

List of publications by Prof.dr. N.P. (Klaas) Landsman (August 2016)

Research monographs

1. *Concepts in Thermal Field Theory*, PhD Thesis (University of Amsterdam, 1989).
2. *Mathematical Topics Between Classical and Quantum Mechanics* (Springer, New York, 1998, 550 pages).
3. *Bohrification: From Classical Concepts to Commutative Operator Algebras* (Springer, Heidelberg, to appear, 850 pages). Draft available at <https://www.dropbox.com/s/xfnjbmw7ss1c11/BohrificationBookv2.pdf>

Edited volumes

1. *Quantization of Singular Symplectic Quotients* (Birkhäuser, Basel, 2001). With M. Pflaum & M. Schlichenmaier.
2. *The Challenge of Chance* (Springer, Zug, 2016). With E. van Wolde.

Book chapters

1. Quantized reduction as a tensor product. *Quantization of Singular Symplectic Quotients*, eds. N.P. Landsman, M. Pflaum, M. Schlichenmaier, pp. 137–180 (Birkhäuser, Basel, 2001). [arXiv:math-ph/0008004](https://arxiv.org/abs/math-ph/0008004).
2. Between classical and quantum. *Handbook of the Philosophy of Science, Vol. 2: Philosophy of Physics*, Eds. J. Butterfield & J. Earman, pp. 417–554 (North-Holland, Amsterdam, 2007). [arXiv:quant-ph/0506082](https://arxiv.org/abs/quant-ph/0506082).
3. Algebraic quantum mechanics. The Born rule and its interpretation. Quantization (systematic). Quasi-classical limit. *Compendium of Quantum Physics*, Eds. D. Greenberger, K. Hentschel, and F. Weinert, pp. 6–9, 64–70, 510–513, 626–629 (Springer, Heidelberg, 2009).
4. Christiaan Huygens' 'Traité de la lumière' (with F.J. Dijksterhuis). *Boekenwijsheid*, Eds. J. Bos, E. Geleijns, pp. 177–185 (Walburg Pers, Zutphen).
5. Bohrification (with C. Heunen and B. Spitters). *Deep Beauty: Understanding the Quantum World through Mathematical Innovation*, Ed. H. Halvorson, pp. 271–313 (Cambridge University Press, 2011). [arXiv:0909.3468](https://arxiv.org/abs/0909.3468).
6. The Fine-Tuning Argument. *The Challenge of Chance*, pp. 111–129 (Springer, Zug). <http://philsci-archive.pitt.edu/11472/2/FTAv2.pdf>
7. Bohrification: From classical concepts to commutative algebras, to appear in *Niels Bohr in the 21st Century*, eds. J. Faye, J. Folse (Chicago University Press). [arXiv:1601.02794](https://arxiv.org/abs/1601.02794).

Refereed journal articles

1. Consistent real-time propagators for any spin, mass, temperature and density, *Physics Letters* **B172**, 46–48 (1986).
2. Real- and imaginary-time field theory at finite temperature and density (with Ch.G. van Weert), *Physics Reports* **145**, 141–249 (1987).
3. Hilbert space and propagator in thermal field theory, *Physical Review Letters* **60**, 1909–1912 (1988).
4. Non-shell unstable particles in thermal field theory, *Annals of Physics (N.Y.)* **186**, 141–205 (1988).
5. How dissipation solves the infrared problem in thermal QCD, *Physica* **A158**, 200–224 (1989).
6. Limitations to dimensional reduction at high temperature, *Nuclear Physics* **B322**, 498–530 (1989).
7. Large-mass and high-temperature behaviour in perturbative quantum field theory, *Communications in Mathematical Physics* **125**, 643–660 (1989).
8. Dimensional reduction at high temperature revisited (with E.L.M. Koopman), *Physics Letters* **B223**, 421–424 (1989).
9. A gauge-independent coupling constant in thermal QCD, *Physics Letters* **B232**, 240–246 (1989).
10. C^* -algebraic quantization and the origin of topological quantum effects, *Letters in Mathematical Physics* **20**, 11–18 (1990).
11. Quantization and superselection sectors I. Transformation group C^* -algebras, *Reviews in Mathematical Physics* **2**, 45–72 (1990).
12. Quantization and superselection sectors II. Dirac Monopole and Aharonov-Bohm effect, *Reviews in Mathematical Physics* **2**, 73–104 (1990).
13. Algebraic theory of superselection sectors and the measurement problem in quantum mechanics, *International Journal of Modern Physics* **A6**, 5349–5372 (1991).
14. The geometry of inequivalent quantizations (with N. Linden), *Nuclear Physics* **B365**, 121–160 (1991).
15. Superselection rules from Dirac and BRST quantization of constrained systems (with N. Linden), *Nuclear Physics* **B371**, 415–433 (1992).
16. Induced representations, gauge fields, and quantization on homogeneous spaces, *Reviews in Mathematical Physics* **4**, 503–528 (1992).
17. Deformations of algebras of observables and the classical limit of quantum mechanics, *Reviews in Mathematical Physics* **5**, 775–806 (1993).
18. Quantization and classicization: from Jordan-Lie algebras of observables to gauge fields, *Classical and Quantum Gravity*, **10**, S101–S108 (1993).

