List of Publications

Alexander Schenkel

Preprints

[P-4] M. Benini, R. A. Cullinan, A. Schenkel and B. Vicedo,
"Computational homological methods for integrable field theories,"
arXiv:2607.12142 [hep-th].

[P-3] M. Benini, V. Carmona and A. Schenkel,
"Prefactorization algebras of superselection sectors,"
arXiv:2604.24865 [math-ph].

[P-2] M. Benini, R. A. Cullinan, A. Schenkel and B. Vicedo,
"On the structure of higher-dimensional integrable field theories,"
arXiv:2604.24864 [hep-th].

[P-1] M. Benini, A. Schenkel and B. Vicedo,
"The homological algebra of 2d integrable field theories,"
arXiv:2601.19993 [hep-th].

Articles in peer reviewed journals

[J-66] M. Benini, V. Carmona, P. Naaijkens and A. Schenkel,
"C^*-categorical prefactorization algebras for superselection sectors and topological order,"
Commun. Math. Phys. **407**, 20 (2026) [arXiv:2505.07960 [math-ph]].

[J-65] S. Bunk, J. MacManus and A. Schenkel,
"An equivalence theorem for algebraic and functorial QFT,"
to appear in Annales Henri Poincaré [arXiv:2504.15759 [math-ph]].

[J-64] C. Kemp, R. Laugwitz and A. Schenkel,
"Shifted Poisson structures on higher Chevalley-Eilenberg algebras,"
Lett. Math. Phys. **116**, 19 (2026) [arXiv:2412.12804 [math.QA]].

[J-63] M. Benini, V. Carmona, A. Grant-Stuart and A. Schenkel,
"On the equivalence of AQFTs and prefactorization algebras,"
Lett. Math. Phys. **116**, 13 (2026) [arXiv:2412.07318 [math-ph]].

[J-62] M. Benini, T. Fernández and A. Schenkel,
"Derived algebraic geometry of 2d lattice Yang-Mills theory,"
Sel. Math. New Ser. **32**, 64 (2026) [arXiv:2409.06873 [math-ph]].

[J-61] C. Kemp, R. Laugwitz and A. Schenkel,
"Infinitesimal 2-braidings from 2-shifted Poisson structures,"
J. Geom. Phys. **212**, 105456 (2025) [arXiv:2408.00391 [math.QA]].

[J-60] A. Schenkel and B. Vicedo,
"5d 2-Chern-Simons theory and 3d integrable field theories,"
Commun. Math. Phys. **405**, 293 (2024) [arXiv:2405.08083 [hep-th]].

[J-59] M. Benini, A. Grant-Stuart and A. Schenkel,
"Haag-Kastler stacks,"
to appear in Communications in Contemporary Mathematics [arXiv:2404.14510 [math-ph]].

[J-58] M. Benini, A. Grant-Stuart, G. Musante and A. Schenkel,
"Obstructions to the existence of Møller maps,"
Adv. Theor. Math. Phys. **29**, no. 7, 1945–1989 (2025) [arXiv:2311.00070 [math-ph]].

[J-57] S. Bunk, J. MacManus and A. Schenkel,
"Lorentzian bordisms in algebraic quantum field theory,"
Lett. Math. Phys. **115**, 16 (2025) [arXiv:2308.01026 [math-ph]].

[J-56] S. Bruinsma, A. Schenkel and B. Vicedo,
"Universal first-order Massey product of a prefactorization algebra,"
Commun. Math. Phys. **405**, 206 (2024) [arXiv:2307.04856 [math-ph]].

[J-55] M. Benini, A. Grant-Stuart and A. Schenkel,
"The linear CS/WZW bulk/boundary system in AQFT,"
Annales Henri Poincaré **25**, 2251–2294 (2024) [arXiv:2302.06990 [math-ph]].

[J-54] M. Benini, G. Musante and A. Schenkel,
"Quantization of Lorentzian free BV theories: factorization algebra vs algebraic quantum field theory,"
Lett. Math. Phys. **114**, 36 (2024) [arXiv:2212.02546 [math-ph]].

