

Mathematical publications and prepublications by Anders Kock, as of Feb. 2010. The list is roughly chronological (according to creation, rather than publication). There are some links for some of the items on the home page <http://home.imf.au.dk/kock/>

References

- [1] (with Leif Kristensen). A secondary product structure in cohomology theory. *Math. Scand.*, 17:113–149, 1965.
- [2] – Continuous Yoneda representation of a small category. Aarhus University Preprint (un-numbered), October 1966. (Retyped <http://home.imf.au.dk/kock/CYRSC>).
- [3] (with Leif Kristensen and Ib Madsen). Cochain functors for general cohomology theories. I, II. *Math. Scand.*, 20:131–150; 151–176, 1967.
- [4] – On the codensity monad of a functor. *Notices of the A.M.S.*, 14:645-49, 1967.
- [5] – Limit monads in categories. Ph.D. Thesis, University of Chicago, 1967.
- [6] – Limit monads in categories. University of Aarhus, Institute of Mathematics, Preprint Series 1967/68 No. 6. Condensed version of [5].
- [7] – *Monader og Universel Algebra*, University of Aarhus, Institute of Mathematics, Lecture Notes Series No. 21 (1969).
- [8] – Monads on symmetric monoidal closed categories. *Arch. Math. (Basel)*, 21:1–10, 1970.
- [9] – On a theorem of Läuchli concerning proof bundles, unnumbered preprint, Aarhus 1970. Scanned, <http://home.imf.au.dk/kock/lauchli.pdf>
- [10] – Closed categories generated by commutative monads. *J. Austral. Math. Soc.*, 12:405–424, 1971.
- [11] – On double dualization monads. *Math. Scand.*, 27:151–165 (1971), 1970.
- [12] – Strong functors and monoidal monads. *Arch. Math. (Basel)*, 23:113–120, 1972.
- [13] (with Gavin C. Wraith). *Elementary Toposes*. University of Aarhus, Institute of Mathematics, Lecture Notes Series 1970/71 No. 30.
- [14] – Introduction to Functorial Semantics, mimeographed for the Bertrand Russell Memorial Logic Conference, Uldum (DK), August 1971.
- [15] – Bilinearity and Cartesian closed monads. *Math. Scand.*, 29:161–174 (1972), 1971.

- [16] – Formal theory of free-completion monads. Technical Report 30/1973, Oberwolfach Tagungsberichte, 1973.
- [17] (with Christian Juul Mikkelsen). Topos-theoretic factorization of non-standard extensions. In *Victoria Symposium on Nonstandard Analysis (Univ. Victoria, Victoria, B.C., 1972)*, pages 122–143. Lecture Notes in Math., Vol. 369. Springer, Berlin, 1974.
- [18] – Monads for which structures are adjoint to units. University of Aarhus, Institute of Mathematics, Preprint Series 1972/73 No. 35. Later versions (with same title), see [78] and [85]
- [19] – The category aspect of projective space. University of Aarhus, Institute of Mathematics, Preprint Series 1974/75 No. 7. Scanned <http://home.imf.au.dk/kock/caps4.pdf>
- [20] – Linear algebra and projective geometry in the Zariski topos. University of Aarhus, Institute of Mathematics, Preprint Series 1974/75 No. 4. Subsumed in [24].
- [21] (with Christian Juul Mikkelsen and Pierre Lecouturier). Some topos theoretic concepts of finiteness. In F.W. Lawvere, C. Maurer, and G.C. Wraith, editors, *Model Theory and Topoi*, pages 209–283. Springer Lecture Notes in Mathematics 445, 1975.
- [22] – Linear algebra in a local ringed site. *Comm. Algebra*, 3:545–561, 1975.
- [23] – On algebraic theory of power series. *Cahiers de Topologie et Géométrie Différentielle*, 16:266–270, 1975.
- [24] – Universal projective geometry via topos theory. *J. Pure Appl. Algebra*, 9(1):1–24, 1976/77.
- [25] (with Gonzalo E. Reyes). Doctrines in categorical logic. In Barwise, editor, *Handbook in Mathematical Logic*, pages 283–313. North Holland, 1977.
- [26] – Proprietà dell’ anello generico. University of Aarhus, Institute of Mathematics, 1977. Appunti Raccolti da Anna Barbara Veit Riccioli.
- [27] – A simple axiomatics for differentiation. *Math. Scand.*, 40(2):183–193, 1977.
- [28] – Structured objects in categories. mimeographed lecture notes (138 pp.), Aarhus 1977.
- [29] (with Gonzalo E. Reyes). Manifolds in formal differential geometry. In *Applications of sheaves (Proc. Res. Sympos. Appl. Sheaf Theory to Logic, Algebra and Anal.*, Univ. Durham, Durham, 1977), volume 753 of *Lecture Notes in Math.*, pages 514–533. Springer, Berlin, 1979.

