007–May 2011; Ph.D. in Mathematics, May 13, 2011;

Dissertation title: A decomposition theorem for noncommutative  $L_p$ -spaces and a new symmetric monoidal bicategory of von Neumann algebras.

**Saint Petersburg University ITMO:** September 2002–June 2007; B.S., June 2006; M.S., June 2007.

## 4. Fellowships and Awards

Herb Alexander Prize for outstanding dissertation in pure mathematics, 2011.

Simons Fellowship, 2007–2008. (University of California, Berkeley)

## 5. Ph.D. students

Sole advisor unless indicated otherwise.

Current (with expected graduation year):

2027    Jiajun Hoo

2026    Emilio Verdooren

2024    James Francese

Graduated:

2022    Stephen Peña.

Dissertation title: Geometric factorization algebras.

2021    Nilan Manoj Chathuranga.

Dissertation title: Equivalence of complete distributive inverse semigroups and étale localic groupoids, and a characterization of topological orbifolds.

2021    Rachel Harris (coadvisor; advisor: Răzvan Gelca).

Dissertation title: Algorithms for skein manipulation and automation of skein computations.

## 6. Postdocs

2019–2022: Daniel Grady. Current position: Assistant Professor at Wichita State University.

## 7. Publications

15. Daniel Grady, Dmitri Pavlov. The geometric cobordism hypothesis. *Under review*. <https://arxiv.org/abs/2111.01095>.
14. Dmitri Pavlov. Combinatorial model categories are equivalent to presentable quasicategories. *Under review*. <https://arxiv.org/abs/2110.04679>.
13. Daniel Grady, Dmitri Pavlov. Extended field theories are local and have classifying spaces. *Geometry & Topology* (revision requested). *Under review*. <https://arxiv.org/abs/2011.01208>.
12. Dmitri Pavlov. Projective model structures on diffeological spaces and smooth sets and the smooth Oka principle. *Homology, Homotopy and Applications* (second revision submitted). <https://arxiv.org/abs/2210.12845>.
11. Dmitri Pavlov. The enriched Thomason model structure on 2-categories. *Journal of Pure and Applied Algebra* (2023), accepted. <https://authors.elsevier.com/tracking/article/details.do?aid=107496&jid=JPAA&surname=Pavlov>
10. Daniel Berwick-Evans, Pedro Boavida de Brito, Dmitri Pavlov. Classifying spaces of infinity-sheaves. *Algebraic & Geometric Topology* (2023), accepted. <https://msp.org/soon/coming.php?jpath=agt>
9. Daniel Berwick-Evans, Dmitri Pavlov. Smooth one-dimensional topological field theories are vector bundles with connection. *Algebraic & Geometric Topology* (2022), accepted. <https://msp.org/soon/coming.php?jpath=agt>
8. Dmitri Pavlov. Numerable open covers and representability of topological stacks. *Topology and its Applications* 318:108203 (2022), 1–28. doi:10.1016/j.topol.2022.108203.
7. Dmitri Pavlov. Gelfand-type duality for commutative von Neumann algebras. *Journal of Pure and Applied Algebra* 226:4 (2021), 106884. doi:10.1016/j.jpaa.2021.106884.
6. Dmitri Pavlov, Jakob Scholbach. Symmetric operads in abstract symmetric spectra. *Journal of the Institute of Mathematics of Jussieu* 18:4 (2019), 707–758. doi:10.1017/S1474748017000202.
5. Owen Gwilliam, Dmitri Pavlov. Enhancing the filtered derived category. *Journal of Pure and Applied Algebra* 222:11 (2018), 3621–3674. doi:10.1016/j.jpaa.2018.01.004.
4. Dmitri Pavlov, Jakob Scholbach. Homotopy theory of symmetric powers. *Homology, Homotopy, and Applications* 20:1 (2018), 359–397. doi:10.4310/HHA.2018.v20.n1.a20.
3. Dmitri Pavlov, Jakob Scholbach. Admissibility and rectification of colored symmetric operads. *Journal of Topology* 11:3 (2018), 559–601. doi:10.1112/topo.12008.
2. Dmitri Pavlov. Algebraic tensor products and internal homs of noncommutative  $\mathcal{L}^p$ -spaces. *Journal of Mathematical Analysis and Applications* 456 (2017), 229–244. doi:10.1016/j.jmaa.2016.11.060.
1. Yury Lifshits, Dmitri Pavlov. Potential theory for mean payoff games. *Journal of Mathematical Sciences* 145:3 (2007), 4967–4974. doi:10.1007/s10958-007-0331-y.