[J-53] M. Benini, V. Carmona and A. Schenkel,
"Strictification theorems for the homotopy time-slice axiom,"
Lett. Math. Phys. **113**, 20 (2023) [arXiv:2208.04344 [math-ph]].

[J-52] M. Benini, G. Musante and A. Schenkel,
"Green hyperbolic complexes on Lorentzian manifolds,"
Commun. Math. Phys. **403**, 699–744 (2023) [arXiv:2207.04069 [math-ph]].

[J-51] J. Gaunt, H. Nguyen and A. Schenkel,
"BV quantization of dynamical fuzzy spectral triples,"
J. Phys. A **55**, 474004 (2022) [arXiv:2203.04817 [hep-th]].

[J-50] M. Benini, J. P. Pridham and A. Schenkel,
"Quantization of derived cotangent stacks and gauge theory on directed graphs,"
Adv. Theor. Math. Phys. **27**, no. 5, 1275–1332 (2023) [arXiv:2201.10225 [math-ph]].

[J-49] M. Benini, L. Giorgetti and A. Schenkel,
"A skeletal model for 2d conformal AQFTs,"
Commun. Math. Phys. **395**, 269–298 (2022) [arXiv:2111.01837 [math-ph]].

[J-48] S. Bruinsma, C. J. Fewster and A. Schenkel,
"Relative Cauchy evolution for linear homotopy AQFTs,"
Commun. Math. Phys. **392**, no. 2, 621–657 (2022) [arXiv:2108.10592 [math-ph]].

[J-47] H. Nguyen, A. Schenkel and R. J. Szabo,
"Batalin-Vilkovisky quantization of fuzzy field theories,"
Lett. Math. Phys. **111**, 149 (2021) [arXiv:2107.02532 [hep-th]].

[J-46] M. Benini, P. Safronov and A. Schenkel,
"Classical BV formalism for group actions,"
Commun. Contemp. Math. **25**(1), 2150094 (2023) [arXiv:2104.14886 [math-ph]].

[J-45] M. Benini, M. Perin and A. Schenkel,
"Smooth 1-dimensional algebraic quantum field theories,"
Annales Henri Poincaré **23**, 2069–2111 (2022) [arXiv:2010.13808 [math-ph]].

[J-44] M. Benini, A. Schenkel and B. Vicedo,
"Homotopical analysis of 4d Chern-Simons theory and integrable field theories,"
Commun. Math. Phys. **389**, no. 3, 1417–1443 (2022) [arXiv:2008.01829 [hep-th]].

[J-43] H. Nguyen and A. Schenkel,
"Dirac operators on noncommutative hypersurfaces,"
J. Geom. Phys. **158**, 103917 (2020) [arXiv:2004.07272 [math.QA]].

[J-42] M. Benini, M. Perin, A. Schenkel and L. Woike,
"Categorification of algebraic quantum field theories,"
Lett. Math. Phys. **111**, 35 (2021) [arXiv:2003.13713 [math-ph]].

[J-41] P. Mathieu, L. Murray, A. Schenkel and N. J. Teh,
"Homological perspective on edge modes in linear Yang-Mills and Chern-Simons theory,"
Lett. Math. Phys. **110**, 1559–1584 (2020) [arXiv:1907.10651 [hep-th]].

[J-40] M. Benini, S. Bruinsma and A. Schenkel,
"Linear Yang-Mills theory as a homotopy AQFT,"
Commun. Math. Phys. **378**, 185–218 (2020) [arXiv:1906.00999 [math-ph]].

[J-39] M. Benini, M. Perin and A. Schenkel,
"Model-independent comparison between factorization algebras and algebraic quantum field theory on Lorentzian manifolds,"
Commun. Math. Phys. **377**, 971–997 (2020) [arXiv:1903.03396 [math-ph]].

[J-38] T. Brzeziński, J. Gaunt and A. Schenkel,
"On the relationship between classical and deformed Hopf fibrations,"
SIGMA **16**, 008 (2020) [arXiv:1811.10913 [math.QA]].

