

Bibliography

Aigner, M. [1979]: "Combinatorial Theory", Grundlehren der math. Wissenschaften 234, Springer

Almkvist, G. [1978]: "K-theory of endomorphisms", J. of Algebra 55, 308-340

Anderson, D.R. [1982] : "Torsion invariants and actions of finite groups", Michigan Math. J. 29, 27-42

Anderson, D. and Munkholm, H. J. [1988]: "Foundations of boundedly controlled algebraic and geometric topology", lect. notes in math. 1323, Springer

Andrzejewski, P. [1986]: "The equivariant Wall finiteness obstruction and Whitehead torison", in "Transformation Groups", Proceedings, Poznań 1985, lect. not. in math. vol. 1217, Springer, 11-25

Araki, S. [1986]: "Equivariant Whitehead groups and G-expansion categories", Advanced Studies in Pure Mathematics 9, 1-25

Araki, S. and Kawakubo, K. [1988]: "Equivariant s-cobordism theorems", J. Math. Soc. Jap. 40, 349-367

Armstrong, M.A. [1982]: "Lifting homotopies through fixed points", Proc. of the Royal Soc. of Edinburgh 93 A, 123-128

Atiyah, M.F. [1967]: "K-Theory", Benjamin, New York-Amsterdam

Atiyah, M.F. and MacDonald, I.G. [1969]: "Introduction to Commutative Algebra", Addison-Wesley

Baglivo, J. [1978]: "An equivariant Wall obstruction theory", Trans. AMS 256, 305-324

Barden, D. [1963]: "The structure of manifolds", Phd. thesis, Cambridge University

Bass, H. [1964]: "K-theory and stable algebra", I.H.E.S. Publications math. 22, 5-60

Bass, H. [1968]: "Algebraic K-theory", Benjamin

Bass, H., Heller, A. and Swan, R.G. [1964]: "The Whitehead group of a polynomial extension", Publ. Math. IHES 22

Bauer, S. [1988]: "Dimension functions of homotopy representations for compact Lie groups", Math. Ann. 280, 247-265

Bourbaki, N. [1961]: "Topologie générale I-III Paris, Hermann 3 éd.

Bousfield, A.K. and Kahn, D.M. [1972]: "Homotopy limits, completions and localizations", lect. not. in math. 304, Springer

Bredon, G.E. [1967]: "Equivariant Cohomology Theories", lect. not. in math. 34, Springer

Bredon, G.E. [1972]: "Introduction to transformation groups", Academic Press

Bröcker, T. and Janich, K. [1973]: "Einführung in die Differentialtopologie", Heidelberger Taschenbücher, Band 143

Browder, W. and Hsiang, W.C. [1978]: "Some problems on homotopy theory manifolds and transformation groups", Proc. Symp. Pure Math. 32 II, AMS, 251-267

Browder, W. and Quinn, F. [1975]: "A surgery theory for G-manifolds and stratified sets" in "Manifolds", Tokyo 1973, 27-36

Brown, R. [1968]: "Elements of modern topology", Mc Graw-Hill

Brown, K.S. [1974]: "Euler characteristics of discrete groups and G-spaces", Inv. Math. 27, 229-264

Brown, K.S. [1975]: "Euler characteristics of groups", Inv. math. 29, 1-5

Brown, K.S. [1982]: "Cohomology of groups", grad. texts in math. 87, Springer

Cappell, S.E. and Shaneson, J.L. [1981]: "Non-linear similarity", Ann. of Math. 113, 315-355

Cappell, S.E. and Shaneson, J.L. [1985]: "On 4-dimensional s-cobordisms", J. Diff. Ges. 22, 97-115

Cappell, S.E., Shaneson, J.L., Steinberger, M., Weinberger, S., West, J. E. [1988] "The classification of non-linear similarities of $\mathbb{Z}/2^L$ ", research announcement

Cappell, S.E. and Weinberger, S. [1987]: "Homology propagation of group actions." Comm. Pure and Appl. Math. 40, 723-744

Cartan, H. and Eilenberg, S. [1956]: "Homological algebra", Princeton University Press, Princeton

Carter, D. [1980]: "Lower K-theory of finite groups", Comm. Alg. 8, 1927-1937

Chapman, T. [1973]: "Hilbert cube manifolds and the invariance of the Whitehead torsion", Bull. Amer. Math. Soc. 79, 52-56

Chapman, T. [1983]: "Controlled simple homotopy theory and applications", lect. notes in math 1009, Springer

Cheeger, J. [1979]: "Analytic torsion and the heat equation", Annals of Math. 109, 259-322

Cohen, M.M. [1973]: "A course in simple homotopy theory", graduate texts in math. 10, Springer

Connolly, F. and Geist, R. [1982]: "On extending free group actions on spheres and a conjecture of Iwasawa", Transactions of the AMS 274, 631-640

Connolly, F. and Kozniowski, T. [1986]: "Finiteness properties of classifying spaces of proper Γ -actions", Journal of Pure and Applied Algebra 41, 17-36

Connolly, F. and Kozniowski, T. [1988]: "Rigidity and crystallographic groups I", preprint

Connolly, F. and Lück, W. [1988]: "The involution on the equivariant Whitehead group", Math. Gott., Heft 21, to appear in K-Theory

Connolly, F. and Prassidis, S. [1987]: "Groups which act freely on $\mathbb{R}^m \times S^{n-1}$ ", preprint, Notre Dame, to appear in Topology

Crowell, R.H. and Fox, R.H. [1963]: "Introduction to knot theory", Ginn and Company

Curtis, C.W. and Reiner, I. [1981]: "Methods of representation theory, Vol 1", Wiley, New York