19. Quantization on Riemannian spaces from groupoid C^* -algebras, *International Journal of Modern Physics Proc. Suppl.* **3A**, 347–350 (1993).
20. Strict deformation quantization of a particle in external gravitational and Yang-Mills fields, *Journal of Geometry and Physics* **12**, 93–132 (1993).
21. Inaccuracy and spontaneous symmetry breaking in quantum measurements (with T. Breuer and A. Amann), *Journal of Mathematical Physics* **34**, 5441–5450 (1993).
22. Rieffel induction as generalized quantum Marsden-Weinstein reduction, *Journal of Geometry and Physics* **15**, 285–319 (1995), Err. **17** (1995) 298, [arXiv:hep-th/9305088](#).
23. Observation and superselection in quantum mechanics, *Studies in History and Philosophy of Modern Physics* **26**, 45–73 (1995). [arXiv:hep-th/9411173](#).
24. Massless particles, electromagnetism, and Rieffel induction (with U.A. Wiedemann), *Reviews in Mathematical Physics* **7**, 923–958 (1995). [arXiv:hep-th/9411174](#).
25. The Stueckelberg-Kibble model as an example of quantized symplectic reduction (with U.A. Wiedemann), *Journal of Mathematical Physics* **37**, 2731–2747, (1996). [arXiv:hep-th/9508134](#).
26. Local Quantum Physics, *Studies in History and Philosophy of Modern Physics* **27**, 511–525 (1996).
27. Classical behaviour in quantum mechanics: a transition probability approach, *International Journal of Modern Physics* **B10**, 1545–1554 (1996). [arXiv:quant-ph/9511001](#).
28. Against the Wheeler-DeWitt equation, *Classical and Quantum Gravity* **12**, L119–L123 (1995). [arXiv:gr-qc/9510033](#).
29. Poisson spaces with a transition probability, *Reviews in Mathematical Physics* **9**, 29–57 (1997). [arXiv:quant-ph/9603005](#).
30. Simple new axioms for quantum mechanics, *International Journal of Theoretical Physics* **37** (1998) 343–348, [arXiv:quant-ph/9604008](#).
31. Constrained quantization and θ -angles (with K.K. Wren), *Nuclear Physics* **B502** [PM], 537–560 (1997). [arXiv:hep-th/9706178](#).
32. Quantum Mechanics on Phase Space, *Studies in History and Philosophy of Modern Physics* **30**, 287–305 (1999).
33. Representations of the infinite unitary group from constrained quantization, *Journal of Nonlinear Mathematical Physics* **6**, 161–180 (1999).
34. Lie groupoid C^* -algebras and Weyl quantization, *Communications in Mathematical Physics* **206**, 367–381 (1999). [arXiv:math-ph/9903039](#).
35. Strict quantization of coadjoint orbits, *Journal of Mathematical Physics* **39**, 6372–6383 (1998). [arXiv:math-ph/9807027](#).
36. Twisted Lie group C^* -algebras as strict quantizations, *Letters in Mathematical Physics* **46**, 181–188 (1998). [arXiv:math-ph/9807028](#).

