

CURRICULUM VITÆ

DAVID JOHN BENSON

EDUCATION AND EMPLOYMENT

DATES	PLACE	DEGREE/POSITION
2005–	University of Aberdeen, Scotland, UK	6th Century Chair of Pure Mathematics
2000–05	University of Georgia, Athens GA, USA	Distinguished Research Professor (NSF grant held)
1994–00	University of Georgia, Athens GA, USA	Full Professor (NSF grant held)
1993–94	University of Georgia, Athens GA, USA	Visiting Associate Professor
1986–93	University of Oxford, England, UK	University Lecturer and fellow of Wolfson College
1984–86	Northwestern University, Evanston, IL, USA	Assistant Professor (NSF grant held)
1982–84	Yale University, New Haven, CT, USA	Gibbs Instructor (NSF grant held)
1981–82	Århus Universitet, Danmark	Royal Society exchange fellow
1978–81	Trinity College, Cambridge	Ph. D. in Mathematics
1977–78	Trinity College, Cambridge	Part III Mathematics, honours with distinction
1974–77	Trinity College, Cambridge	First class honours in Mathematics tripos
1967–74	Maidstone Grammar School	8 O-levels, 3 A/S-levels (Mathematics A1, Physics A, Chemistry A1)

AWARDS AND HONOURS

2008 Simons Professorship for the MSRI representation theory programme
2004 Humboldt Research Award for Senior US Scientists, Germany
2004 Creative Research Award, University of Georgia
2003 Sandy Beaver Teaching Award, University of Georgia
1998 Creative Research Medal, University of Georgia
1993 Junior Whitehead Prize, London Mathematical Society
1980 Raleigh Prize, Trinity College, Cambridge

Date: April 2009.

1977 Yeats Mathematics Essay Prize, Trinity College, Cambridge

1976 Senior Scholar, Trinity College, Cambridge

1974 Entrance Scholar, Trinity College, Cambridge

RESEARCH VISITS

20 July to 2 August 2008, Research in Pairs, Oberwolfach, Germany, with Srikanth Iyengar and Henning Krause.

January to May 2008, Simons Professor for the programme on Representation Theory of Finite Groups and Related Topics, MSRI, Berkeley, California, USA.

Sept–Dec 2005, June–July 2006, March–April 2007, June–August 2008, visits to Paderborn University, Germany, supported by the Humboldt Foundation.

February to April 2005, invited visitor for the programme on Group Representation Theory at the Bernoulli Centre, Lausanne, Switzerland.

September 2002 to March 2003, invited visitor for the programme on Commutative Algebra, MSRI, Berkeley, California, USA.

September to December 1991, research visit to School of Mathematics, University of Minnesota, Minneapolis, USA.

September to December 1990, invited visitor for the programme on Representations of Finite Groups, MSRI, Berkeley, California, USA.

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Home page: <http://www.maths.abdn.ac.uk/~bensondj/>

PH. D. THESIS

SUPERVISOR: Prof. J. G. Thompson, Cambridge University
 SUBJECT: Finite group theory.
 TITLE: The Simple Group J_4 .
 DATE RECEIVED: 12th June, 1982.

CURRENT RESEARCH INTERESTS

Cohomology of finite, infinite and compact Lie groups, modular representation theory, algebraic topology, commutative algebra, invariant theory for finite groups.

BOOKS AND MONOGRAPHS

- [1] **Modular representation theory: New trends and methods.** (231 pp.) Springer Lecture Notes in Mathematics 1081, Springer-Verlag, Berlin/New York 1984. MR1986g:20013, ZB0564.20004
 Second edition (with corrections), Springer-Verlag, 2006.
- [2] **Representations and Cohomology, Vol. I: Basic representation theory of finite groups and associative algebras.** (xi + 224 pp.) Cambridge Studies in Advanced Mathematics 30, Cambridge University Press, 1991. MR1992m:20005, ZB0718.20001
 Paperback edition (with corrections), Cambridge University Press, 1998.
 MR1999f:20001a, ZB0908.20001

