

Scientific publications

Books

N.P. Landsman, *Mathematical Topics Between Classical and Quantum Mechanics*, 548p., Springer Mathematical Monographs, Springer, New York, 1998

N.P. Landsman, M. Pflaum, and M. Schlichenmaier (eds.), *Deformation Quantization of Singular Symplectic Quotients*, 337p., Progress in Mathematics, Birkhäuser, 2001.

Refereed 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. 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).
5. Non-shell unstable particles in thermal field theory, *Annals of Physics (N.Y.)* **186**, 141–205 (1988).
6. How dissipation solves the infrared problem in thermal QCD, *Physica* **A158**, 200–224 (1989).
7. Limitations to dimensional reduction at high temperature, *Nuclear Physics* **B322**, 498–530 (1989).
8. Large-mass and high-temperature behaviour in perturbative quantum field theory, *Communications in Mathematical Physics* **125**, 643–660 (1989).
9. Dimensional reduction at high temperature revisited (with E.L.M. Koopman), *Physics Letters* **B223**, 421–424 (1989).
10. A gauge-independent coupling constant in thermal QCD, *Physics Letters* **B232**, 240–246 (1989).
11. C^* -algebraic quantization and the origin of topological quantum effects, *Letters in Mathematical Physics* **20**, 11–18 (1990).
12. Quantization and superselection sectors I. Transformation group C^* -algebras, *Reviews in Mathematical Physics* **2**, 45–72 (1990).
13. Quantization and superselection sectors II. Dirac Monopole and Aharonov-Bohm effect, *Reviews in Mathematical Physics* **2**, 73–104 (1990).
14. The inherent non-perturbativeness of thermal field theories (and a possible perturbativization), *Nuclear Physics* **A525 Proceedings Supplement, Quark Matter '90**, 397c–400c (1991).
15. Algebraic theory of superselection sectors and the measurement problem in quantum mechanics, *International Journal of Modern Physics* **A6**, 5349–5372 (1991).
16. The geometry of inequivalent quantizations (with N. Linden), *Nuclear Physics* **B365**, 121–160 (1991).
17. Superselection rules from Dirac and BRST quantization of constrained systems (with N. Linden), *Nuclear Physics* **B371**, 415–433 (1992).

18. Induced representations, gauge fields, and quantization on homogeneous spaces, *Reviews in Mathematical Physics* **4**, 503–528 (1992).
19. Deformations of algebras of observables and the classical limit of quantum mechanics, *Reviews in Mathematical Physics* **5**, 775–806 (1993).
20. Quantization and classicization: from Jordan-Lie algebras of observables to gauge fields, *Classical and Quantum Gravity*, **10**, S101–S108 (1993).
21. Quantization on Riemannian spaces from groupoid C^* -algebras, *International Journal of Modern Physics Proc. Suppl.* **3A**, 347–350 (1993).
22. Strict deformation quantization of a particle in external gravitational and Yang-Mills fields, *Journal of Geometry and Physics* **12**, 93–132 (1993).
23. 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](https://arxiv.org/abs/hep-th/9411172).
24. Inaccuracy and spontaneous symmetry breaking in quantum measurements (with T. Breuer and A. Amann), *Journal of Mathematical Physics* **34**, 5441–5450 (1993).
25. 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).
26. 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](https://arxiv.org/abs/hep-th/9305088).
27. Observation and superselection in quantum mechanics, *Studies in History and Philosophy of Modern Physics* **26**, 45–73 (1995). [arXiv:hep-th/9411173](https://arxiv.org/abs/hep-th/9411173).
28. Massless particles, electromagnetism, and Rieffel induction (with U.A. Wiedemann), *Reviews in Mathematical Physics* **7**, 923–958 (1995). [arXiv:hep-th/9411174](https://arxiv.org/abs/hep-th/9411174).
29. 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](https://arxiv.org/abs/hep-th/9508134).
30. Local Quantum Physics, *Studies in History and Philosophy of Modern Physics* **27**, 511–525 (1996).
31. Classical behaviour in quantum mechanics: a transition probability approach, *International Journal of Modern Physics* **B10**, 1545–1554 (1996). [arXiv:quant-ph/9511001](https://arxiv.org/abs/quant-ph/9511001).
32. Against the Wheeler-DeWitt equation, *Classical and Quantum Gravity* **12**, L119–L123 (1995). [arXiv:gr-qc/9510033](https://arxiv.org/abs/gr-qc/9510033).
33. 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](https://arxiv.org/abs/dg-ga/9601009).
34. Poisson spaces with a transition probability, *Reviews in Mathematical Physics* **9**, 29–57 (1997). [arXiv:quant-ph/9603005](https://arxiv.org/abs/quant-ph/9603005).
35. Simple new axioms for quantum mechanics, *International Journal of Theoretical Physics* **37** (1998) 343–348, [arXiv:quant-ph/9604008](https://arxiv.org/abs/quant-ph/9604008).