37. Comment on “What is a gauge transformation in quantum mechanics?”, *Physical Review Letters* **83**, 1070 (1999).
38. Bicategories of operator algebras and Poisson manifolds, *Mathematical Physics in Mathematics and Physics: Quantum and Operator Algebraic Aspects*, ed. R. Longo, *Fields Institute Communications* **30**, 271–286 (2001). [arXiv:math-ph/0008003](#).
39. The Muhly-Renault-Williams theorem for Lie groupoids and its classical counterpart, *Letters in Mathematical Physics* **54**, 43–59 (2001). [arXiv:math-ph/0008005](#).
40. Operator algebras and Poisson manifolds associated to groupoids, *Communications in Mathematical Physics* **222**, 97–116 (2001). [arXiv:math-ph/0008036](#).
41. Getting even with Heisenberg, *Studies in History and Philosophy of Modern Physics* **33**, 297–325 (2002).
42. Deformation quantization and the Baum–Connes conjecture, *Communications in Mathematical Physics*, **237**, 87–103 (2003). [arXiv:math-ph/0210015](#).
43. Quantum mechanics and representation theory: the new synthesis, *Acta Applicandae Mathematica* **81**, 167–189 (2004).
44. Lie Groupoids and Lie algebroids in physics and noncommutative geometry, *Journal of Geometry and Physics* **56**, 24–54 (2006). [arXiv:math-ph/0506024](#)
45. When champions meet: Rethinking the Bohr–Einstein debate, *Studies in History and Philosophy of Modern Physics*, **37**, 212–242 (2006). [arXiv:quant-ph/0507220](#).
46. The Guillemin-Sternberg conjecture for noncompact groups and spaces (with P. Hochs). *Journal of K-theory* **1**, 473–533 (2008). [arXiv:math-ph/0512022](#).
47. Macroscopic observables and the Born rule, *Reviews in Mathematical Physics* **20**, 1173–1190 (2008). [arXiv:0804.4849](#).
48. A topos for algebraic quantum theory (with C. Heunen and B. Spitters), *Communications in Mathematical Physics* **291**, 63–110 (2009). [arXiv:0709.4364](#).
49. Intuitionistic quantum logic of an n-level system (with M. Caspers, C. Heunen and B. Spitters), *Foundations of Physics* **39**, 731–759 (2009). [arXiv:0902.3201](#).
50. Bohrification of operator algebras and quantum logic (with C. Heunen and B. Spitters), *Synthese*, **186**, 719–752 (2012). [arXiv:0905.2275](#).
51. The Gelfand spectrum of a noncommutative C*-algebra: a topos-theoretic approach (with C. Heunen, B. Spitters, and S. Wolters), *J. Australian Mathematical Society* **90**, 32–59 (2011). [arXiv:1010.2050](#).
52. A Flea on Schrödinger’s Cat (with R. Reuvers), *Foundation of Physics* **43**, 373–407 (2013). [arXiv:1210.2353](#).
53. Spontaneous symmetry breaking in quantum systems: Emergence or reduction? *Studies in History and Philosophy of Modern Physics* **44**, 379–394 (2013). [arXiv:1305.4473](#).
54. Constraints on determinism: Bell vs Conway–Kochen (with E. Cator) *Foundations of Physics* **44**, 781–791 (2014). [arXiv:1402.1972](#).

55. A bounded transform approach to self-adjoint operators: Functional calculus and affiliated von Neumann algebras (with C. Budde), *Annals of Functional Analysis* **7**, 411–420 (2016). [arXiv:1508.06772](#).
56. On the Colbeck-Renner Theorem, *Journal of Mathematical Physics* **56**, 122103 (2015). [arXiv:1509.08498](#).
57. The Kadison-Singer conjecture (with M. Stevens), *Nieuw Archief voor Wiskunde* **17**, 41–46 (2016).