- [3] **Representations and Cohomology, Vol. II: Cohomology of groups and modules.** (x + 278 pp.) Cambridge Studies in Advanced Mathematics 31, Cambridge University Press, 1991. MR1993g:20099, ZB0731.20001
Paperback edition (with corrections), Cambridge University Press, 1998. MR1999f:20001b, ZB0908.20002
- [4] (with F. R. Cohen.) **Mapping class groups of low genus and their cohomology.** (iv + 104 pp.) Memoirs of the Amer. Math. Soc. 443, 1991. MR1991g:57002, ZB0732:57003
- [5] **Polynomial Invariants of Finite Groups.** (v + 126 pp.) L.M.S. Lecture Notes in Mathematics 190, Cambridge University Press, 1993. Transferred to digital printing, 1999. MR1994j:13003, ZB0864.13001
- [6] **Music: A Mathematical Offering.** (xiii + 411 pp.) Cambridge University Press, 2006. ISBN 0521619998 (pbk), 0521853877 (hbk). MR2007k:00009, ZB1119.00008
Available in pdf from <http://www.maths.abdn.ac.uk/~bensondj/html/math-music.html>
- [7] (with Stephen D. Smith.) **Classifying Spaces of Sporadic Groups.** (xvi + 285 pp.) Mathematical Surveys and Monographs 147, Amer. Math. Soc., 2008. ISBN 0123444741. ZB1135.20001

REFEREED PAPERS

- [8] *The Loewy structure of the projective indecomposable modules for A_8 in characteristic 2.* Comm. in Algebra 11 (13) (1983), 1395–1432. MR1984k:20006a, ZB0528.20007
- [9] *The Loewy structure of the projective indecomposable modules for A_9 in characteristic 2.* Comm. in Algebra 11 (13) (1983), 1433–1453. MR1984k:20006b, ZB0528.20008
- [10] (with R. A. Parker.) *The Green ring of a finite group.* J. Algebra 87 (1984), 290–331. MR1986a:16013, ZB0489.20007, ZB0539.20009
- [11] *Lambda and psi operations on Green rings.* J. Algebra 87 (1984), 360–367. MR1986g:16013, ZB0539.20011
- [12] (with J. H. Conway.) *Diagrams for modular lattices.* J. Pure & Applied Algebra 37 (1985), 111–116. MR1987b:06018, ZB0575.06008
- [13] *Brauer trees for $12M_{22}$.* J. Algebra 95 (1985), 398–408. MR1987c:20030, ZB0574.20009
- [14] *Some recent trends in modular representation theory.* Proceedings of the group theory year at Rutgers, C.U.P. 1985, 249–259. MR1986j:20003, ZB0648.20014
- [15] (with W. Feit and R. Howe.) *Finite linear groups, the Commodore 64, Euler and Sylvester.* Amer. Math. Monthly 93 (9) (1986), 717–719. MR1987m:05011, ZB0611.10013
- [16] *Modules for finite groups: representation rings, quivers and varieties.* Three lectures given at the Fourth International Conference on the Representations of Algebras (ICRA 4). Representation Theory II, Groups and Orders, Ottawa 1984. Springer Lecture Notes in Mathematics 1178, 1–24. Springer-Verlag, Berlin/New York 1986. MR1987m:20031, ZB0592.20010
- [17] (with J. F. Carlson.) *Nilpotent elements in the Green ring.* J. Algebra 104 (1986), 329–350. MR1988b:20021, ZB0612.20005
- [18] *Representation rings of finite groups.* (Two lectures given at the 1985 Durham Symposium on the Representations of Algebras) Representations of Algebras, Durham 1985. London Math. Soc. Lecture Note Series 116, 181–199. C.U.P., 1986. MR1988i:16037, ZB0621.20003
- [19] (with J. F. Carlson.) *Diagrammatic methods for modular representations and cohomology.* Comm. in Algebra 15 (1&2) (1987), 53–121. MR1987m:20032, ZB0615.20032
- [20] (with N. Habegger.) *Varieties for modules and a problem of Steenrod.* J. Pure & Applied Algebra 44 (1987), 13–34. MR1988e:55020, ZB0617.55005
- [21] (with J. F. Carlson.) *Complexity and multiple complexes.* Math. Zeit. 195 (1987), 221–238. MR1988e:20050, ZB0608.20041
- [22] *Some remarks on the decomposition numbers for the symmetric groups.* The Arcata Conference on Representations of Finite Groups, Proc. Symp. Pure Math. 47, Part 1, Amer. Math. Soc. (1987), 381–394. MR1989b:20037, ZB0654.20010
- [23] *Spin modules for symmetric groups.* J. London Math. Soc. (2) 38 (1988), 250–262. MR1989k:20020, ZB0669.20005

