

CAUSAL SET BIBLIOGRAPHY 2001 Nov 20

Short links are to the e-print archive at <http://arXiv.org/>.

Physics references

Xavier Martin, Denjoe O'Connor, David Rideout and Rafael D. Sorkin, "On the "renormalization" transformations induced by cycles of expansion and contraction in causal set cosmology", *Phys. Rev. D* **63**, 084026 (2001) [gr-qc/0009063](http://arXiv.org/abs/gr-qc/0009063)

Rafael D. Sorkin, "Indications of causal set cosmology", *Int. J. Theor. Ph.* **39**(7): 1731-1736 (2000) (an issue devoted to the proceedings of the Peyresq IV conference, held June-July 1999, Peyresq France) [gr-qc/0003043](http://arXiv.org/abs/gr-qc/0003043)

Djamel Dou, "Causal Sets, a Possible Interpretation for the Black Hole Entropy, and Related Topics", Ph. D. thesis (SISSA, Trieste, 1999)

Roberto B. Salgado, "Some Identities for the Quantum Measure and its Generalizations", [gr-qc/9903015](http://arXiv.org/abs/gr-qc/9903015)

David P. Rideout and Rafael D. Sorkin, "A Classical Sequential Growth Dynamics for Causal Sets", *Phys. Rev. D* **61**, 024002 (2000) [gr-qc/9904062](http://arXiv.org/abs/gr-qc/9904062)

David D. Reid, "Discrete Quantum Gravity and Causal Sets" *Canadian Journal of Physics* **79**, 1-16 (2001) [gr-qc/9909075](http://arXiv.org/abs/gr-qc/9909075)

nee: Introduction to causal sets: an alternate view of spacetime structure

A.R. Daughton, "The Recovery of Locality for Causal Sets and Related Topics", Ph.D. dissertation (Syracuse University, 1993)

Alan Daughton, "An investigation of the symmetric case of when causal sets can embed into manifolds" *Class. Quant. Grav.* **15**(11):3427-3434 (Nov,1998)

A. Criscuolo and H. Waelbroeck, “Causal Set Dynamics: A Toy Model”, *Class. Quant. Grav.***16**:1817-1832 (1999) [gr-qc/9811088](#)

Alan Daughton, Rafael D. Sorkin and C.R. Stephens, “Percolation and Causal Sets: a classical analog of quantum gravity” (in preparation)

L. Bombelli, *Space-time as a Causal Set*, Ph.D. thesis, Syracuse University (1987)

L. Bombelli, J. Lee, D. Meyer and R.D. Sorkin, “Spacetime as a causal set”, *Phys. Rev. Lett.* **59**:521-524 (1987)

C. Moore, “Comment on ‘Space-time as a causal set’,” *Phys. Rev. Lett.* **60**, 655 (1988);

L. Bombelli, J. Lee, D. Meyer and R.D. Sorkin, “Bombelli et al. Reply”, *Phys. Rev. Lett.* **60**, 656 (1988)

Reply to C. Moore

L. Bombelli and D.A. Meyer, “The origin of Lorentzian geometry,” *Physics Lett. A* **141**:226-228 (1989) [i sketches the theorem on completion of sprinkled causal sets j]

L. Bombelli, “Causal sets and the closeness of Lorentzian manifolds”, *Proc. of the 1993 Spanish Relativity Meeting*, eds. J. Díaz Alonso and M. Lorente Pármio, (published by Real Sociedad Española de Física and Universidad de Oviedo).

G. Brightwell and R. Gregory, “The Structure of Random Discrete Spacetime”, *Phys. Rev. Lett.* **66**:260-263 (1991).

G. Brightwell and P. Winkler, “Sphere Orders”, *Order* **6**:235-240 (1989)

D.J. Kleitman and B.L. Rothschild, “The Number of Finite Topologies”, *Proc. Amer. Math. Society* **25**:276-282 (1970)

D.J. Kleitman and B.L. Rothschild, “Asymptotic Enumeration of Partial Orders on a Finite Set”, *Trans. Amer. Math. Society* **205**:205-220 (1975)

The next 4 are on phase transition for posets:

D. Dhar, "Entropy and phase transitions in partially ordered sets", *J. Math. Phys* **19**: 1711-1713 (1978)

D. Dhar, "On phase transitions in posets", *Pacific J. Math.* **90**: 299-305 (1980)

D. Dhar, "Asymptotic Enumeration of Partially Ordered Sets", *Pacific J. of Math.* **90**:299 (1980)

Kleitman, D.J. and Rothschild, B.L., "A Phase Transition on Partial Orders", *Physica* **96A**:254-259 (1979)

D.A. Meyer, *The Dimension of Causal Sets*. Ph.D. thesis, M.I.T. (1988)

D.A. Meyer, "Spherical containment and the Minkowski dimension of partial orders," *Order* **10**: 227-237 (1993)

He says it contains most of the mathematical part of the "minkowski dimension" chapter of his thesis.