Refereed conference proceedings

1. Universal quantum field theory, *Proceedings of the CAP-NSERC Summer Institute in Theoretical Physics*, eds. F.C.Khanna and H. Umezawa (World Scientific, Singapore), 204–226 (1988).
2. The inherent non-perturbativeness of thermal field theories (and a possible perturbativization), *Nuclear Physics A525 Proceedings Supplement, Quark Matter '90*, 397c–400c (1991).
3. Classical and quantum representation theory, *Proc. Sem. Mathematical Structures in Field Theory 1989-1990*, eds. E. A. de Kerf and H.G.J. Pijls, CWI-syllabus **39**, Amsterdam, 135–163 (1996), [arXiv:hep-th/9411172](#).
4. Disjoint final states in quantum measurements (with T. Breuer and A. Amann), *Proc. Symp. Foundations of Modern Physics 1993*, eds. P. Busch, P. Lahti, and P. Mittelstaedt (World Scientific, Singapore), 118–126 (1993).
5. The quantization of constrained systems: from symplectic reduction to Rieffel induction, *Quantization, Coherent States and Poisson Structures. Proc. XIV'th Workshop on Geometric Methods in Physics, Białowieża, 1995*, eds. A. Strasburger et al. (Polish Scientific Publishers, Warsaw), 73–89 (1998), [arXiv:dg-ga/9601009](#).
6. Classical reduction and quantum induction in constrained systems, *Physical Applications and Mathematical Aspects of Geometry, Groups, and Algebras, Proc. XXI Int. Colloquium on Group Theoretical Methods in Physics, Goslar 1996, Vol. 1*, eds. H.-D. Doebner, W. Scherer, and P. Nattermann (World Scientific, Singapore), 368–372 (1997).
7. Constrained quantization in algebraic field theory, *Meeting with the Platypus. Proc. XIIth Int. Congress of Mathematical Physics, Brisbane 1997*, eds. A.J. Bracken et al. (International Press, Boston), pp. 191–196 (1999). [arXiv:math-ph/9807029](#).
8. Quantization of singular systems and incomplete motions, *Current Topics in Mathematical Cosmology*, eds. M. Rainer and H.-J. Schmidt (World Scientific, Singapore), 256–263 (1998), [arXiv:gr-qc/9807069](#).
9. Hall's coherent states, the Cameron-Martin theorem, and the quantization of Yang-Mills theory on a circle (with K.K. Wren), *Coherent States, Quantization and Gravity*, eds. M. Schlichenmaier et al. (WUW, Warszawa, 2001), 23–36, [arXiv:math-ph/9812012](#).
10. Compact quantum groupoids, *Quantum Theory and Symmetries*, (Goslar 1999), eds. H.-D. Doebner et al., 421–431 (World Scientific, 2000), [arXiv:math-ph/9912006](#).

11. Quantization of Poisson algebras associated to Lie algebroids (with B. Ramazan), *Proceedings of the Conference on Groupoids in Physics, Analysis and Geometry* (Boulder 1999), eds. A. Ramsay and J. Renault, *Contemporary Mathematics* **282**, 159–192 (AMS, Providence, 2001), [arXiv:math-ph/0001005](#).
12. Quantization as a functor, *Quantization, Poisson Brackets, and Beyond*, ed. T. Voronov, *Contemporary Mathematics* **315**, 9–24 (AMS, Providence, 2002). [arXiv:math-ph/0107023](#).
13. Quantization and the tangent groupoid, *Operator Algebras and Mathematical Physics*, eds. J.-M. Combes, et al., 251–265 (Theta Foundation, 2003), [arXiv:math-ph/0208004](#).
14. Functorial Quantization and the Guillemin-Sternberg Conjecture, in: *Twenty Years of Białowieża: A Mathematical Anthology. Aspects of Differential Geometric Methods in Physics*, (eds. S.T. Ali, G.G. Emch, A. Odziejewicz, M. Schlichenmaier, S.L. Woronowicz), pp. 23–45 (World Scientific, Singapore, 2005). [arXiv:math-ph/0307059](#).
15. The principle of general covariance (with C. Heunen and B. Spitters). *Proc. XVI International Fall Workshop on Geometry and Physics (Lisabon, 2007)*, eds. R.L. Fernandes and R. Picken, pp. 93–102 (American Physical Society, Melville, 2008). [philsci-archive:3931](#).
16. Bohrfication (with C. Heunen and B. Spitters), *Deep Beauty: Understanding the Quantum World through Mathematical Innovation*, ed. H. Halvorson (Cambridge University Press, 2011). [arXiv:0909.3468](#).
17. Symmetries in exact Bohrfication (with A.J. Lindenhovius). *Proceedings of the Nagoya Winter Workshop 2015: Reality and Measurement in Algebraic Quantum Theory*, Ed. Ozawa, M. To appear.

