

## List of publications.

### Journal articles

- 1) A connection between  $\nu$ -dimensional Yang-Mills theory and  $(\nu-1)$ -dimensional, non-linear  $\sigma$ -models. *Comm. Math. Phys.***75**, 103 (1980).  
(With J. Fröhlich.)
- 2) On the structure of gauge invariant classical observables in lattice gauge theories. *Lett. Math. Phys.***4**, 515 (1980).
- 3) Eigenvalues of the Wilson loop operator on multi-color QCD. *Nucl. Phys.***B184**, 406 (1981).  
(With P. Olesen.)
- 4) The spectral density for two-dimensional continuum QCD. *Nucl. Phys.***B184**, 461 (1981).  
(With P. Olesen.)
- 5) On the loop space formulation of gauge theories. *Physica Scripta* **25**, 504 (1982).  
(With J.M. Leinaas.)
- 6) Dual models as saddle point approximations to Polyakov's quantized string. *Nucl. Phys.***B196**, 498 (1982).  
(With H.B. Nielsen, P. Olesen and J.L. Petersen.)
- 7) Polyakov's quantized string with boundary terms. *Nucl. Phys.***B198**, 157 (1982).  
(With P. Olesen and J.L. Petersen.)
- 8) Polyakov's quantized string with boundary terms (II). *Nucl. Phys.***B201**, 176 (1982).  
(With P. Olesen and J.L. Petersen.)
- 9) Fermionic strings with boundary terms. *Nucl. Phys.***B207**, 77 (1982).  
(With P. Di Vecchia, P. Olesen and J.L. Petersen.)

- 10) Fermionic strings with boundary terms: The  $O(2)$  string. Nucl. Phys.**B217**, 395 (1983).  
(With P. Di Vecchia, P. Olesen and J.L. Petersen.)
- 11) Self-avoiding and planar random surfaces on the lattice. Nucl. Phys.**B225**, 185 (1983).  
(With J. Fröhlich and T. Jónsson.)
- 12) Reduced lattice gauge theory in two dimensions. Phys. Lett.**130B**, 93 (1983).  
(With J. Ambjørn and P. Olesen.)
- 13) On the static potential in Polyakov's theory of the quantized string. Nucl. Phys.**B232**, 291 (1984).  
(With P. Olesen and J.L. Petersen.)
- 14) Critical properties of a model of planar random surfaces. Phys. Lett. **137B**, 93 (1984).  
(With J. Fröhlich and T. Jónsson.)
- 15) The Wess-Zumino action in two dimensions and non-abelian bosonisation. Phys. Lett. **144B**, 245 (1984).  
Reprinted in "Bosonization" edited by M. Stone, World Scientific Publishing 1994.  
(With P. Di Vecchia and J.L. Petersen.)
- 16) Critical behaviour in a model of planar random surfaces. Nucl. Phys. **B240**, 453 (1984).  
(With J. Fröhlich and T. Jónsson.)
- 17) Diseases of triangulated random surface models, and possible cures. Nucl. Phys. **B257**, 433 (1985).  
(With J. Ambjørn and J. Fröhlich.)
- 18) Reflection positivity and tree inequalities in a theory of planar random surfaces. Nucl. Phys. **B257**, 779 (1985).  
(With J. Fröhlich and T. Jónsson.)
- 19) The appearance of critical dimensions in regulated string theories. Nucl. Phys. **B270**, 457 (1986).  
(With J. Ambjørn, J. Fröhlich and P. Orland.)

- 20) The appearance of critical dimensions in regulated string theories (II). Nucl. Phys. **B275**, 161 (1986).  
(With J. Ambjørn and J. Fröhlich.)
- 21) Surface representations of Wilson loop expectations in lattice gauge theory. Nucl. Phys. **B275**, 459 (1986).  
(With D. Brydges, C. Giffen and J. Fröhlich.)
- 22) Planar random surfaces with extrinsic action. Phys. Lett. **180B**, 385 (1986).  
(With T. Jónsson.)
- 23) Regularised bosonic strings need extrinsic curvature. Phys. Lett. **188B**, 253 (1987).  
(With J. Ambjørn.)
- 24) Random paths with curvature-dependent action. Europhys. Lett. **3**, 1059 (1987).  
(With J. Ambjørn and T. Jónsson.)
- 25) Scaling of the string tension in a new class of regularised string theories. Phys. Rev. Lett. **28**, 2619 (1987).  
(With J. Ambjørn and T. Jónsson.)
- 26) Regularised strings with extrinsic curvature. Nucl. Phys. **B290 FS20**, 480 (1987).  
(With J. Ambjørn, J. Fröhlich and T. Jónsson.)
- 27) Statistical mechanics of paths with curvature dependent action. Journ. Phys. A, Math. and Gen. **21**, 981 (1988).  
(With J. Ambjørn and T. Jónsson.)
- 28) Kinematical and numerical study of the crumpling transition in crystalline surfaces. Nucl. Phys. **B316**, 526 (1988).  
(With J. Ambjørn and T. Jónsson.)
- 29) A renormalisation group analysis of lattice models of two-dimensional membranes. Journ. Stat. Phys. **55**, 29 (1989).  
(With J. Ambjørn, J. Fröhlich and T. Jónsson.)
- 30) A random walk Representation of the Dirac propagator. Nucl. Phys. **B330**, 509 (1990).  
(With J. Ambjørn and T. Jónsson.)