- [30] – Taylor series calculus for ring objects of line type. *J. Pure Appl. Algebra*, 12(3):271–293, 1978.
- [31] Anders Kock, editor. *Topos Theoretic Methods in Geometry*. University of Aarhus, Institute of Mathematics, Var. Publ. Series 30, 1979. Proceedings of Open House on Topos Theoretic Methods in Geometry and Analysis, Aarhus, May 1978.
- [32] – Formally real local rings, and infinitesimal stability. In *Topos Theoretic Methods in Geometry* [31] 1979, pages 123-136,
- [33] – On the synthetic theory of vector fields. In *Topos Theoretic Methods in Geometry* [31] 1979, pages 139-157.
- [34] (with Gonzalo E. Reyes). Connections in formal differential geometry. In *Topos Theoretic Methods in Geometry*, pages 158-195, [31] 1979.
- [35] – Differential geometry without real numbers. Mimeographed (134 pp.), Aarhus 1978-79.
- [36] – Synthetic Differential Geometry - an introductory lecture, mimeographed 23 pp., Zaragoza, Oct. 1979.
- [37] (with Gonzalo E. Reyes and Barbara Veit). Forms and integration in synthetic differential geometry. University of Aarhus, Institute of Mathematics, Preprint Series 1979/80 No. 31.
- [38] – Formal manifolds and synthetic theory of jet bundles. *Cahiers de Topologie et Géométrie Différentielle*, 21(3):227–246, 1980.
- [39] – Remarks on the Maurer-Cartan forms. D.M.S. 80-12, Université de Montréal, 1980.
- [40] – Geometri F 80, mimeographed lecture notes (106 pp.), Aarhus 1980.
- [41] – Differential forms with values in groups (preliminary report). *Cahiers de Topologie et Géométrie Différentielle*, 22(2):141–148, 1981. Third Colloquium on Categories, Part III (Amiens, 1980).
- [42] (with Gonzalo E. Reyes). Models for synthetic integration theory. *Math. Scand.*, 48(2):145–152, 1981.
- [43] – A general algebra/geometry duality, and synthetic scheme theory, Prepublications Math., U. Paris Nord 23 (1981), 33-34. (Retyped <http://home.imf.au.dk/kock/GAGD.pdf>).
- [44] – Properties of well-adapted models for synthetic differential geometry. *J. Pure Appl. Algebra*, 20(1):55–70, 1981.
- [45] – *Synthetic differential geometry*, volume 51 of *London Mathematical Society Lecture Note Series*. Cambridge University Press, Cambridge, 1981.