Preprints

1. Quantization and superselection sectors III: Multiply connected spaces and indistinguishable particles. Submitted to *Reviews in Mathematical Physics*. [arXiv:1302.3637](#).
2. Quantisation commutes with singular reduction: cotangent bundles of compact Lie groups (with J. Boeijink and W. van Suijlekom), submitted to *Communications in Mathematical Physics*. [arXiv:1508.06763](#).
3. On the notion of free will in the Free Will Theorem, submitted to *Studies in History and Philosophy of Modern Physics*. [philsci-archive.pitt.edu/11704/](#).

Popular articles (in Dutch, see www.math.ru.nl/~landsman/eprints.html)

1. De erfenis van Dirac en von Neumann, *Nederlands Tijdschrift voor Natuurkunde* 64 (1998), 151-153.
2. Heisenberg en de Duitse atoombom, *Nederlands Tijdschrift voor Natuurkunde* 67 (2001), 178-181.
3. Hoe geef ik een wiskundige voordracht?, *Nieuw Archief voor Wiskunde* 5/2 (2001), 351-355.

4. Wiskunde aan de grenzen van de natuurkunde, *Nieuw Archief voor Wiskunde* 5/3 (2002), 24-32.
5. Wie was Thomas Young?, *Nederlands Tijdschrift voor Natuurkunde* 69 (2003), 40-44).
6. De dramatiek van de natuurkunde: toneelstukken van Frayn en Rijnders onder de loep, *Kunst en Wetenschap* 12 (2) (2003), 5-8.
7. Brilljante gifmenger: een portret van Isaac Newton, *Academische Boekengids* 39 (juni 2003), 13-14.
8. De indexstelling van Atiyah en Singer, *Nieuw Archief voor Wiskunde* 5/5 (2004), 207-211.
9. Op het kruispunt, *Nieuw Archief voor Wiskunde* 5/6 (2005), 206-214.
10. Waarom is er iets en niet niets? De visie van Hans Küng, *Nederlands Tijdschrift voor Natuurkunde* 72 (2006), 270-272.
11. Bestaat Toeval?, *Nieuwe Wiskrant* 26 (1) (2006), 21-26.
12. Op zoek naar de intellectueel, *Civis Mundi* 46 (1) (2007), 40-49.
13. Taal en werkelijkheid: Einstein tegen Bohr, *BLIND!* online.
14. Plato, wiskunde en het gymnasium, *Amphora* 25 (6) (2006), 8-10.
15. Blijf niet mokkend aan de kant staan, *Nieuw Archief voor Wiskunde* 5/8 (2007), 51-55.
16. Toeval is logisch, *Nieuwe Wiskrant* 26 (4) (2007), 42-47.
17. A random walk down Wall Street (*Nieuw Archief voor Wiskunde* 5/9 (2008), 18-23.
18. Where have all the students gone? (*Nieuw Archief voor Wiskunde* 5/9 (2008), 138-140.
19. Wanneer ga ik dood?, *Nederlands Tijdschrift voor Natuurkunde* 74 (2008), 98-101.
20. Wiskundetoernooi 2008: wat kun je nu eigenlijk met wiskunde? (met Dion Coumans en Mirte Dekkers) (*Nieuwe Wiskrant* 28, 12-14 2008)
21. Christiaan Huygens: *Traité de la Lumiere* (with Fokko Jan Dijksterhuis), *Boekenwijsheid*, Jan Bos en Erik Geleijns (red.), pp. 177–185 (Walburg Pers, Zuthpen, 2009).
22. Spiritualiteit tussen kwal en kosmos, *Zien Is Geloven*, Manon Duintjer (red.), pp. 115-127 (Ambo, Amsterdam, 2009).
23. Terug naar de werkelijkheid, *Nieuw Archief voor Wiskunde* 5/10 (2009), 48-50.
24. De overval: Fox-IT, with Matthijs Coster and Bart Jacobs, *Nieuw Archief voor Wiskunde* 5/10 (2009), 91-93.