## 8. Selected Invited Talks

- 2023–8–14: Functorial Field Theory Conference. University of Regensburg.
- 2023–1–6: Seminar on diffeology and related topics.
- 2022–11–28: Montana State University. The geometric cobordism hypothesis.
- 2022–10–21: Wichita State University. The geometric cobordism hypothesis.
- 2022–7–4 — 2022–7–8: The Erwin Schrödinger International Institute for Mathematics and Physics, Vienna. (An invited lecture series.) The geometric cobordism hypothesis.
- 2022–4–6: University of Nottingham. The geometric cobordism hypothesis.
- 2022–3–30: University of Lisbon. The geometric cobordism hypothesis.
- 2022–2–7: MIT Topology Seminar. The geometric cobordism hypothesis.
- 2018–11–2: University of Louisiana at Lafayette. Homotopy theory of algebras over operads.
- 2018–8–22: Pohang Operadic Workshop, IBS Center for Geometry and Physics, South Korea. Homotopy theory of algebras over operads.
- 2017–7–27: Higher Structures Lisbon 2017, University of Lisbon. Extended QFTs are local.
- 2017–2–7: Texas Tech University (Colloquium Talk, Department of Mathematics and Statistics). Concordances of geometric objects and representability of associated cohomology theories.
- 2015–11–4: University of Regensburg. Abstract Simons-Sullivan construction for generalized differential cohomology.
- 2015–6–9: Hausdorff Research Institute for Mathematics, Bonn. Concordance theory for homotopy sheaves.
- 2014–11–18: Stanford University. Concordance theory for homotopy sheaves.
- 2014–11–13: Ohio State University. Rectification of homotopy coherent algebraic structures to strict ones.
- 2014–5–22: University of Regensburg. Concordance theory of homotopy sheaves.
- 2014–5–6: NCGOA 2014 conference, Vanderbilt University. Tomita-Takesaki theory via modular algebras.
- 2013–2–13: University of Hamburg. Two-dimensional Yang-Mills theory and equivariant TMF.
- 2012–10–16 and 2012–11–6: University of Bochum. Two-dimensional Yang-Mills theory and string topology of classifying spaces as local Segal-style functorial field theories.
- 2012–6–4: FRG Conference on Topology and Field Theories at the University of Notre Dame. Differential cohomology and smooth topological field theories.
- 2011–5–3: University of Notre Dame. Jones index via a symmetric monoidal bicategory of von Neumann algebras.
- 2010–12–1: University of Utrecht. Bivariant 0|1-dimensional field theories and de Rham homology and cohomology.
- 2010–8–6: FRG Workshop on mathematical 2D-field theory and the algebraic topology of closed manifolds at Stony Brook University. 2|1-dimensional Euclidean field theories and noncommutative  $L^p$ -spaces.
- 2009–10–20: University of Münster. Tensor products of noncommutative  $L_p$ -spaces and equivalences of categories of  $L_p$ -modules.

## 9. Teaching Experience

Spring 2023	Mathematics 4363: Combinatorics
Spring 2023	Mathematics 6332: Geometric Mechanics
Fall 2022	Mathematics 6325: Category Theory
Fall 2022	Mathematics 4362: Theory of Numbers
Spring 2022	Mathematics 4351: Advanced Calculus II
Fall 2021	Mathematics 2450: Calculus III
Fall 2021	Mathematics 6330: Manifold Theory
Spring 2020	Mathematics 5399: Introduction to Modern Algebra II
Spring 2020	Mathematics 2360: Linear Algebra
Fall 2020	Mathematics 5317: Introduction to Modern Algebra
Fall 2020	Mathematics 2360: Linear Algebra
Spring 2020	Mathematics 6332: Geometric Mechanics
Spring 2020	Mathematics 6322: Homological Algebra II
Fall 2019	Mathematics 6333: Introduction to Lie Groups and Their Representations
Fall 2019	Mathematics 6321: Homological Algebra I
Spring 2019	Mathematics 5325: Topology II
Fall 2018	Mathematics 5324: Topology I
Fall 2018	Mathematics 5365: Analysis of Algorithms
Spring 2018	Mathematics 6325: Category Theory
Fall 2017	Mathematics 2360: Linear Algebra

## 10. Seminars Organized

Fall 2019–now: Quantum Homotopy Seminar  
Fall 2018–now: Topology and Geometry Seminar

## 11. Committees

August 2019–August 2021: Graduate Committee (Texas Tech University)

## 12. Service

Referee reports and quick opinions:

Duke Mathematical Journal  
Compositio Mathematica  
Advances in Mathematics  
Forum of Mathematics, Sigma  
Selecta Mathematica  
Journal of Topology  
Letters in Mathematical Physics  
Proceedings of the American Mathematical Society  
Algebraic & Geometric Topology  
Revista Matemática Iberoamericana  
Theory and Applications of Categories  
Journal of Homotopy and Related Structures  
Operator Theory: Advances and Applications  
Journal of Algebra  
Journal of Geometry and Physics  
SIGMA (Symmetry, Integrability and Geometry: Methods and Applications)  
São Paulo Journal of Mathematical Sciences