- [46] – The algebraic theory of moving frames. *Cahiers de Topologie et Géométrie Différentielle*, 23(4):347–362, 1982.
- [47] – Differential forms with values in groups. *Bull. Austral. Math. Soc.*, 25(3):357–386, 1982.
- [48] – Introduction to synthetic differential geometry, and a synthetic theory of dislocations. In *Categories in continuum physics (Buffalo, N.Y., 1982)*, volume 1174 of *Lecture Notes in Math.*, pages 52–68. Springer, Berlin, 1986.
- [49] – A combinatorial theory of connections. In *Mathematical applications of category theory (Denver, Col., 1983)*, volume 30 of *Contemp. Math.*, pages 132–144. Amer. Math. Soc., Providence, RI, 1984.
- [50] Anders Kock, ed. *Category Theoretic Methods in Geometry*, Proceedings Aarhus 1983, Var. Publ. Series 35 (1983).
- [51] – Remarks on connections and sprays. In *Category Theoretic Methods in Geometry* (= [50]), pages 192–202. Aarhus, 1983.
- [52] – Some problems and results in synthetic functional analysis. In *Category Theoretic Methods in Geometry (Aarhus, 1983)* [50], pages 168–191. Aarhus Univ., Aarhus, 1983. (Retyped in <http://home.imf.au.dk/kock/PRSFA> .)
- [53] (with Eduardo J. Dubuc). On 1-form classifiers. *Comm. Algebra*, 12(11-12):1471–1531, 1984.
- [54] (with René Lavendhomme). Strong infinitesimal linearity, with applications to strong difference and affine connections. *Cahiers de Topologie et Géométrie Différentielle Catégoriques*, 25:311–324, 1984.
- [55] – Ehresmann and the Fundamental Structures of Differential Geometry Seen from a Synthetic Viewpoint, in *Charles Ehresmann Œuvres Complètes et Commentées*, Vol. I-1/I-2, 549–554, 1984.
- [56] – Calculus of smooth functions between convenient vector spaces. University of Aarhus, Institute of Mathematics, Preprint Series 1984/85 No. 18, 1985. Retyped in <http://home.imf.au.dk/kock/CSF.pdf>.
- [57] – Combinatorics of nonholonomous jets. *Czechoslovak Math. J.*, 35(110)(3):419–428, 1985.
- [58] – A model for dimensional analysis, University of Aarhus, Institute of Mathematics, Preprint Series 1985/86 No. 5. Partly subsumed in [68].
- [59] – Synthetic characterization of reduced algebras. *J. Pure Appl. Algebra*, 36(3):273–279, 1985.

- [60] – Infinitesimal deformations of complete vector fields are complete, University of Aarhus, Institute of Mathematics, Preprint Series 1985/86 No.23. Retyped <http://home.imf.au.dk/kock/infdef.pdf>
- [61] – Combinatorial notions relating to principal fibre bundles. *J. Pure Appl. Algebra*, 39(1-2):141–151, 1986.
- [62] – Convenient vector spaces embed into the Cahiers topos. *Cahiers de Topologie et Géométrie Différentielle Catégoriques*, 27:3–17, 1986.
- [63] – Lie group valued integration in well-adapted toposes. *Bull. Austral. Math. Soc.* 34:395–410, 1986.
- [64] – Synthetic reasoning in differential geometry. *Rev. Colombiana Mat.*, 20(3-4):129–146, 1986. Seminar and workshop on category theory and applications (Bogotá, 1983).
- [65] (with Gonzalo E. Reyes). Corrigendum and addenda to the paper “Convenient Vector Spaces Embed” ([62]) *Cahiers de Topologie et Géométrie Différentielle Catégoriques*, 28: 99–110, 1987.
- [66] – Generalized fibre bundles. In *Categorical algebra and its applications (Louvain-La-Neuve, 1987)*, volume 1348 of *Lecture Notes in Math.*, pages 194–207. Springer, Berlin, 1988.
- [67] (with Murray Adelman). A note on closed ideals in rings of smooth functions. *Monatsh. Math.*, 107(1):1–3, 1989.
- [68] – Mathematical structure of physical quantities. *Archive for Rational Mechanics and Analysis* 107(2):99–104, 1989.
- [69] – Fibre bundles in general categories. *J. Pure Appl. Algebra*, 56(3):233–245, 1989.
- [70] – A Godement theorem for locales. *Math. Proc. Cambridge Philos. Soc.*, 105(3):463–471, 1989.
- [71] – On the integration theorem for Lie groupoids. *Czechoslovak Math. J.*, 39(114)(3):423–431, 1989.
- [72] – Relatively boolean toposes. University of Aarhus, Institute of Mathematics, Preprint Series 1989/90 No. 21.
- [73] (with Jørn Schmidt). A coherent theory of sites. *Bull. Soc. Math. Belg. Sér. A*, 41(2):321–331, 1989. Actes du Colloque en l’Honneur du Soixantième Anniversaire de René Lavendhomme (Louvain-la-Neuve, 1989).
- [74] – Postulated colimits and left exactness of Kan extensions. University of Aarhus, Institute of Mathematics, Preprint Series 1989/90 no. 9. (Retyped in <http://home.imf.au.dk/kock/postulated.pdf>).