- Curtis, C.W. and Reiner, I. [1987]: "Methods of representation theory, Vol II", Wiley, New York
- tom Dieck, T. [1969]: "Faserbündel mit Gruppenoperation", Arch. Math. Vol 20, 136-143
- tom Dieck, T. [1974]: "On the homotopy type of classifying spaces", Manusc. math. 11, 41-46
- tom Dieck, T. [1975]: "The Burnside ring of a compact Lie group I", Math. Annalen 215, 235-250
- tom Dieck, T. [1979]: "Transformation groups and representation theory", lect. not. in math. 766, Springer
- tom Dieck, T. [1981]: "Über projektive Moduln und Endlichkeitshindernisse bei Transformationsgruppen", Manuscripta math. 34, 135-155
- tom Dieck, T. [1982]: "Homotopiedarstellungen endlicher Gruppen: Dimensionsfunktionen", Invent. math. 67, 231-252
- tom Dieck, T. [1984]: "Die Picard-Gruppe des Burnside-Ringes", algebraic topology conference, proceed., Aarhus 1982, lect. not. in math. 1051, 573-586
- tom Dieck, T. [1985]: "The Picard group of the Burnside ring", J. für die reine u. angew. Math. 361, 174-200
- tom Dieck, T. [1986]: "Dimension functions of homotopy representations", Bull. de La Soc. Math. de Belg. 38
- tom Dieck, T. [1986 a]: "Die Picard-Gruppe des Burnside-Ringes einer kompakten Lieschen Gruppe I", Math. Gott. Heft 46
- tom Dieck, T. [1986 b]: "Kongruenzen zwischen Abbildungsgraden im äquivarianten Satz von Hopf", Math. Gott., Heft 45
- tom Dieck, T.: [1987]: "Transformation groups", Studies in math. 8, de Gruyter
- tom Dieck, T. and Kamps, K.H. and Puppe, D. [1970]: "Homotopietheorie", lect. not. in math. 157, Springer
- tom Dieck, T. and Löffler, P. [1985]: "Verschlingungen von Fixpunktmenen in Darstellungsformen I", Alg. top. conf. Göttingen 1984, Proc., lect. notes in math. 1172, 167-187
- tom Dieck, T. and Petrie, T. [1978]: "Geometric modules over the Burnside ring", Inventiones math. 47, 273-287
- tom Dieck, T. and Petrie, T. [1982]: "Homotopy representations of finite groups", Publ. math. I.H.E.S. 56, 129-169
- Dold, A. [1963]: "Partitions of unity in the theory of fibrations", Ann. of Math. 78, 223-255
- Dold, A. [1972]: "lectures on algebras topology", Grundlehren der mathematischen Wissenschaften 200, Springer
- Donaldson, S. [1987]: "Irrationality and the h-cobordism conjecture", J. of Diff. Geo. 26, 141-168
- Dovermann, K.H. and Petrie, T. [1982]: "G-surgery II", Memoirs of the AMS, vol 37, no. 260

Dovermann, K.H. and Rothenberg, M. [1986]: "An algebraic approach to the generalized Whitehead group", in: "Transformation Groups", Proceedings, Poznań 1985, lect. not. in math. vol. 1217, Springer, 92-114

Dovermann, K.H. and Rothenberg, M. [1988]: "An equivariant surgery sequence and equivariant diffeomorphism and homeomorphism classification", Memoirs of AMS, vo. 70, no 389

Dovermann, K.H. and Rothenberg, M. [1988 a]: "The equivariant Whitehead torsion of a G-fibre homotopy equivalence", preprint, to appear in the Proceedings of the Osaka Conference 1987, Springer lecture notes

Dress, A. [1969]: "A characterization of solvable groups", Math. Z. 110, 213-217

Dress, A. [1973]: "Contributions to the theory of induced representations", Alg. K-theory, Proc. Conf., Seattle 1972, lect. notes in math. 342, 182-240

Dress, A. [1975]: "Induction and structure theorems for orthogonal representations of finite groups", Annals of Math. 102, 291-326

Elmendorf, A.D. [1983]: "Systems of fixed point sets", Transactions of the AMS, vol. 277, 275-284

Ewing, J. and Löffler, P. and Pedersen, E.K. [1985 a]: "A local approach to the finiteness obstruction", Math. Gott. Heft 40, to appear in Oxford Journal of Mathematics

Ewing, J. and Löffler, P. and Pedersen, E.K. [1985 b]: "A rational torsion invariant", Math. Gott. Heft 43, to appear in Proc. of the AMS

Ferry, S.C. [1981 a]: "A simple-homotopy approach to the finiteness obstruction", Proc., Dubrovnik Conf. on Shape Theory 1981, lect. not. in math. 870, Springer, 73-81

Ferry, S.C. [1981 b]: "Finitely dominated compacta need not have finite type", Proc., Dubrovnik Conf. on Shape Theory 1981, lect. not. in math. 870, Springer, 1-5

Ferry, S.C. and Pedersen, E.K. [1989]: "Epsilon Surgery I", preprint

Franz, W. [1935]: "Über die Torsion einer Überdeckung", J. für reine und angew. Math. 173, 245-254

Freedman, M. [1982]: "The topology of 4-manifolds", J. Diff. Geo. 17, 357-453

Freedman, M. [1983]: "The disk theorem for four-dimensional manifolds", Proc. Int. Cong. of Math. Warsaw 647-663

Freyd, P. [1966]: "Splitting homotopy idempotents", Proc. La Jolla Conf. on Cat. Alg. 1965, 173-176, Springer

Fried, D. [1986]: "Analytic torsion and closed geodesics on hyperbolic manifolds", Inv. math. 84, 523-540

Fried, D. [1988]: "Torsion and closed geodesics on complex hyperbolic manifolds", Invent. math. 91, 31-51

Gallot, S. and Hulin, D. and Lafontaine, J. [1987]: "Differential geometry", Springer

Gersten, S. [1966]: "A product formula for Wall's obstruction", Amer. J. of Math. 88, 337-346