- [24] *Projective modules for the group of the twenty-seven lines on a cubic surface.* Comm. in Algebra 17 (5) (1989), 1017–1068. MR1990d:20022, ZB0678.20003
- [25] *Cyclic homology and path algebra resolutions.* Math. Proc. Camb. Phil. Soc. 106 (1989), 57–66. MR1990f:18010, ZB0677.16014
- [26] (with J. F. Carlson and G. R. Robinson.) *On the vanishing of group cohomology.* J. Algebra 131 (1990), 40–73. MR1991c:20073, ZB0697.20043
- [27] (with L. Evens.) *Isomorphisms in finite group cohomology.* Comm. in Algebra 18 (1990), 3447–3452. MR1991h:20080, ZB0743.20053
- [28] (with S. Martin.) *Mod 2 cohomology of the unitary groups $U_3(2^n)$.* Comm. in Algebra 19 (1991), 3125–3144. MR1993a:20072, ZB0798.20037
- [29] (with V. Franjou.) *Séries de composition de modules instables et injectivité de la cohomologie du groupe $\mathbb{Z}/2$.* Math. Zeitschrift 208 (1991), 389–399. MR1993b:55022, ZB0725.55012, ZB0741.55010
- [30] (with J. F. Carlson.) *The cohomology of extraspecial groups.* Bull. London Math. Soc. 24 (1992), 209–235. MR1993b:20087, ZB0795.20038
Erratum, Bull. London Math. Soc. 25 (1993), 498. ZB0801.20026
- [31] (with M. Feshbach.) *Stable splittings of classifying spaces of finite groups.* Topology 31 (1992), 157–176. MR1993d:55013, ZB0752.55008
- [32] *Resolutions and Poincaré duality for finite groups.* In: Proceedings of the June 1990 Barcelona conference on Homotopy and Group Cohomology. Springer Lecture Notes in Mathematics 1509, Springer-Verlag, Berlin/New York 1992, 10–19. MR1993i:20057, ZB0745.55004
- [33] (with J. F. Carlson.) *Periodic modules with large period.* Quarterly Journal of Mathematics (Oxford) 43 (1992), 283–296. MR1993e:20011, ZB0807.20010
- [34] (with J. F. Carlson.) *Products in negative cohomology.* J. Pure & Applied Algebra 82 (1992), 107–129. MR1993i:20058, ZB0807.20044
- [35] *The image of the transfer map.* Archiv der Mathematik 61 (1993), 7–11. MR1994i:20095, ZB0815.20040
- [36] (with J. Greenlees.) *The action of the Steenrod algebra on Tate cohomology.* J. Pure & Applied Algebra 85 (1993), 21–26. MR1994b:55023, ZB0781.55009
- [37] (with J. F. Carlson.) *Projective resolutions and Poincaré duality complexes.* Trans. Amer. Math. Soc. 132 (1994), 447–488. MR1994f:20100, ZB0816.20044
- [38] (with M. Feshbach.) *On the cohomology of split extensions.* Proc. Amer. Math. Soc. 121 (1994), 687–690. MR1994i:20096, ZB0819.20058
- [39] *Conway’s group Co_3 and the Dickson invariants.* Manuscripta Mathematica 85 (1994), 177–193. MR1995h:55018, ZB0853.55018
- [40] (with J. F. Carlson.) *Functional equations for Poincaré series in group cohomology.* Bull. London Math. Soc. 29 (1994), 438–448. MR1995j:20048, ZB0836.20076
- [41] (with J. Wood.) *Integral invariants and cohomology of $B\text{Spin}(n)$.* Topology 34 (1995), 13–28. MR1995m:55023, ZB0846.55013
- [42] (with W. W. Crawley-Boevey.) *A ramification formula for Poincaré series, and a hyperplane formula for modular invariants.* Bull. London Math. Soc. 27 (1995), 435–440. MR1996h:13020, ZB0860.13010
- [43] (with C. W. Wilkerson.) *Finite simple groups and Dickson invariants.* Homotopy theory and its applications, ed. Adem, Milgram and Ravenel, Contemp. Math. 188, 31–42, American Math. Society, 1995. MR1996d:55009, ZB0840.55009
- [44] (with J. F. Carlson and J. Rickard.) *Complexity and varieties for infinitely generated modules.* Math. Proc. Camb. Phil. Soc. 118 (1995), 223–243. MR1996j:20006, ZB0848.20003
- [45] (with P. Kropholler.) *Cohomology of groups.* Survey article, “Handbook of Algebraic Topology” North Holland (1995), 917–950. MR1996j:20072, ZB0873.20038
- [46] *Cohomology of modules in the principal block of a finite group.* New York Journal of Mathematics 1 (1995), 196–205. MR1996h:20095, ZB0879.20004
- [47] *Stably splitting BG .* Bulletin of the Amer. Math. Soc. 33 (1996), 189–198. MR1997c:55015, ZB0859.55015
- [48] *Fusion in compact Lie groups.* Quarterly Journal of Mathematics (Oxford) 47 (1996), 261–268. MR1997j:22015, ZB0870.22005
- [49] *Decomposing the complexity quotient category.* Math. Proc. Camb. Phil. Soc. 120 (1996), 589–595. MR1997f:20007, ZB0884.20003