D.A. Meyer, "The Dimension of Causal Sets I: Minkowski dimension," Syracuse University preprint (1988)

D.A. Meyer, "The Dimension of Causal Sets II: Hausdorff dimension," Syracuse University preprint (1988)

D.A. Meyer, "Recursive generalization of the order polynomial", (preliminary draft 1992)

D.A. Meyer, "Spacetime Ising models", (preprint May 1993)

D.A. Meyer, "Why do clocks tick?", (UCSD preprint March 1992)

J. Myrheim, "Statistical geometry," CERN preprint TH-2538 (1978)

G. 't Hooft, "Quantum gravity: a fundamental problem and some radical ideas," in *Recent Developments in Gravitation* (Proceedings of the 1978 Cargese Summer Institute) edited by M. Levy and S. Deser (Plenum, 1979)

D. Finkelstein, "The space-time code", *Phys. Rev.* **184**:1261 (1969)

David Finkelstein, " 'Superconducting' Causal Nets", *Int. J. Th. Phys* **27**:473 (1988)

A. Einstein, Letter to H.S. Joachim, August 14 1954, [see "refs.gen" for full citation and "refs.text" for the text]

The next 2 argue that finiteness of black hole entropy implies cutoff

R.D. Sorkin, "On the Entropy of the Vacuum Outside a Horizon", in B. Bertotti, F. de Felice and A. Pascolini (eds.), *Tenth International Conference on General Relativity and Gravitation (held Padova, 4-9 July, 1983), Contributed Papers*, vol. II, pp. 734-736 (Roma, Consiglio Nazionale Delle Ricerche, 1983)

shape alluded to here too, as candidate, not absolutely explicit.

G. 't Hooft, "On the quantum structure of a black hole", *Nuclear Phys. B* **256**:727-745 (1985)

R.D. Sorkin, "Does a Discrete Order underly Spacetime and its Metric?", in *Proceedings of the Third Canadian Conference on General Relativity and Relativistic Astrophysics*, (Victoria, Canada, May, 1989), edited by A. Coley, F. Cooperstock, and B.Tupper, pp. 82-86, (World Scientific, 1990)

R.D. Sorkin, "A Specimen of Theory Construction from Quantum Gravity", in J. Leplin (ed.), *The Creation of Ideas in Physics: Studies for a Methodology of Theory Construction* (Proceedings of the Thirteenth Annual Symposium in Philosophy, held Greensboro, North Carolina, March, 1989) pp. 167-179 (Number 55 in the University of Western Ontario Series in Philosophy of Science) (Kluwer Academic Publishers, Dordrecht, 1995) [gr-qc/9511063](#)

old title: *How Theories are Constructed: The Methodology of Scientific Creativity*

R.D. Sorkin, “First Steps with Causal Sets”, in R. Cianci, R. de Ritis, M. Francaviglia, G. Marmo, C. Rubano, P. Scudellaro (eds.), *General Relativity and Gravitational Physics*, (Proceedings of the Ninth Italian Conference of the same name, held Capri, Italy, September, 1990), 68-90, (World Scientific, Singapore), (1991)

R.D. Sorkin, “Spacetime and Causal Sets”, in J.C. D’Olivo, E. Nahmad-Achar, M. Rosenbaum, M.P. Ryan, L.F. Urrutia and F. Zertuche (eds.), *Relativity and Gravitation: Classical and Quantum*, (Proceedings of the SILARG VII Conference, held Cocoyoc, Mexico, December, 1990), pages 150-173, (World Scientific, Singapore, 1991)

R.D. Sorkin, “Forks in the Road, on the Way to Quantum Gravity”, talk given at the conference entitled “Directions in General Relativity”, held at College Park, Maryland, May, 1993, *Int. J. Th. Phys.* **36**: 2759–2781 (1997) [gr-qc/9706002](#)

R.D. Sorkin, Two Talks given at the 1997 Santa Fe workshop: “A Review of the Causal Set Approach to Quantum Gravity” “A Growth Dynamics for Causal Sets” presented at: ”New Directions in Simplicial Quantum Gravity” July 28 - August 8, 1997 The scanned in transparencies may be viewed by going to the Workshop WWW website at: <http://gita.lanl.gov/people/emil/sgrav.html> and clicking on the hyperlink ”Contributed Talks.” Or you can go directly to the site of the resulting listing of talks:

<http://gita.lanl.gov/people/emil/Slides/sf97talks.html>

R.D. Sorkin, Talk given at the 1998 (or 1999?) Eastern Rel meeting at Cornell, transparencies supposedly on web. talk was on fluctuating Lambda