- Gersten, S. [1967]: "The torsion of a self-equivalence", *Topology* 6, 411-414
- Gersten, S. [1973]: "Higher K-theory of rings", in "Higher K-theories I", *Proc. Seattle 72*, lect. notes in math. 342, 3-43
- Giffen, C.H. [1966]: "The generalized Smith conjecture", *Amer. J. Math.* 88, 187-198
- Gilkey, P. [1984]: "Invariance theory, the heat equation, and the Atiyah-Singer index theorem", *Publish or Perish*
- Greenberg, N.J. [1967]: "Lectures on Algebraic Topology", Benjamin
- Hambleton, I. and Madsen, I. [1986]: "Actions of finite groups on \mathbb{R}^{n+k} with fixed set \mathbb{R}^k ", *Can. J. Math.* 38, 781-860
- Hambleton, I., Taylor, L., and Williams, B. [1988]: "On $G_n(RG)$ for G a finite nilpotent group", to appear in *J. of Algebra*
- Hastings, H. and Heller, A. [1981]: "Splitting homotopy idempotents", *Proc. Dubrovnik Conf. on Shape theory 1981*, lect. not. in math. 870, 23-36
- Hastings, H. and Heller, A. [1982]: "Splitting homotopy idempotents of finite-dimensional CW-complexes", *Proc. of AMS* 85, 619-622
- Hauschild, H. [1978]: "Äquivariante Whitehead-Torsion", *Manuscripta Math.* 26, 63-82
- Hsiang, W.C. and Pardon, W. [1982]: "When are topologically equivalent orthogonal representations linearly equivalent?", *Invent. math.* 275-317
- Huppert, B. [1967]: "Endliche Gruppen I", *Grundlehren der math. Wissenschaften*, Band 134, Springer
- Husemöller, D. [1966]: "Fibre bundles", Mc Graw-Hill, New York
- Illman, S. [1974]: "Whitehead torsion and group actions", *Ann. Acad. Sci. Fenn. Ser. AI* 588, 1-44
- Illman, S. [1975]: "Equivariant singular homology and cohomology", *Mem. Amer. Math. Soc.* 156, 1-74
- Illman, S. [1978]: "Smooth equivariant triangulations of G -manifolds for G a finite group", *Math. Ann.* 233, 199-220
- Illman, S. [1983]: "The equivariant triangulation theorem for actions of compact Lie groups", *Math. Ann.* 262, 487-501
- Illman, S. [1985]: "Equivariant Whitehead torsion and actions of compact Lie groups", in "Group actions on Manifolds", *Contemp. Math. AMS* 36, 91-106
- Illman, S. [1986]: "A product formula for equivariant Whitehead torsion and geometric applications" in "Transformation Groups", *Poznań 1985*, lect. notes in math. 1217, 123-142
- Iizuka, K. [1984]: "Finiteness conditions for G -CW-complexes", *Japan. J. Math.* vol. 10 no. 1, 55-69
- Jackowski, S. and McClure, J.E. [1987]: "Homotopy approximations for classifying spaces of compact Lie groups", *Math. Gott.*, to appear in the *Proc. of the conf. on alg. top.*, Arcata 1986, lect. not. in math., Springer

- Jackowski, S., McClure, J.E. and Oliver, R. [1989]: "Self maps of classifying spaces", Aarhus preprint
- James, I.M. and Segal, G.B. [1978]: "On equivariant homotopy type", Topology 17, 267-272
- Jaworowski, J.W. [1976]: "Extensions of G-maps and Euclidian G-retracts", Math. Z. 146, 143-148
- Kawakubo, K. [1986]: "Stable equivalence of G-manifolds", Advanced Studies in Pure Math. 9, 27-40
- Kawakubo, K. [1988]: "An s-cobordism theorem for semi-free S^1 -manifolds", A fête of topology, Pop. Dedic. Itiro Tamura, 565-583
- Kirby, R.C. and Siebenmann, L.C. [1977]: "Foundational essays on topological manifolds, smoothings and triangulations", Ann. of Math. Studies no. 88, Princeton Univ. Press, Princeton
- Kratzer, Ch. and Thévenaz, J. [1984]: "Fonction de Möbius d'un groupe fini et anneau de Burnside", Comm. Math. Helv. 59, 425-438
- Kwasik, S. [1983]: "On equivariant finiteness", Comp. Math. 48, 363-372
- Kwun, K.W. and Szczarba, R.H. [1965]: "Product and sum theorems for Whitehead torsion", Ann. of Math. 82, 183-190
- Laitinen, E. [1986]: "Unstable homotopy theory of homotopy representations", in Transformation Groups, Poznań 1985, lect. not. in math. 1217, 210-248, Springer
- Laitinen, E. and Lück, W. [1987]: "Equivariant Lefschetz classes", Math. Gott. Heft 46, to appear in Osaka Journal
- Lamotke, K. [1968]: "Semisimpliziale algebraische Topologie", Grundlehren der math. Wissenschaften in Einzeldarstellungen, Band 147, Springer
- Lashof, R.K. and Rothenberg, M. [1978]: "G-smoothing theory", Proceedings of Symposia in Pure Math. vol. 32, part 1, 211-266
- Lewis, L.G., May, J.P. and Steinberger, M. [1986]: "Equivariant Stable Homotopy Theory", lect. not. in math. vol. 1213, Springer
- Lott, J. and Rothenberg, M. [1989]: "Analytic torsion for group actions", preprint
- Lück, W. [1983]: Seminarbericht "Transformationsgruppen und algebraische K-Theorie", Göttingen
- Lück, W. [1986]: "The transfer maps induced in the algebraic K_0 - and K_1 -groups by a fibration I", Math. Scand. 59, 93-121
- Lück, W. [1986 a]: "The equivariant degree", Math. Gott., Heft 69 and in the Proceedings of the topology conference Göttingen 1987, lect. notes in math. 1361, 123-166, Springer (1988)
- Lück, W. [1987]: "The transfer maps induced in the algebraic K_0 - and K_1 -groups by a fibration II", J. of Pure and Appl. Algebra 45, 143-169
- Lück, W. [1987 a]: "Equivariant Eilenberg MacLane spaces $K(G, \mu, 1)$ for possibly nonconnected or empty fixed point sets", manusc. math. 58, 67-75
- Lück, W. [1987 b]: "The geometric finiteness obstruction", Proc. of the LMS 54, 367-384

Lück, W. [1988]: "Equivariant Reidemeister torsion and homotopy representations", Math. Gott., Heft 15

Lück, W. [1989]: "Analytic and topological torsion for manifolds with boundary and symmetries." Math. Gott.