- 31) Summing over all genera for  $d > 1$ : A toy model. *Phys. Lett.* **244B**, 403 (1990).  
(With J. Ambjørn and T. Jónsson.)
- 32) Three dimensional simplicial quantum gravity and generalised matrix models. *Mod. Phys. Lett.* **A6**, 1133 (1991).  
(With J. Ambjørn and T. Jónsson.)
- 33) On subdivision invariant actions for random surfaces. *Phys. Lett.* **297B**, 271 (1992).  
(With T. Jónsson.)
- 34) Topological quantum field theories from generalised  $6j$ -symbols. *Rev. Math. Phys.* **5**, 1 (1993).  
(With H.P. Jakobsen and R. Nest.)
- 35) Matter fields with  $c > 1$  coupled to  $2d$  gravity. *Nucl. Phys.* **B398**, 568 (1993).  
(With J. Ambjørn, T. Jónsson and G. Thorleifsson.)
- 36) Multi-spin systems on a random surface. *Nucl. Phys.* **B426**, 203 (1994).
- 37) A solvable  $2d$  gravity model with  $\gamma > 0$ . *Mod. Phys. Lett.* **A9**, 1221 (1994).  
(With J. Ambjørn and T. Jónsson.)
- 38) Classification and construction of unitary topological field theories in two dimensions. *Journ. Math. Phys.* **35**, 5306 (1994).  
(With T. Jónsson.)
- 39) Remarks on the entropy of 3-manifolds. *Nucl. Phys.* **B445**, 182 (1995).  
(With T. Jónsson.)
- 40) Topological quantum field theories and invariants of graphs for quantum groups. *Comm. Math. Phys.* **167**, 395 (1995).  
(With A. Beliakova.)
- 41) Branched polymers on branched polymers. *Mod. Phys. Lett.* **A11**, 2361 (1996).  
(With T. Jónsson.)
- 42) On the relation between two quantum group invariants of 3-cobordisms. *Journ. Geom. and Phys.* **20** 305-317 (1996).  
(With A. Beliakova.)

- 43) Phase structure of the  $O(n)$ -model on a random lattice for  $n > 2$ . Nucl. Phys. **B483** [FS], 535 (1997).  
(With C. Kristiansen.)
- 44) A polymer gas on a random surface. Mod. Phys. Lett. **A13**, 153, (1998).  
(With T. Jónsson.)
- 45) Discrete approximations to integrals over unparametrized paths. Journ. Math. Physics **42**, 3769, (2001).  
(With T. Jónsson.)
- 46) Noncommutative solitons: Existence and non-existence. Phys. Lett. **500B**, 320-325, (2001).  
(With T. Jónsson and R. Nest.)
- 47) A string bit Hamiltonian approach to two-dimensional quantum gravity. Nucl. Phys. **B623**, 201, (2002).  
(With C.-W. H. Lee.)
- 48) A note on noncommutative scalar multisolitons. hep-th/0204096, Phys. Lett. **539B**, 277-280, (2002).  
(With T. Jónsson.)
- 49) The existence and stability of noncommutative scalar solitons. hep-th/0107121, Comm. Math. Phys. **233**, 49-78, (2003)  
(With T. Jónsson and R. Nest.)
- 50) Probabilistic aspects of infinite trees and surfaces. In proceedings of Workshop on Random Geometry, Krakow 2003. In Acta Phys. Polonica **B34**, 4795-4811 (2003).
- 51) Local limit of labelled trees and expected volume growth in a random quadrangulation. Annals of Probability **34**, 879-917, (2006).  
(With Ph. Chassaing.)
- 52) Noncommutative waves have infinite propagation speed. hep-th/0408190, JHEP **0410** (2004) 050.  
(With T. Jónsson.)
- 53) Random walks on combs. hep-th/0509191, J.Phys. **A39** (2006) 1009-1038.  
(With T. Jónsson and J. Wheeler.)