R.D. Sorkin, “A Finitary Substitute for Continuous Topology?”, (Institute for Advanced Study preprint IASSNS-HEP-87/39) *Int. J. Theor. Phys.* **30**: 923-947 (1991)

L. Bombelli, “Statistical Lorentzian geometry and the closeness of Lorentzian manifolds”, *J. Math. Phys.* **41**:6944-6958 (2000) [gr-qc/0002053](#)

L. Bombelli and R.D. Sorkin, “When are Two Lorentzian Metrics close?”, (in preparation)

D.A. Meyer and R.D. Sorkin, “On Poset Completion”, (in preparation) [until finished, cite “origin of lor geom”]

R.D. Sorkin, “Posets as Lattice Topologies”, in B. Bertotti, F. de Felice, A. Pascolini (eds.), *General Relativity and Gravitation*, vol. I, 635-637 (Roma, Consiglio Nazionale Delle Ricerche, 1983) (available as a Syracuse University Preprint)

R.D. Sorkin and E. Woolgar, “A Causal Order for Spacetimes with C^0 Lorentzian Metrics: Proof of Compactness of the Space of Causal Curves”, *Classical & Quantum Gravity* **13**: 1971-1994 (1996) [gr-qc/9508018](#)

A.A. Robb, *Geometry of Time and Space*, (Cambridge University Press, 1936) (a revised version of *A theory of Time and Space*, C.U.P., 1914)

A. Daughton, J. Pullin, R.D. Sorkin and E. Woolgar, “Discrete Scalar Field Action via Diamonds and Wedges” (work in progress)

H. Reichenbach, *Physikal. Zeitschr.* **22**:683 (1921)

H. Reichenbach, *Axiomatik der relativistische Raum-Zeit-Lehre*, translated into English as *Axiomatization of the theory of relativity* (Berkeley, University of California Press, 1969)

Ioannis Raptis, “Algebraic Quantization of Causal Sets” *IJTP* 39:1233-1240

summarizes with citation that can reconstruct poset from incidence algebra

Mathematics references

Graham Brightwell “Models of Random Partial Orders” in *Surveys in Combinatorics*, 1993, London Math. Soc. Lecture Notes Series **187**:53-83, ed. Keith

Walker (Cambridge Univ. Press 1993)

review article

Béla Bollobás and Graham Brightwell, “Box spaces and random partial orders”, *Trans. Amer. Math. Soc* **324**(1): 59-72 (1991)

B. Bollobas and G. Brightwell, “The Height of a Random Partial Order: Concentration of Measure”, *Annals of Applied Probability* **2**: 1009-1018 (1992)

Longest chain in sprinkled causet. Seems to be only for square light cones however.

Noga Alon, Béla Bollobás, Graham Brightwell, and Svante Janson, “Linear extensions of a random partial order”, *Ann. Applied Prob.* **4**: 108-123 (1994)

Béla Bollobás and Graham Brightwell, “The structure of random graph orders”, *SIAM J. Discrete Math.* **10**: 318-335 (1997)

Béla Bollobás and Graham Brightwell, “The dimension of random graph orders”, in *The Mathematics of Paul Erdős II*, R.L. Graham and J. Nešetřil, eds. (Springer-Verlag, 1996), pp. 51-69

Béla Bollobás and Graham Brightwell, “The width of random graph orders”, *Math. Scientist* **20**: 69-90 (1995)

B. Pittel and R. Tungol, “A Phase Transition Phenomenon in a Random Directed Acyclic Graph”, (Ohio State preprint, ?1998) ; (submitted to “Combinatorics, Probability and Computing” apparently)

Jeong Han Kim and Boris Pittel, “On tail distribution of interpost distance” (preprint, Ohio State University and Microsoft Corp., 1999)

D. Crippa, K. Simon and P. Trunz, “Markov Processes Involving q-Stirling Numbers”, *Combinatorics, Probability and Computing* **6**: 165-178 (1997)

Klaus Simon, Davide Crippa and Fabian Collenberg, “On the Distribution of the Transitive Closure in a Random Acyclic Digraph”, *Lecture Notes in Computer Science* **726**: 345-356 (1993)

K. Simon, “Improved Algorithm for Transitive Closure on Acyclic Digraphs”, *Theoretical Computer Science* **58** (1988)

Reference taken from previous paper, it lacked page number.
Supposedly contains my “first order identity” QA276.T46 (?) Sci
Tech.

Charles M. Newman, “Chain Lengths in Certain Random Directed Graphs”, *Random Structures and Algorithms* **3**: 243-253 (1992)

Stefan Felsner, Peter C. Fishburn, William T. Trotter, “Finite three dimensional partial orders which are not sphere orders”, *Discrete Math.* **201**: 101-132 (1999)

Uses Ramsey theory to prove some subset of $\mathbb{Z} \times \mathbb{Z} \times \mathbb{Z}$ won't
embed in any \mathbb{M}^n .