Lück, W. and Madsen, I. [1988 a]: "Equivariant L-theory I", Aarhus, preprint, to appear in Math. Z.

Lück, W. and Madsen, I. [1988 b]: "Equivariant L-theory II", Aarhus preprint, to appear in Math. Z.

Lück, W. and Ranicki, A. [1986]: "Chain homotopy projections", Math. Gott. Heft 73, and in J. of algebra 120, 361-391 (1989)

Lück, W. and Ranicki, A. [1988]: "Surgery Transfer", Math. Gott., and in Proc. of the topology conf. in Göttingen 1987, lect. not. in math. 1361, 167-246, Springer

Lundell, A.T. and Weingram, S. [1969]: "The topology of CW-complexes", Van Nostrand Reinhold Company

MacLane, S. [1963]: "Homology". Die Grundlehren der Mathematischen Wissenschaften in Einzeldarstellungen, Band 114, Springer

MacLane, S. [1971]: "Categories for the working mathematician", grad. texts in math. 5, Springer

Madsen, I. [1983]: "Reidemeister torsion, surgery invariants and spherical space forms", Proc. of the LMS 46, 193-240

Madsen, I. and Raußen, M. [1985]: "Smooth and locally linear G-homotopy representations", Alg. top. conf. Göttingen 1984, Proc. lect. not. in math. 1172, 130-156

Madsen, I. and Rothenberg, M. [1985 a]: "On the classification of G-spheres I: Equivariant transversality", preprint, Aarhus and in Acta math. 160, 65-104 (1988)

Madsen, I. and Rothenberg, M. [1985 b]: "On the classification of G-spheres II: PL-automorphism groups", preprint, Aarhus

Madsen, I. and Rothenberg, M. [1985 c]: "On the classification of G-spheres III: TOP automorphism groups", preprint, Aarhus

Madsen, I., Thomas, C.B. and Wall, C.T.C. [1976]: "The topological spherical space form problem II", Topology 15, 375-382

Mather, M. [1965]: "Counting homotopy types of manifolds", Topology 4, 93-94

Matumoto, T. [1971]: "On G-CW-complexes and a theorem of J.H.C. Whitehead", J. Fac. Sci. Univ. Tokyo, Sect. IA Math. 18, 363-374

Matumoto, T. [1984]: "A complement to the theory of G-CW-complexes", Japan. J. Math. 10, 353-374

Matumoto, I. and Shiota, M. [1987]: "Unique triangulation of the orbit space of a differentiable transformation group and its applications", Advanced Studies in Pure Math. 9, Kinokuniya, Tokyo, 41-55

Maumary, S. [1987]: "The analytic and de Rham torsion", preprint, Lausanne

May, P. [1967]: "Simplicial objects in algebraic topology", D. van Nostrand Company, Inc. Princeton, New Jersey

- Mazur, B. [1963]: "Differential topology from the point of view of simple homotopy theory, Publ. IHES 15, 5-93
- Michael, E. [1956]: "Continuous selections I", Ann. Math. 63, 361-382
- Milnor, J. [1957]: "The geometric realization of a semi-simplicial complex", Annals of Math. 65, 357-362
- Milnor, J. [1959]: "Spaces having the homotopy type of a CW-complex", Transactions of the AMS 90, 272-280
- Milnor, J. [1961]: "Two complexes which are homeomorphic but combinatorial distinct" Ann. of Math. 74, 575-590
- Milnor, J. [1962]: "On axiomatic homology theory", Pacific J. Math. 12, 337-341
- Milnor, J. [1966]: "Whitehead torsion", Bull. AMS 72, 358-426
- Milnor, J. [1971]: "Introduction to algebraic K-theory", Princeton University Press
- Mislin, G. [1987]: "The homotopy classification of self-maps of infinite quaternionic projective space", Quarterly Journal of Mathematics Oxford 38, 245-257
- Mitchell, B. [1972]: "Rings with several objects", Adv. in Math. 8, 1-161
- Montgomery, D. and Yang, C.T. [1957]: "The existence of a slice", Ann. of Math. 65, 108-116
- Montgomery, D. and Zippin, L. [1955]: "Topological Transformation Groups", Wiley (Interscience), New York
- Mostow, G.D. [1957]: "Equivariant embeddings in Euclidean spaces", Ann. of Math. 65, 432-446
- Müller, W. [1978]: "Analytic torsion and R-torsion of Riemannian manifolds", Adv. in Math. 28, 233-305
- Murayama, M. [1983]: "On G-ANR-s and their G-homotopy types", Osaka J. Math. 20, 479-512
- Okonek, C. [1983]: "Bemerkungen zur K-Theorie äquivarianter Endomorphismen", Arch. Math. 40, 132-138
- Oliver, R. [1975]: "Fixed point sets of group actions on finite acyclic complexes", Commentarii Mathematici Helv. 50, 155-177
- Oliver, R. [1976]: "Smooth compact Lie groups actions on disks", Math. Zeitschrift 149, 79-96
- Oliver, R. [1977]: "G-actions on disks and permutation representations II", Math. Zeitschrift 157, 237-263
- Oliver, R. [1978]: "G-actions on disks and permutation representations", J. of Algebra 50, 44-62
- Oliver, R. [1980]: "SK₁ for finite group rings II", Math. Scand. 47, 195-231
- Oliver, R. [1985]: "The Whitehead transfer homomorphism for oriented S^1 -bundles", Math. Scand. 57, 51-104
- Oliver, R. [1988]: "Whitehead groups of finite groups", Cambridge Univ. Press.