- [50] (with J. F. Carlson and J. Rickard.) *Complexity and varieties for infinitely generated modules, II*. Math. Proc. Camb. Phil. Soc. 120 (1996), 597–615. MR1997f:20008, ZB0888.20003
- [51] (with J. P. C. Greenlees.) *Commutative algebra for cohomology rings of virtual duality groups*. J. Algebra 192 (1997), 678–700. MR1998d:20057, ZB0901.20040
- [52] (with J. F. Carlson and J. Rickard.) *Thick subcategories of the stable module category*. Fundamenta Mathematicæ 153 (1997), 59–80. MR1998g:20021, ZB0886.20007
- [53] *Complexity and varieties for infinite groups, I*. J. Algebra 193 (1997), 260–287. MR1999a:20054, ZB0886.20002
- [54] *Complexity and varieties for infinite groups, II*. J. Algebra 193 (1997), 288–317. MR1999a:20054, ZB0886.20003
- [55] *Infinite dimensional modules for a finite group*. Representation Theory of Finite Groups, Proceedings of the 1995 Ohio State Conference, ed. Ron Solomon, de Gruyter (1997), 11–17. MR1999k:20018, ZB0897.20008
- [56] (with J. P. C. Greenlees.) *Commutative algebra for cohomology rings of classifying spaces of compact Lie groups*. J. Pure & Applied Algebra 122 (1997), 41–53. MR1998j:57054, ZB0886.57022
- [57] *Cohomology of sporadic groups, finite loop spaces, and the Dickson invariants*. Proceedings of the 1994 Durham Conference on Geometry and Cohomology in Group Theory, ed. Kropholler, Niblo and Stöhr. London Math. Soc. Lecture Notes Series, 252 (1998), 10–23. MR2001i:55017, ZB0928.55017
- [58] (with A. Adem.) *Elementary abelian groups acting on products of spheres*. Math. Zeit. 228 (1998), 705–712. MR1999k:57033, ZB0913.57020
- [59] (with W. W. Wheeler.) *Direct sum decompositions of infinitely generated modules*. Trans. Amer. Math. Soc. 351 (1999), 3843–3855. MR1999m:20009, ZB0933.20005
- [60] (with D. G. Ph. Gnacadja.) *Phantom maps and purity in modular representation theory, I*. Fundamenta Mathematicæ 161 (1999), 37–91. MR2000k:20013, ZB0944.20004
- [61] *Flat modules over group rings of finite groups*. Algebras and Representation Theory 2 (1999), 287–294. MR2000g:20013, ZB0938.20003
- [62] (with J. F. Carlson.) *Cohomology of the double cover of the Mathieu group M_{12}* . J. Algebra 226 (2000), 547–576. MR2001h:20076, ZB0953.20042
- [63] *Infinite dimensional modules for finite groups*. Three lectures given at the Euroconference Workshop on Infinite Length Modules, Bielefeld, 1998. Appeared in: “Infinite Length Modules”, Trends in Mathematics, Birkhäuser Verlag (2000), 251–272. MR2002h:20012, ZB0985.20005
- [64] (with K. Goodearl.) *Periodic flat modules, and flat modules over group rings*. Pacific J. Math. 196 (2000), 45–67. MR2002c:20006, ZB1073.20500
- [65] (with H. Krause.) *Generic idempotent modules for a finite group*. Algebras and Representation Theory (Special issue dedicated to Klaus Roggenkamp on the occasion of his 60th birthday) 3 (2000), 337–346. MR2002m:20013, ZB0968.20007
- [66] (with W. W. Wheeler.) *Green correspondence for infinitely generated modules*. Journal of the London Math. Soc. (2) 63 (2001), 69–82. MR2002h:20004, ZB1047.20010
- [67] (with D. G. Ph. Gnacadja.) *Phantom maps and purity in modular representation theory, II*. Algebras and Representation Theory 4 (2001), 395–404. MR2002j:20017, ZB0998.20004
- [68] *Modules with injective cohomology, and local duality for a finite group*. New York Journal of Mathematics 7 (2001), 201–215. MR2002f:20079, ZB0994.20009
- [69] (with H. Krause.) *Pure injectives and the spectrum of the cohomology ring of a finite group*. Journal für die reine und angewandte Mathematik (Crelle’s journal) 542 (2002), 23–51. MR2002m:20086, ZB0987.20026
- [70] *Phantom maps and purity in modular representation theory, III*. J. Algebra 248 (2002), 747–754. MR2003c:20007, ZB1002.20008
- [71] *The nucleus, and extensions between modules for a finite group*. Proceedings of the Ninth International Conference on Representations of Algebras (ICRA 9), Beijing, August 21–Sept 1 2000, second volume, Beijing Normal University Press (2002), 145–155. MR2005c:20018, ZB1086.20500
- [72] (with D. Nakano.) *The nucleus for restricted Lie algebras*. Proc. Amer. Math. Soc. 131 (2003), 3395–3405. MR2004d:17026, ZB1044.20032
- [73] (with A. Kumjian and N. C. Phillips.) *Symmetries of Kirchberg algebras*. Canadian Math. Bull. 46 (2003), 509–528. MR2004m:46155, ZB1079.46047