[J-37] S. Bruinsma and A. Schenkel,
"Algebraic field theory operads and linear quantization,"
Lett. Math. Phys. **109**, 2531–2570 (2019) [arXiv:1809.05319 [math-ph]].

[J-36] M. Benini, A. Schenkel and L. Woike,
"Homotopy theory of algebraic quantum field theories,"
Lett. Math. Phys. **109**, 1487–1532 (2019) [arXiv:1805.08795 [math-ph]].

[J-35] M. Benini, A. Schenkel and L. Woike,
"Involutive categories, colored $*$-operads and quantum field theory,"
Theor. Appl. Categor. **34**, 13–57 (2019) [arXiv:1802.09555 [math.CT]].

[J-34] M. Benini, C. Dappiaggi and A. Schenkel,
"Algebraic quantum field theory on spacetimes with timelike boundary,"
Annales Henri Poincaré **19**, 2401–2433 (2018) [arXiv:1712.06686 [math-ph]].

[J-33] M. Benini, A. Schenkel and L. Woike,
"Operads for algebraic quantum field theory,"
Commun. Contemp. Math. **23**(2), 2050007 (2021) [arXiv:1709.08657 [math-ph]].

[J-32] M. Benini, A. Schenkel and U. Schreiber,
"The stack of Yang-Mills fields on Lorentzian manifolds,"
Commun. Math. Phys. **359**, 765 (2018) [arXiv:1704.01378 [math-ph]].

[J-31] C. Dappiaggi, S. Murro and A. Schenkel,
"Non-existence of natural states for Abelian Chern-Simons theory,"
J. Geom. Phys. **116**, 119–123 (2017) [arXiv:1612.04080 [math-ph]].

[J-30] M. Benini and A. Schenkel,
"Quantum field theories on categories fibered in groupoids,"
Commun. Math. Phys. **356**, 19 (2017) [arXiv:1610.06071 [math-ph]].

[J-29] A. Schenkel and J. Zahn,
"Global anomalies on Lorentzian space-times,"
Annales Henri Poincaré **18**, 2693–2714 (2017) [arXiv:1609.06562 [hep-th]].

[J-28] G. E. Barnes, A. Schenkel and R. J. Szabo,
"Mapping spaces and automorphism groups of toric noncommutative spaces,"
Lett. Math. Phys. **107**, 1591–1628 (2017) [arXiv:1606.04775 [math.QA]].

[J-27] P. Aschieri, P. Bieliavsky, C. Pagani and A. Schenkel,
"Noncommutative principal bundles through twist deformation,"
Commun. Math. Phys. **352**, 287 (2017) [arXiv:1604.03542 [math.QA]].

[J-26] M. Benini and A. Schenkel,
"Poisson algebras for non-linear field theories in the Cahiers topos,"
Annales Henri Poincaré **18**, 1435–1464 (2017) [arXiv:1602.00708 [math-ph]].

[J-25] C. Dappiaggi, H. Gimperlein, S. Murro and A. Schenkel,
"Wavefront sets and polarizations on supermanifolds,"
J. Math. Phys. **58**, 023504 (2017) [arXiv:1512.07823 [math-ph]].

[J-24] C. Becker, M. Benini, A. Schenkel and R. J. Szabo,
"Cheeger-Simons differential characters with compact support and Pontryagin duality,"
Commun. Anal. Geom. **27**, 1473–1522 (2019) [arXiv:1511.00324 [math.DG]].

[J-23] C. Becker, M. Benini, A. Schenkel and R. J. Szabo,
"Abelian duality on globally hyperbolic spacetimes,"
Commun. Math. Phys. **349**, 361 (2017) [arXiv:1511.00316 [hep-th]].

[J-22] G. E. Barnes, A. Schenkel and R. J. Szabo,
"Nonassociative geometry in quasi-Hopf representation categories II:
Connections and curvature,"
J. Geom. Phys. **106**, 234–255 (2016) [arXiv:1507.02792 [math.QA]].