- Oliver, R. and Petrie, T. [1982]: "G-CW-surgery and $K_0(\mathbb{Z}G)$ ", Math. Zeitschrift 179, 11-42
- Palais, R.S. [1961]: "On the existence of slices for actions of non-compact Lie groups", Ann. of Math. 73, 295-323
- Pedersen, E.K. [1984]: "On the k_1 -functors", Journal of algebra 90, 461-475
- Pedersen, E.K. [1986]: "On the bounded h-cobordism theorem" in "Transformation groups", Poznań 1985, lect. notes in math. 1217, 306-320, Springer
- Pedersen, E.K. and Weibel, C.A. [1985]: "Non-connective deloopings of algebraic K-theory", in "Algebraic and Geometric Topology", Proceedings 1983, Rutgers University, New Brunswick, lect. notes in math. 1126, Springer
- Petrie, T. [1982 a]: "One fixed point actions on spheres I", Advances in Math. Vol. 46, 3-14
- Petrie, T. [1982 b]: "One fixed point actions on spheres II", Advances in Math. Vol 46, 15-70
- Petrie, T. and Randall, J. [1984]: "Transformation groups on manifolds", Dekker Series in Pure and Applied Math. 82, Dekker, New York
- Quillen, D. [1973]: "Higher algebraic K-theory I", in "Higher K-theories I". Proceedings, Seattle 1972, lect. not. in math. 341, 85-147
- Quillen, D.G. [1983]: "Determinants of Cauchy-Riemannian operators on a Riemann surface", Functional Anal. Appl. 19 (1), 31-34
- Quinn, F. [1979]: "Ends of maps I", Ann. of Math. 110, 275-331
- Quinn, F. [1982]: "Ends of maps II", Inv. Math. 68, 353-424
- Quinn, F. [1988]: "Homotopically stratified sets", Journal of the AMS vol 1, no 2, 441-499
- Ranicki, A. [1985]: "The algebraic theory of finiteness obstruction", Math. Scand. 57, 105-126
- Ranicki, A. [1985 a]: "The algebraic theory of torsion", in "Algebraic and Geom. Topology", Proc. Conf. Rutgers Univ., New Brunswick 1983, lect. not. in math. 1126, Springer, 199-237
- Ranicki, A. [1986]: "The algebraic and geometric splittings of the K- and L-groups of polynomial extension", Proc. Symp. on Transformation groups, Poznań 1985, lect. notes in math. 1217, 321-364
- Ranicki, A. [1987]: "The algebraic theory of torsion II: Products", K-Theory 1, 115-170
- Ranicki, A. [1987 a]: "The algebraic theory of torsion III: Lower K-theory", pre-print
- Ranicki, A. and Weiss, M. [1987]: "Chain complexes and assembly", Math. Gott. Heft 28
- Ray, D. and Singer, I. [1971]: "R-torsion and the Laplacian on Riemannian manifolds", Adv. in Math. 7, 145-210
- Reidemeister, K. [1938]: "Homotopieringe und Linsenräume", Hamburger Abhandlungen 11

- de Rham, G. [1964]: "Reidemeister's torsion invariant and rotations of S^n ", Differential Analysis (published for the Tata Institute of Fundamental Research, Bombay). Oxford Univ. Press, London 1964, pp 27-36, MR 32 # 8355
- Rothenberg, M. [1978]: "Torsion invariants and finite transformation groups", in "Algebraic and geometric topology", part 1, AMS, 267-311
- Rothenberg, M. [1978 a]: "Homotopy type of G-spheres", Algebraic topology conference Aarhus 1978, Proc. lect. not. in math. 763, 573-590, Springer
- Rothenberg, M. and Triantafillou, G. [1984]: "An algebraic model for G-simple homotopy types". Math. Ann. 269, 301-331
- Rothenberg, M and Weinberger, S. [1987]: "Group actions and equivariant Lipschitz analysis", Bulletin of the AMS 17, 109-111
- Rourke, C.P. and Sanderson, B.J. [1972]: "Introduction of Piecewise Linear Topology", Ergebnisse der Mathematik und Ihrer Grenzgebiete, Band 69, Springer
- Rubinsztein, R.L. [1973]: "On the equivariant homotopy of spheres", Dissertation, preprint 58, Polish Academy of Sciences, Warscawa
- Schubert, H. [1964]: "Topologie", 4. Auflage, Teubner
- Schubert, H. [1970 a]: "Kategorien I", Heidelberger Taschenbücher, Band 65, Springer
- Schubert, H. [1970 b]: "Kategorien II", Heidelberger Taschenbücher, Band 66, Springer
- Schwarz, A. [1978]: "The partition function of degenerate quadratic functional and Ray-Singer invariants", Lett. Math. Phys. 2, 247
- Segal, G.H. [1971]: "Equivariant stable homotopy theory", Actes Congr. int. Math. 2, 59-63
- Serre, J.P. [1977]: "Linear representations of finite groups", graduate texts in mathematics 42, Springer
- Siebenmann, L. [1965]: "The obstruction of finding a boundary for an open manifold of dimension greater than five", Ph. d. thesis, Princeton Univ.
- Silvester, J.R. [1981]: "Introduction to algebraic K-theory", Chapman and Hall,
- Slomińska, J. [1980]: "Equivariant Bredon cohomology of classifying spaces of families of subgroups", Bull. Ac. Sc. Pol. Sc. Math. XXVIII no 9-10, 503-508
- Smith, J.R. [1986]: "Topological Realizations of Chain Complexes I- The General Theory", Topology and its applications 22, 301-313
- Smith, J.R. [1987]: "Topological Realization of Chain Complexes II. The rational case", preprint
- Stallings, J. [1968]: "Notes on Polyhedral Topology", Tata Institute
- Steenrod, N.E. [1967]: "A convenient category of topological spaces", Mich. Math. J. 14, 133-152
- Steinberger, M. [1988]: "The equivariant topological s-cobordism theorem", Inv. math. 91, 61-104
- Steinberger, M and West, J. [1984]: "Controlled finiteness is the obstruction to equivariant handle decomposition", preprint