- [74] *Dickson invariants, regularity and computation in group cohomology*. Illinois Journal of Mathematics 48 (1) (2004), 171–197. MR2005c:20089, ZB1041.20036
- [75] (with E. Green.) *Nonprincipal blocks with one simple module*. Quarterly Journal of Mathematics (Oxford) 55 (2004), 1–11. MR2004k:20017, ZB1098.20009
- [76] (with H. Krause and S. Schwede.) *Realizability of modules over Tate cohomology*. Trans. Amer. Math. Soc. 356 (2004), 3621–3668. MR2005b:20102, ZB1070.20060
- [77] *Commutative algebra in the cohomology of groups* (with an appendix by Srikanth Iyengar). Three lectures given at the MSRI introductory workshop on Commutative Algebra, Sept 2002. Trends in Commutative Algebra, MSRI publications, Volume 51 (2004), 1–50. MR2006a:20096, ZB1113.20042
- [78] UGA VIGRE algebra group, led by D. J. Benson, B. D. Boe and D. K. Nakano; the other participants were P. Bergonio, L. Chastkofsky, B. Cooper, G. M. Guy, J. Jungster, Jo JangHyun, G. Matthews, N. Mazza and K. J. Platt, *Varieties of nilpotent elements for simple Lie algebras I. Good primes*. J. Algebra 280 (2) (2004), 719–737. MR2005h:17016, ZB1063.17007
- [79] *On the classifying space and cohomology of Thompson’s sporadic simple group*. Finite Groups 2003: Proceedings of the Gainesville Conference On Finite Groups, March 6–12, 2003. Edited by Chat Ho, Peter Sin, Pham Tiep and Alex Turull. Walter de Gruyter (2004), 47–57. MR2005k:20031, ZB1073.20042
- [80] (with M. Linckelmann.) *Vertex and source determine the block variety of an indecomposable module*. J. Pure & Applied Algebra 197 (2005), 11–17. MR2005k:20016, ZB1070.20013
- [81] (with H. Krause and S. Schwede.) *Introduction to realizability of modules over Tate cohomology*. “Representations of Algebras and Related Topics” (ICRA X, Toronto, 2002). Fields Institute Communications 45, Amer. Math. Soc. (2005), 81–97. MR2006h:20072, ZB1107.20043
- [82] UGA VIGRE algebra group, led by D. J. Benson, B. D. Boe and D. K. Nakano; the other participants were P. Bergonio, L. Chastkofsky, B. Cooper, G. M. Guy, J. Hower, M. Hunziker, Jo JangHyun, J. Kujawa, G. Matthews, N. Mazza, K. J. Platt and C. Wright, *Varieties of nilpotent elements for simple Lie algebras II: bad primes*. J. Algebra 292 (2005), 65–99. MR2006k:14083, ZB1124:17003