25. De "Vrije Wil-Stelling van Conway en Kochen, Nieuw Archief voor Wiskunde 5/10 (2009), 228-234.
26. De overval: AllOptions, with Hans Melissen and Wil Schilders, Nieuw Archief voor Wiskunde 5/10 (2009), 245-249.
27. Wiskunde opstuwen in de vaart der volkeren: Interview met Chris Zaal (met Rainer Kaenders), Nieuw Archief voor Wiskunde 5/11 (2010), 39-42
28. Newton voor Jan en alleman, Nieuw Archief voor Wiskunde 5/11 (2010), 178-184
29. The flashes of insight never came for free: Interview with Alain Connes (met Gunther Cornelissen and Walter van Suijlekom), Nieuw Archief voor Wiskunde 5/11 (2010), 250-256
30. Het mysterie van het lijk in de Waal (met Tom Huls en Tim Verheijen), Pythagoras 50(2), 22-25 (2010).
31. The Dutch mathematical landscape, *Evaluation Report Mathematics Clusters 2005-2010*, pp. 163–166 (NWO, The Hague, 2010).
32. De Lucia-zaak heeft mijn leven ingrijpend veranderd: Interview met Richard Gill (met Hans Maassen), Nieuw Archief voor Wiskunde 5/13 (2012), 84-91.
33. Oosterse Wortelsoep voor 2 (!) personen, Volgens Bartjes, juli 2012, pp. 4-6.
34. De kenniseconomie valt niet centraal te sturen (met Willem Halffman, Floris Heukelom, Christoph Luethy, Esther-Mirjam Sent, Robert-Jan Wille), www.mejudice.nl.
35. De universiteit verdient meer vertrouwen (idem), De Volkskrant 3-9-2012, p. 21.
36. Wetenschap en welvaart: een paradoxaal krachtenveld, VAWO-Nieuws, januari 2014.

Book reviews (see www.math.ru.nl/~landsman/eprints.html)

1. *John von Neumann: The Scientific Genius who Pioneered the Modern Computer, Game Theory, Nuclear Deterrence, and Much More* by N. Macrea, and *John von Neumann and Norbert Wiener: From Mathematics to the Technologies of Life and Death* by S. Heims (in Dutch), STROOM.
2. *QED and the Men Who Made it* by S.S. Schweber (in Dutch), Nederlands Tijdschrift voor Natuurkunde.
3. *An Introduction to Noncommutative Spaces and their Geometries* by G. Landi (in Dutch), Nieuw Archief voor Wiskunde.
4. *Quantum Field Theory for Mathematicians* by R. Ticciati (in Dutch), Nieuw Archief voor Wiskunde.
5. *The Physics of Quantum Fields* by M. Stone, Nieuw Archief voor Wiskunde.
6. *Analytic K-Homology* by N. Higson and J. Roe (in Dutch), Nieuw Archief voor Wiskunde.

7. *Stochastic Processes and Operator Calculus on Quantum Groups* by U. Franz and R. Schott (in Dutch), Nieuw Archief voor Wiskunde.
8. *State Spaces of Operator Algebras* by E. Alfsen and F. Shultz (in Dutch), Nieuw Archief voor Wiskunde.
9. *Guardians of the Humanist Legacy: The Classicism of T.S. Eliot's Criterion Network and its Relevance to our Postmodern World* by Jeroen Vanheste and *Beginnen met Filosofie: Met andere ogen kijken naar je eigen leven* by Luc Ferry (in Dutch). Unpublished.
10. *Michael Frayn's "Copenhagen" in Debate: Historical Essays and Documents on the 1941 Meeting Between Niels Bohr and Werner Heisenberg*, Studies in History and Philosophy of Modern Physics.
11. *Decoherence and the Quantum-To-Classical Transition* by Maximilian Schlosshauer, Studies in History and Philosophy of Modern Physics.
12. *Linear Operators and their Spectra* by Brian Davies, Mathematical Intelligencer.
13. *Reexamining the Quantum-Classical Relation: Beyond Reductionism and Pluralism* by Alisa Bokulich, Notre Dame Philosophical Review.