Steinberger, M. and West, J. [1985]: "Equivariant h-cobordism and finiteness obstruction", Bull. AMS 12, 217-220

Stöcker, R. [1970]: "Whiteheadgruppe topologischer Räume", Inventiones Math. 9, 271-278

Ström, A. [1966]: "Note on cofibrations", Math. Scand. 19, 11-14

Summers, D.W. [1975]: "Smooth \mathbb{Z}/p -actions on spheres which leaves knots pointwise fixed", Trans. AMS 205, 193-203

Svensson, J.A. [1985]: "Lower equivariant K-theory", Arhus preprint, and in Math. Scand 60, 179-201 (1987)

Swan, R.G. [1960 a]: "Induced representations and projective modules", Ann. of Math. 71, 552-578

Swan, R.G. [1960 b]: "Periodic resolutions for finite groups", Ann. of Math. 72, 267-291

Swan, R.G. [1968]: "Algebraic K-theory", lect. not. in math. 76, Springer

Switzer, R.M. [1975]: "Algebraic topology - homotopy and homology", Grundlehren der mathematischen Wissenschaften in Einzeldarstellungen, Band 212, Springer

Taylor, M.J. [1978]: "The locally free class group of prime power order", Journal of Algebra 50, 463-487

Thomason, R.W. [1982]: "First quadrant spectral sequences in algebraic K-theory via homotopy colimits", Communications in Algebra 10 (15), 1589-1668

Tornehave, J. [1982]: "Equivariant maps of spheres with conjugate orthogonal actions", Alg. top. Conf. London Ont. 1981, Canad. Math. Soc. Conf. Proc. vol 2 part 2, 275-301

Triantafillou, G.V. [1982]: "Equivariant minimal models", Transactions of the AMS 274, 509-532

Triantafillou, G. [1983]: "Rationalization of Hopf G-spaces" Math. Z. 182, 485-500

Turaev, V.G. [1986]: "Reidemeister torsion in knot theory", Russ. Math. Surveys 41:1, 119-182

Waldhausen, F. [1985]: "Algebraic K-theory of spaces", in "Algebraic and Geometric Topology", Proc. Conf. Rutgers Univ., New Brunswick 1983, lect. not. in math. 1126, Springer, 318-419

Wall, C.T.C. [1965]: "Finiteness conditions for CW-complexes", Annals of Math. 81, 56-69

Wall, C.T.C. [1966]: "Finiteness conditions for CW-complexes II", Proc. of the Royal Soc. A 295, 129-139

Wall, C.T.C. [1979]: "Periodic projective resolutions", Proc. of the London Math. Soc. 39, 509-553

Wallace, A.H. [1970]: "Algebraic Topology, Homology and Cohomology", Benjamin, New York

Waner, S. [1980a] : "Equivariant homotopy theory and Milnor's theorem", Trans. AMS 258, 351-368

Waner, S. [1980b]: "Equivariant fibrations and transfer", Trans. of AMS 258, 369-384

- Webb, L.D. [1987]: "G-theory of group rings for groups of square-free order", K-theory 1, 417-422
- Weiss, M. and Williams, B. [1987]: "Automorphisms of manifolds and algebraic K-theory II", Math. Gott. Heft 48, to appear in J. of Pure and Appl. Algebra
- Whitehead, J.H.C. [1939]: "Simplicial spaces, nuclei and m-groups", Proc. of LMS 45, 243-327
- Whitehead, J.H.C. [1941]: "On incidence matrices, nuclei and homotopy type", Ann. of math. 42, 1197-1239
- Whitehead, J.H.C. [1949]: "Combinatorial homotopy I", Bull. Amer. Math. Soc. 55, 213-245
- Whitehead, J.H.C. [1952]: "Simple homotopy types", Amer. J. Math. 72, 1-57
- Whitehead, G.W. [1978]: "Elements of homotopy theory", grad. texts in math. 61, Springer
- Willson, S.J. [1975]: "Equivariant homology theories on G-CW-complexes", Trans. of AMS 212, 155-171
- Wirthmüller, K. [1974]: "Equivariant homology and duality", Manuscr. math. 11, 373-390
- Witten, E. [1988]: "Quantum field theory and the Jones polynomial", preprint

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Symbols

Roman letters

$A_f = A/\text{Tors}(A)$		367
$A(G)$	Burnside ring	104
$A(G, \mathfrak{F})$		103
$\bar{A}(G) = A(G)/ G \cdot C(G)$		285
BG	classifying space	56
$C_{\text{ev}} = \bigoplus_{n \geq 0} C_{2n}$		
$C_{\text{odd}} = \bigoplus_{n \geq 0} C_{2n+1}$		
$C(G) = \prod_{(H)} \mathbb{Z}$		385
$\bar{C}(G) = C(G)/ G \cdot C(G)$		385
$C^C(X)$	cellular $\mathbb{Z}\Pi/(G, x)$ -chain complex	152
$C^S(X)$	singular $\mathbb{Z}\Pi/(G, X)$ -chain complex	259
$C^\Pi(X)$		267
$\text{ch}_\ell(x, y)$		344
$\text{ch}_p(\Gamma)$		344
$\text{Con}(G)$	set of conjugacy classes (H)	32
$\text{Cone}(f)$	mapping cone	60, 213
$\text{Cyl}(f)$	mapping cylinder	60, 213
$\text{Dim}(X)$	dimension function	392
$EG \longrightarrow BG$	universal principal G-bundle	56
EI-CAT	category of EI-categories	185
$\text{EI-CAT}_A \subset \text{EI-CAT}$		190
$\text{el}_n(f)$	n-dimensional elementary chain complex	214
$\text{el}_n(M)$		214
$\text{Ext}_{R\Gamma}^n(M, N)$		340
E_x	extension functor	170
$e(X, H)$	orientation behaviour	392
$F_\#$	coinduction with F	350
F_*	induction with F	185
F^*	restriction with F	189