- [75] – Algebras for the partial map classifier monad. In *Category theory (Como, 1990)*, volume 1488 of *Lecture Notes in Math.*, pages 262–278. Springer, Berlin, 1991.
- [76] (with Ieke Moerdijk). Local equivalence relations and their sheaves. University of Aarhus, Institute of Mathematics, Preprint Series 1991 No. 19. Largely subsumed in [89]
- [77] (with Ieke Moerdijk). Presentations of etendues, *Cahiers Topologie Géom. Différentielle Catég.* 32(2):145-164, 1991.
- [78] – Monads for which structures are adjoint to units. Aarhus Preprint Series Feb. 1992. (Recompiled <http://home.imf.au.dk/kock/msau-v2.pdf>) Other versions (with same title), see [18] and [85].
- [79] (with Ieke Moerdijk). Every étendue comes from a local equivalence relation. *J. Pure Appl. Algebra*, 82(2):155–174, 1992.
- [80] – Constructive theory of the lift monad on posets. Aarhus Preprint Series 1992 no. 22, 1993. Subsumed in [84].
- [81] – Generators and relations for Δ as a monoidal 2-category. *Beiträge zur Alg. und Geom.*, 34(2):201-208, 1993.
- [82] (with Gonzalo E. Reyes). Relatively Boolean and De Morgan toposes and locales. *Cahiers Topologie Géom. Différentielle Catég.*, 35(3):249–261, 1994.
- [83] – Local groupoids and etendues. Sussex talk (54th PSSL) 1994. <http://home.imf.au.dk/kock/sussex.pdf>
- [84] – The constructive lift monad. BRICS Report Series RS-95-20, March 1995.
- [85] – Monads for which structures are adjoint to units. *J. Pure Appl. Algebra*, 104(1):41–59, 1995. Earlier versions (with same title), see [18] and [78]
- [86] – Natural bundles over smooth etendues. Halifax talk 1995. <http://home.imf.au.dk/kock/etendues.pdf>
- [87] – Combinatorics of curvature, and the Bianchi identity. *Theory Appl. Categ.*, 2:No. 7, 69–89 (electronic), 1996.
- [88] (with Till Plewe). Glueing analysis for complemented subtoposes. *Theory Appl. Categ.*, 2:No. 9, 100–112 (electronic), 1996.
- [89] (with Ieke Moerdijk). Spaces with local equivalence relations, and their monodromy. *Topology and its Applications*, 72:47–78, 1996.
- [90] – The maximal atlas of a foliation. PSSL 62, 1996 <http://home.imf.au.dk/kock/atlas2.pdf>

- [91] – Extension theory for local groupoids. McGill talk, 1997
<http://www.imf.au.dk/publs?id=619>.
- [92] – Geometric construction of the Levi-Civita parallelism. *Theory Appl. Categ.*, 4:No. 9, 195–207 (electronic), 1998.
- [93] – Kategori-teori og matematikkens grundlag. *Netværk i Matematikkens Historie og Filosofi* (IMFUFA, Roskilde), 4, 1998. (Recompiled, 2009
<http://home.imf.au.dk/kock/ruc.pdf>).
- [94] (with Gonzalo E. Reyes). A note on frame distributions. *Cahiers Topologie Géom. Différentielle Catég.*, 40(2):127–140, 1999.
- [95] (with Gonzalo E. Reyes). Aspects of fractional exponent functors. *Theory Appl. Categ.*, 5:No. 10, 251–265 (electronic), 1999.
- [96] – Differential forms as infinitesimal cochains. *J. Pure Appl. Algebra*, 154(1-3):257–264, 2000.
- [97] – The osculating plane of a space curve—synthetic formulations. *Rend. Circ. Mat. Palermo (2) Suppl.*, (64):67–79, 2000. Categorical studies in Italy (Perugia, 1997).
- [98] – Volume form as volume of infinitesimal simplices. arXiv:math.CT/0006008, 2000.
- [99] – Characterization of stacks of principal fibre bundles. Institut Mittag-Leffler, 2001. Report No. 27, 2000/2001. Principal fibre bundles here means: torsors over a groupoid.
- [100] – Infinitesimal aspects of the Laplace operator. *Theory Appl. Categ.*, 9:1–16 (electronic), 2001/02. CT2000 Conference (Como).
- [101] – *Algebra of principal fibre bundles and connections*. Aarhus math. inst. preprint series 2003 no. 13., University of Aarhus, Institute of Mathematics, 2003. partially subsumed in [119].
- [102] – Differential calculus and nilpotent real numbers. *Bull. Symbolic Logic*, 9(2):225–230, 2003. New programs and open problems in the foundation of mathematics (Paris, 2000).
- [103] – Knudeteori og partikelfysik - en videnskabelig “love story” fra vor tid. Popular lecture on knots, <http://home.imf.au.dk/kock/knude/knude.html>, 2002.
- [104] (with Gonzalo E. Reyes). Some calculus with extensive quantities: wave equation. *Theory Appl. Categ.*, 11:No. 14, 321–336 (electronic), 2003.
- [105] – First neighbourhood of the diagonal, and geometric distributions. *Univ. Iagel. Acta Math.*, (41):307–318, 2003.