36. 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).
37. Constrained quantization and θ -angles (with K.K. Wren), *Nuclear Physics* **B502** [PM], 537–560 (1997). [arXiv:hep-th/9706178](#).
38. Quantum Mechanics on Phase Space, *Studies in History and Philosophy of Modern Physics* **30**, 287–305 (1999).
39. Constrained quantization in algebraic field theory, *Meeting with the Platypus. Proc. XIIIth Int. Congress of Mathematical Physics, Brisbane 1997*, eds. A.J. Bracken et al. (International Press, Boston), pp. 191–196 (1999). [arXiv:math-ph/9807029](#).
40. Representations of the infinite unitary group from constrained quantization, *Journal of Nonlinear Mathematical Physics* **6**, 161–180 (1999).
41. Lie groupoid C^* -algebras and Weyl quantization, *Communications in Mathematical Physics* **206**, 367–381 (1999). [arXiv:math-ph/9903039](#).
42. Strict quantization of coadjoint orbits, *Journal of Mathematical Physics* **39**, 6372–6383 (1998). [arXiv:math-ph/9807027](#).
43. Twisted Lie group C^* -algebras as strict quantizations, *Letters in Mathematical Physics* **46**, 181–188 (1998). [arXiv:math-ph/9807028](#).
44. 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](#).
45. 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, Warsaw, 2001), 23–36, [arXiv:math-ph/9812012](#).
46. Comment on “What is a gauge transformation in quantum mechanics?”, *Physical Review Letters* **83**, 1070 (1999).
47. Compact quantum groupoids, *Quantum Theory and Symmetries*, (Goslar 1999), eds. H.-D. Doebner et al., 421–431 (World Scientific, 2000), [arXiv:math-ph/9912006](#).
48. 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](#).
49. Quantized reduction as a tensor product, *Quantization of Singular Symplectic Quotients*, eds. N.P. Landsman, M. Pflaum, M. Schlichenmaier, 137–180 (Birkhäuser, Basel, 2001), [arXiv:math-ph/0008004](#).
50. 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](#).
51. The Muhly-Renault-Williams theorem for Lie groupoids and its classical counterpart, *Letters in Mathematical Physics* **54**, 43–59 (2001). [arXiv:math-ph/0008005](#).
52. Operator algebras and Poisson manifolds associated to groupoids, *Communications in Mathematical Physics* **222**, 97–116 (2001). [arXiv:math-ph/0008036](#).

53. Getting even with Heisenberg, *Studies in History and Philosophy of Modern Physics* **33**, 297–325 (2002).
54. Quantization as a functor, *Quantization, Poisson Brackets, and Beyond*, ed. T. Voronov, *Contemporary Mathematics* **315**, 9–24 (AMS, Providence, 2002). [arXiv:math-ph/0107023](https://arxiv.org/abs/math-ph/0107023).
55. 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](https://arxiv.org/abs/math-ph/0208004).
56. Deformation quantization and the Baum–Connes conjecture, *Communications in Mathematical Physics*, **237**, 87–103 (2003). [arXiv:math-ph/0210015](https://arxiv.org/abs/math-ph/0210015).
57. Quantum mechanics and representation theory: the new synthesis, *Acta Applicandae Mathematica* **81**, 167–189 (2004).
58. 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](https://arxiv.org/abs/math-ph/0307059).
59. Lie Groupoids and Lie algebroids in physics and noncommutative geometry, *Journal of Geometry and Physics* **56**, 24–54 (2006). [arXiv:math-ph/0506024](https://arxiv.org/abs/math-ph/0506024)
60. Between classical and quantum, *Handbook of the Philosophy of Science*, Vol. 2: *Philosophy of Physics* (eds. J. Butterfield & J. Earman), Part A, pp. 417–553 (Elsevier, Amsterdam, 2007). [arXiv:quant-ph/0506082](https://arxiv.org/abs/quant-ph/0506082).
61. When champions meet: Rethinking the Bohr–Einstein debate, *Studies in History and Philosophy of Modern Physics*, **37**, 212–242 (2006). [arXiv:quant-ph/0507220](https://arxiv.org/abs/quant-ph/0507220).
62. The Guillemin–Sternberg conjecture for noncompact groups and spaces (with P. Hochs). *Journal of K-theory*, to appear (2008). [arXiv:math-ph/0512022](https://arxiv.org/abs/math-ph/0512022).
63. Entries in the Compendium of Quantum Physics (eds.) F. Weinert, K. Hentschel, D. Greenberger and B. Falkenburg, to appear (Springer, 2008):
 - (a) The Born rule and its interpretation;
 - (b) Algebraic quantum mechanics;
 - (c) Quantization (systematic);
 - (d) Quasi-classical limit.
64. A topos for algebraic quantum theory (with C. Heunen and B. Spitters). [arXiv:0709.4364 v2](https://arxiv.org/abs/0709.4364). Submitted to *Communications in Mathematical Physics*.
65. The principle of general tovariance (with C. Heunen and B. Spitters). To appear in *Proc. XVI International Fall Workshop on Geometry and Physics (Lisabon, 2007)*, eds. R. Picken et al., American Physical Society, in press. <http://www.math.ru.nl/~landsman/tovariance.pdf>.
66. Macroscopic observables and the Born rule. Draft. <http://www.math.ru.nl/~landsman/MBorn.pdf>.