$F^!$	restriction with F	328
$\{f\}$	stable equivalence class of maps	239
$\{f\} \circ \{g\}$		239
$\{f\} * \{g\}$		239
$\text{FMOD-}R\Gamma$	category of finitely generated $R\Gamma$ -modules	327
$\text{FFMOD-}R\Gamma$	category of finitely generated free $R\Gamma$ -modules	183
$\text{FPMOD-}R\Gamma$	category of finitely generated projective $R\Gamma$ -modules	183
$ G $	order of G	
G/H	homogeneous space for $H \subset G$	
G_x	isotropy group of $x \in X$	10
G_o	component of the identity	
$G_n(\mathcal{A})$	category of \mathbf{Z}^n -graded objects of \mathcal{A} with bounded morphisms	181
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$\text{Gr}_O^P(R\Gamma)$		328
$H_n(X) = H_n^C(X) = H_n^S(X)$	(cellular, singular) $\mathbf{Z}\Pi/(G,X)$ -homology	263
$H_{dR}^n(X)$	de Rham cohomology	375
$H_n(\Gamma; M), H^n(\Gamma; M)$		347
$\text{hdim}(M)$	homological dimension	339
$\text{HDIM}(R\Gamma) = \max\{\text{hdim } M \mid M \text{ a } R\Gamma\text{-module}\}$		339
$\text{ho FACC-}R\Gamma$		291
$\text{ho FDCC-}R\Gamma$		292
$\text{Hom}_{R\Gamma}(M, N)$		165
$\text{Hom}(x, y)$	set of morphisms for x to y	
$H \subset G$	H closed subgroup of G	
$H \triangleleft G$	H normal closed subgroup of G	
(H)	conjugacy class of subgroups represented by $H \subset G$	
$\mathcal{H}(C)$		249
$h_X(X, A), h_X(X)_{1/m}, h_X(f)_{1/m}$		368, 387, 387
$\text{Inv}(G) = \overline{C}(G)^* / \overline{A}(G)^*$		385
$\text{Is } \Gamma$	set of isomorphism classes of objects	170

$\text{Iso}(B)$		173
$\text{Iso}(M)$		170
$\text{Iso}(X)$	set of isotropy groups of X	32
I_x	inclusion functor	170
$K_0(\mathcal{A})$	Grothendieck group of an additive category \mathcal{A}	181
$K_1(\mathcal{A})$		181
$K_{-n}(\mathcal{A}) = K_1(G_n(\mathcal{A}))$, $n \leq 1$		182
$K_n(\mathcal{C})$	K -groups of a category with cofibrations and weak equivalences for $n \geq 0$	182
$K_n(\mathcal{E})$	K -groups of an exact category for $n \geq 0$	182
$K_0(R)$	projective class group	118
$\tilde{K}_0(R)$	reduced projective class group	118
$K_n(R\Gamma) = K_n(\text{FPMOD-}R\Gamma)$ $n \in \mathbb{Z}$		183
$K_{-n}^G(X)$, $n \geq 1$		130
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$K_n^G(X; R)$, $n \in \mathbb{Z}$		277
$\tilde{K}_n^G(X; R)$, $n \in \mathbb{Z}$		277
$\ell(M)$	length of a $R\Gamma$ -module	325
$\ell(\Gamma)$	length of a EI-category	325
$\ell(\bar{x})$	length of an object	325
$\text{MOD-}R\Gamma$	category of $R\Gamma$ -contramodules	162
$\text{map}(X, Y)^G$	set of G -maps from X to Y	
$\text{Mor}(x, y)$	set of morphisms from x to y	
$\text{Mor}/(x, y) = \pi_0(\text{Mor}(x, y))$		149
$m_X(X)$	multiplicative Euler characteristic	368
NH	normalizer of $H \subset G$	11
$\text{Nil}(\mathcal{A})$		205
$\widetilde{\text{Nil}}(\mathcal{A})$		205
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$n(M)$		214
$n(f)$		214

$$\widetilde{\text{Nil}}(\text{R}\Gamma) = \widetilde{\text{Nil}}(\text{FPMOD-R}\Gamma)$$

$\text{o}(\text{C})$	finiteness obstruction	211
$\tilde{\text{o}}(\text{C})$	reduced finiteness obstruction	212
$\text{o}^{\text{G}}(\text{X})$	finiteness obstruction	278, 360
$\tilde{\text{o}}^{\text{G}}(\text{X})$	reduced finiteness obstruction	278, 360
$\text{o}(\text{p})$		232
OrG	orbit category	145
Or/G	discrete orbit category	151
p^*	algebraic transfer of a G-fibration	314
$\text{p}^!$	geometric transfer of a G-fibration	317
$\text{Pic}(\text{G}) = \overline{\text{C}}(\text{G})^* / \overline{\text{A}}(\text{G})^* \cdot \text{C}(\text{G})^*$	Picard group	385
$\text{Rep}_{\mathbf{R}}(\text{G})$	real representation ring of G	
$\text{Rep}_{\mathbb{C}}(\text{G})$	complex representation ring of G	
$\text{Res}_{\mathbf{x}}$	restriction functor	170
R^*	units in the ring R	
RG	group ring of G with R-coefficients	163
$\text{R}[\mathbf{x}] = \text{R Aut}(\mathbf{x})$		170
RS	free R-module generated by the set S	164
$\text{R}\Gamma(?, \mathbf{x}) = \text{R Hom}(?, \mathbf{x})$		164
R-MOD	category of R-modules	162
$\text{R}\Gamma\text{-MOD}$	category of $\text{R}\Gamma$ -comodules	162
$\text{rk}_{\text{R}\Gamma}(\text{M})$	rank of a $\text{R}\Gamma$ -module	199
$\text{rk}_{\text{R}\Gamma}^{\wedge}(\text{M})$		333
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$\text{Split Wh}(\text{R}\Gamma)$		193
$\text{Split } \tau(\mathbf{f})$		253
$\text{S}_{\mathbf{x}}$	splitting functor	170
$\text{supp}(\text{M})$	support of a $\text{R}\Gamma$ -module	325
SV	unit sphere of a representation V	
sw	Swan homomorphism	381