[J-21] M. Benini, A. Schenkel and R. J. Szabo,
"Homotopy colimits and global observables in Abelian gauge theory,"
Lett. Math. Phys. **105**, 1193–1222 (2015) [arXiv:1503.08839 [math-ph]].

[J-20] T. -P. Hack, F. Hanisch and A. Schenkel,
"Supergeometry in locally covariant quantum field theory,"
Commun. Math. Phys. **342**, 615 (2016) [arXiv:1501.01520 [math-ph]].

[J-19] G. E. Barnes, A. Schenkel and R. J. Szabo,
"Nonassociative geometry in quasi-Hopf representation categories I:
Bimodules and their internal homomorphisms,"
J. Geom. Phys. **89**, 111–152 (2015) [arXiv:1409.6331 [math.QA]].

[J-18] C. Becker, A. Schenkel and R. J. Szabo,
"Differential cohomology and locally covariant quantum field theory,"
Rev. Math. Phys. **29**, 1750003 (2017) [arXiv:1406.1514 [hep-th]].

[J-17] C. J. Fewster and A. Schenkel,
"Locally covariant quantum field theory with external sources,"
Annales Henri Poincaré **16**, 2303–2365 (2015) [arXiv:1402.2436 [math-ph]].

[J-16] A. Schenkel and C. F. Uhlemann,
"Dirac operators on noncommutative curved spacetimes,"
SIGMA **9**, 080 (2013) [arXiv:1308.1929 [hep-th]].

[J-15] M. Benini, C. Dappiaggi, T. -P. Hack and A. Schenkel,
"A C^*-algebra for quantized principal $U(1)$-connections on globally hyperbolic Lorentzian manifolds,"
Commun. Math. Phys. **332**, 477 (2014) [arXiv:1307.3052 [math-ph]].

[J-14] M. Benini, C. Dappiaggi and A. Schenkel,
"Quantized Abelian principal connections on Lorentzian manifolds,"
Commun. Math. Phys. **330**, 123 (2014) [arXiv:1303.2515 [math-ph]].

[J-13] M. Benini, C. Dappiaggi and A. Schenkel,
"Quantum field theory on affine bundles,"
Annales Henri Poincaré **15**, 171–211 (2014) [arXiv:1210.3457 [math-ph]].

[J-12] P. Aschieri and A. Schenkel,
"Noncommutative connections on bimodules and Drinfeld twist deformation,"
Adv. Theor. Math. Phys. **18**, 513–612 (2014) [arXiv:1210.0241 [math.QA]].

[J-11] T. -P. Hack and A. Schenkel,
"Linear bosonic and fermionic quantum gauge theories on curved spacetimes,"
Gen. Rel. Grav. **45**, 877 (2013) *(Editor's choice)* [arXiv:1205.3484 [math-ph]].

[J-10] A. Schenkel,
"Module parallel transports in fuzzy gauge theory,"
Int. J. Geom. Meth. Mod. Phys. **11**, 1450021 (2014) [arXiv:1201.4785 [math-ph]].

[J-9] A. Schenkel and C. F. Uhlemann,
"Quantization of the massive gravitino on FRW spacetimes,"
Phys. Rev. D **85**, 024011 (2012) [arXiv:1109.2951 [hep-th]].

[J-8] A. Schenkel,
"QFT on homothetic Killing twist deformed curved spacetimes,"
Gen. Rel. Grav. **43**, 2605 (2011) [arXiv:1009.1090 [math-ph]].

[J-7] A. Schenkel and C. F. Uhlemann,
"Field Theory on Curved Noncommutative Spacetimes,"
SIGMA **6**, 061 (2010) [arXiv:1003.3190 [hep-th]].

[J-6] A. Schenkel and C. F. Uhlemann,
"High energy improved scalar quantum field theory from noncommutative geometry without UV/IR-mixing,"
Phys. Lett. B **694**, 258 (2010) [arXiv:1002.4191 [hep-th]].

[J-5] T. Ohl, A. Schenkel and C. F. Uhlemann,
"Spacetime Noncommutativity in Models with Warped Extradimensions,"
JHEP **1007**, 029 (2010) [arXiv:1002.2884 [hep-th]].