- 54) The spectral dimension of generic trees. *J. Stat. Phys.* **128** (2007) 1237-1260.  
(With T. Jónsson and J. Wheeler.)
- 55) On the entropy of LEGO. *math.CO/0504039*.  
(With S. Eilers.)
- 56) Hausdorff and spectral dimension of infinite random graphs. *Acta Phys. Pol.* **40**, 3509-3538 (2009).
- 57) On the spectral dimension of causal triangulations. *J. Stat. Phys.* **139** (2010) 859. (arXiv:0908.3643)  
(With J. Wheeler and T. Jónsson.)
- 58) The Scattering problem for a noncommutative nonlinear Schrödinger equation. arXiv:0903.1493. Special issue "Noncommutative spaces and fields", *SIGMA* **6** (2010), 046, 17 pages. DOI: 10.3842/SIGMA.2010.046  
(With V. Gayral.)
- 59) Generic Ising trees. *J. Phys. A: Math. Theor.* **45** (2012) 185004.  
(arXiv:1107.2964)  
(With G. Napolitano.)
- 60) Star product realizations of  $\kappa$ -Minkowski space. To appear in *Journ. Non-comm. Geom.* (arXiv:1104.0206)  
(With A. Sitarz.)

#### Conference proceedings.

- 1) Planar random surfaces on the lattice. In proceedings of "Hadron Structure '83", Smolenice, Czechoslovakia 1983, ed. I. Lukac. In *Physics and Applications* 12, 1985.
- 2) Some aspects of random surface theories. In proceedings of The 18'th international symposium Ahrenschoop on "Special topics in gauge theories", ed. F. Kaschluhn, 1984.
- 3) Regularised bosonic string theory. In proceedings of The 20'th international symposium Ahrenschoop on "The theory of elementary particles", ed. F. Kaschluhn, 1986  
(With J. Ambjørn.)

- 4) Critical properties of some discrete random surface models. In proceedings of The 7<sup>th</sup> Ettore Majorana International School of Mathematical Physics 1988, "Constructive quantum field theory II", eds. G. Velo and A.S. Wightman, Plenum Press, New York, 1990.
- 5) Topological quantum field theories from quantum  $6j$ -symbols. In proceedings of "Topological and geometrical methods in field theory", eds. J. Mickelsson and O. Pekonen, World Scientific, Singapore, 1992.  
(With H.P. Jakobsen and R. Nest.)
- 6) A construction of topological quantum field theories from  $6j$ -symbols. In proceedings of the Workshop on "Random Surfaces and 2D Quantum Gravity", Barcelona 1991, eds. P. H. Damgaard et al., Nucl. Phys B (Proc. Suppl.) **25A**, 109 (1992).
- 7) A discrete approach to topological quantum field theories. In proceedings of the 28<sup>th</sup> Winter School of Theoretical Physics, Karpacz, 1992, eds. R. Gielrak and A. Borowiec, Journ. Geom. and Phys. **11**, 155 (1993).
- 8) Random paths and surfaces with rigidity. In "Fluctuating Paths and Fields", dedicated to Prof. Hagen Kleinert, eds. W. Janke, A. Pelster, H.-J. Schmidt and M. Bachmann. World Scientific, Singapore, (2001).
- 9) "Two-dimensional quantum gravity as string bit hamiltonian models". Proceedings of the MRST 2002 Conference.  
(With C.-W. H. Lee.)
- 10) On the spectral dimension of random trees. In proceedings of the 4<sup>th</sup> colloquium on Mathematics and Computer Science, Nancy 2006. DMTCS proc.**AG**, 183-192, (2006).  
(With T. Jonsson and J. Wheeler)
- 11) Combinatorial aspects of pyramids of one-dimensional pieces of fixed integer length. arXiv:0902.2274. DMTCS proc.**AM**, 145-160 ( 2010).  
(With S. Eilers.)

### **Books.**

- 1) Quantum geometry: A statistical field theory approach. Monograph in mathematical physics. Cambridge University Press, 1997.  
(With J. Ambjørn and T. Jónsson.)

**Editorial.**

- 1) Proceedings of the Niels Bohr centennial conference "Recent Developments in Quantum Field Theory", Copenhagen 1985. North Holland, Amsterdam 1986.  
(With J. Ambjørn and J. L. Petersen.)

**Lecture notes.**

- 1) Lectures on "Quantum theory of strings", NORDITA-preprint 1982.
- 2) Lectures on "Hilbert space theory and applications" (in Danish). Lecture Notes at Math. Department, Copenhagen 1997.
- 3) Lecture notes on "Geometric aspects of General Relativity", Copenhagen 1998.
- 4) Lectures on "Advanced Vector Space Theory" (in Danish). Lecture Notes at Math. Department, Copenhagen 2003.
- 5) Lectures on "Mathematical Physics". Lecture Notes at Math. Department, Copenhagen 2012, (with J.P. Solovej).