- [106] – The stack quotient of a groupoid. *Cah. Topol. Géom. Différ. Catég.*, 44(2):85–104, 2003.
- [107] – Classifying surjective equivalences, <http://home.imf.au.dk/kock/classf.pdf> , 2004.
- [108] – A geometric theory of harmonic and semi-conformal maps. *Cent. Eur. J. Math.* 2(5):708-724, 2004.
- [109] – Commutation structures. arXiv:math/0511040 [math.CT], 2005.
- [110] – Pregroupoids and their enveloping groupoids. Preprint Series 2005 3, University of Aarhus, Institute of Mathematics, 2005. subsumed in [119].
- [111] – Connections and path connections in groupoids. Preprint Series 2006 10, University of Aarhus, Institute of Mathematics, 2006.
- [112] – *Some matrices with nilpotent entries, and their determinants.* <http://arxiv.org/abs/math.RA/0612435> 2006
- [113] (with Gonzalo E. Reyes). Distributions and heat equation in SDG. *Cah. Topol. Géom. Différ. Catég.*, 47(1):2–28, 2006.
- [114] (with Gonzalo E. Reyes). Ordinary differential equations and their exponentials. *Cent. Eur. J. Math.*, 4(1):64–81 (electronic), 2006.
- [115] – *Synthetic Differential Geometry, second edition*, volume 333 of *London Mathematical Society Lecture Note Series*. Cambridge University Press, Cambridge, 2006. (Second edition of [45].)
- [116] – Group valued differential forms revisited, Preprint Series 2007 1, University of Aarhus, Institute of Mathematics, 2007. Partly subsumed in [121].
- [117] – Envelopes–notion and definiteness. *Beiträge zur Algebra und Geom.*, 48(2):345–350, 2007.
- [118] – *Infinitesimal cubical structure, and higher connections.* arXiv: 0705:4406 [math.CT], 2007.
- [119] – Principal bundles, groupoids, and connections. In *Geometry and topology of manifolds*, volume 76 of *Banach Center Publ.*, pages 185–200. Polish Acad. Sci., Warsaw, 2007.
- [120] – Cubical version of combinatorial differential forms. *Applied Categorical Structures* 2008 , DOI 10.1007/s10485-008-9143-6.
- [121] – *Synthetic Geometry of Manifolds*. Cambridge Tracts in Mathematics Vol. 180, 2010.

- [122] – Affine connections, and midpoint formation. In *Discrete Geometry for Computer Imagery*, 15th IAPR International Conference, DGCI 2009, Montreal, Canada, Springer LNCS 5810, pages 13–21. Expanded version in [124]
- [123] – *Abstract projective lines*. [http:// arXiv.org/abs/0912.0822](http://arXiv.org/abs/0912.0822) 2009
- [124] – *Affine connections, midpoint formation, and point reflection*. <http://home.imf.au.dk/kock/montr4.pdf> , 2010.