[J-4] T. Ohl and A. Schenkel,
"Algebraic approach to quantum field theory on a class of noncommutative curved spacetimes,"
Gen. Rel. Grav. **42**, 2785 (2010) [arXiv:0912.2252 [hep-th]].

[J-3] T. Koslowski and A. Schenkel,
"Preferred foliation effects in Quantum General Relativity,"
Class. Quant. Grav. **27**, 135014 (2010) [arXiv:0910.0623 [gr-qc]].

[J-2] T. Ohl and A. Schenkel,
"Cosmological and Black Hole Spacetimes in Twisted Noncommutative Gravity,"
JHEP **0910**, 052 (2009) [arXiv:0906.2730 [hep-th]].

[J-1] T. Ohl and A. Schenkel,
"Symmetry Reduction in Twisted Noncommutative Gravity with Applications to Cosmology and Black Holes,"
JHEP **0901**, 084 (2009) [arXiv:0810.4885 [hep-th]].

Conference/workshop proceedings and book chapters

[C-9] M. Benini and A. Schenkel,
"Operads, homotopy theory and higher categories in algebraic quantum field theory,"
in: R. Szabo and M. Bojowald (eds.), *Encyclopedia of Mathematical Physics*, Second Edition, Volume 5, 556–568 (2025) [arXiv:2305.03372 [math-ph]].

[C-8] M. Benini and A. Schenkel,
"Higher structures in algebraic quantum field theory,"
Fortschr. Phys. **67**, 1910015 (2019) [arXiv:1903.02878 [hep-th]].
LMS-EPSRC Durham Symposium: Higher Structures in M-Theory, August 2018, Durham.

[C-7] A. Schenkel,
"Homotopical locally covariant quantum field theory I,"
in Oberwolfach Reports, Volume 13, Issue 4, pp. 3261–3287 (2016).
New interactions between homotopical algebra and quantum field theory, December 2016, Oberwolfach.

[C-6] G. E. Barnes, A. Schenkel and R. J. Szabo,
"Working with Nonassociative Geometry and Field Theory,"
PoS(CORFU2015)081 [arXiv:1601.07353 [hep-th]].
Noncommutative Field Theory and Gravity, September 2015, Corfu.

[C-5] A. Schenkel,
"Quantized Abelian principal connections on Lorentzian manifolds,"
in Oberwolfach Reports, Volume 10, Issue 3, pp. 2155–2177 (2013).
New Crossroads between Mathematics and Field Theory, July 2013, Oberwolfach.

[C-4] A. Schenkel,
"Twist deformations of module homomorphisms and connections,"
PoS(CORFU2011)056 [arXiv:1210.1142 [math.QA]].
Noncommutative Field Theory and Gravity, September 2011, Corfu.

[C-3] A. Schenkel,
"Quantum Field Theory on Curved Noncommutative Spacetimes,"
PoS(CNCFG2010)029 [arXiv:1101.3492 [hep-th]].
Noncommutative Field Theory and Gravity, September 2010, Corfu.

[C-2] A. Schenkel,
"Quantum Field Theory on Noncommutative Curved Spacetimes,"
in Oberwolfach Reports, Volume 7, Issue 3, pp. 2503–2560 (2010).
Deformation Methods in Mathematics and Physics, September 2010, Oberwolfach.

[C-1] A. Schenkel,
"Symmetry Reduction and Exact Solutions in Twisted Noncommutative Gravity,"
Acta Phys. Polon. B Proc. Suppl. 2: 657 (2009) [arXiv:0908.0434 [hep-th]].
Non-perturbative Gravity and Quantum Chromodynamics, June 2009, Zakopane.

PhD thesis

[T-1] A. Schenkel,
"Noncommutative Gravity and Quantum Field Theory on Noncommutative Curved Spacetimes,"
PhD thesis, Würzburg University (2011) [arXiv:1210.1115 [math-ph]].

Trento, July 15, 2026