$\overline{\text{sw}}$	lifted Swan homomorphism	381
SW	generalized Swan homomorphism	384
$\overline{\text{SW}}$	lifted generalized Swan homomorphism	384
$\text{Tor}_n^{\text{R}\Gamma}(M, N)$		340
tp_p	fibre transport	314
$\tilde{\text{tp}}_p$	total fibre transport	314
$\text{trf}_{\mathbb{F}}$	transfer associated with \mathbb{F}	32
$\text{t}(\text{S})$	torsion of a square	240
$\text{t}(f, \{\phi\})$	torsion	240
$\text{t}(f)$	self-torsion	246
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$\text{V}_e^{\text{C}}(\text{G})^+$		396
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$\text{WH}(\text{x})$		146
$\text{Wh}(\text{R}\Gamma) = \text{K}_1(\text{R}\Gamma)/\langle \text{trivial units} \rangle$		184
$\text{Wh}^{\text{G}}(\text{X})$	Whitehead group	68, 277
$\text{Wh}_{\text{Iso}}^{\text{G}}(\text{X}), \text{Wh}_{\rho}^{\text{G}}(\text{X})$	isovariant Whitehead group	84, 91
$\text{X}^{\text{H}} = \{\text{x} \in \text{X} \mid \text{G}_{\text{x}} \supset \text{H}\}$		10
$\text{X}^{>\text{H}} = \{\text{x} \in \text{X} \mid \text{G}_{\text{x}} \supset \text{H}, \text{G}_{\text{x}} \neq \text{H}\}$		10
$\text{X}_{\text{H}} = \{\text{G}_{\text{x}} = \text{H}\}$		11
$\text{X}^{(\text{H})} = \{\text{x} \in \text{X} \mid (\text{G}_{\text{x}}) \geq (\text{H})\}$		11

$X^{>(H)} = \{x \in X \mid (G_x) \supset (H), (G_x) \nmid (H)\}$	11
$X_{(H)} = \{x \in X \mid (G_x) = (H)\}$	11
$X^H(x)$	146
$X^{>H}(x)$	146
$\tilde{X}^H(x)$	146
$\tilde{X}^{>H}(x)$	146
$X^H/(x) = X^H(x)/WH(x)_0$	150
$X^{>H}/(x)$	150
$\tilde{X}^H/(x) = \tilde{X}^H(x)/Aut(x)_0$	150
$\tilde{X}^{>H}/(x)$	150
$\tilde{X}: \Pi(G, X) \rightarrow \{\text{top. sp.}\}$	universal covering functor 146
$\tilde{X}/: \Pi/(G, X) \rightarrow \{\text{top. sp.}\}$	discrete universal covering functor 149
X/G	orbit space
$X \nearrow Y$	elementary expansion 62
$X \searrow Y$	elementary collaps 63
$X/\wedge Y$	formal deformation 63
$ x = Aut(x) $	325
\overline{x}	isomorphism class of objects represented by x 170
$\overline{x} \cong \overline{y} \iff Hom(x, y) \neq \emptyset$	170

Greek letters

∂	boundary homomorphism of a localization square	368, 369
Δ	Laplace operator	375
$\chi^G(X, A)$	Euler characteristic	100, 278, 360
$\chi(C)$	Euler characteristic	227
$\{\psi\} \# \{\phi\}$		244
μ	Moebius inversion	330
$\pi_0(x)$	set of components	
$\pi_1(X, x)$	fundamental group	
$\pi_n(X, x)$	n-th homotopy group	

$\Pi(X)$	fundamental groupoid	145
$\Pi_0(G, X)$	component category	99
$\Pi(G, X)$	fundamental category	144
$\Pi/(G, X)$	discrete fundamental category	149
$\rho^G(X, A), \rho^G(M)$	Reidemeister torsion	362, 375
$\bar{\rho}^G(X, A)$	reduced Reidemeister torsion	363
Σ	suspension	213
$\tau^G(f)$	Whitehead torsion	68, 284, 360
$\tau(f)$	Whitehead torsion	252
$\tau_{\text{Iso}}^G(f)$	isovariant Whitehead torsion	85

Other symbols

\oplus	discrete sum	
\otimes_R	tensor product over R	166
$\otimes_{R\Gamma}$	tensor product over $R\Gamma$	166
\coprod	disjoint union	
\amalg	direct product	
$*$	join	131
\simeq_G	G-homotopic	
\cong	isomorphic	
\longrightarrow	cofibration	
\lim	limit	
$\text{inv } \lim$	inverse limit	
$[,]^G$	G-homotopy classes of G-maps	
\mathbb{C}	complex numbers	
\mathbb{N}	natural numbers	
\mathbb{Q}	rational numbers	
$\hat{\mathbb{Q}}_p$	p-adic rational numbers	
\mathbb{R}	real numbers	
\mathbb{Z}	integers	
$\hat{\mathbb{Z}}_p$	p-adic integers	
$\mathbb{Z}_{(m)}$	\mathbb{Z} with all primes p with $p \nmid m$ inverted	
$\mathbb{Z}_{\frac{1}{m}}$	\mathbb{Z} with all primes p with $p \mid m$ inverted	