- [83] (with S. K. Chebolu, J. D. Christensen and J. Mináč.) *The generating hypothesis for the stable module category of a p -group*. J. Algebra 310 (2007), 428–433. MR2007k:16011, ZB1120:20002
- [84] UGA VIGRE algebra group, led by D. J. Benson, B. D. Boe and D. K. Nakano; the other participants were P. Bergonio, L. Chastkofsky, B. Cooper, J. Hower, Jo JangHyun, J. Kujawa, N. Mazza, K. J. Platt and C. Wright, *Support varieties for Weyl modules over bad primes*. J. Algebra 312 (2007), 602–633. MR2008g:20105, ZB1123:20038
- [85] (with K. Erdmann and M. Holloway.) *Rank varieties for a class of finite-dimensional local algebras*. J. Pure & Applied Algebra 211 (2007), 497–510. MR2008f:16006
- [86] (with R. Kessar.) *Blocks inequivalent to their Frobenius twists*. J. Algebra 315 (2007), 588–599. MR2008h:20014, ZB1135:20002
- [87] (with N. Lemire, J. Mináč and J. Swallow.) *Detecting pro- p -groups that are not absolute Galois groups*. Journal für die reine und angewandte Mathematik (Crelle’s journal) 613 (2007), 175–191.
- [88] (with P. Webb.) *Unique factorization in invariant power series rings*. J. Algebra 319 (2008), 702–715. MR2008k:13007, ZB1146:13003
- [89] (with H. Krause.) *Complexes of injective kG -modules*. Algebra and Number Theory 2 (2008), 1–30. MR2009d:20010
- [90] (with J. P. C. Greenlees.) *Localization and duality in topology and modular representation theory*. J. Pure & Applied Algebra 212 (2008), 1716–1743. MR2009e:20016
- [91] *Idempotent kG -modules with injective cohomology*. J. Pure & Applied Algebra 212 (2008), 1744–1746. MR2009b:20096
- [92] *The regularity conjecture in the cohomology of groups*. Guido’s Book of Conjectures, a gift to Guido Mislin on the occasion of his retirement from ETH, Zürich. Enseignement Mathématique (2) 54 (2008), 25–27.
- [93] *Resolutions over symmetric algebras with radical cube zero*. J. Algebra 320 (2008), 48–56.
- [94] *On the regularity conjecture for the cohomology of finite groups*. Proceedings of the Edinburgh Mathematical Society 51 (2008), 273–284.
- [95] (with J. Carlson.) *Varieties and cohomology of infinitely generated modules*. Archiv der Mathematik (Basel) 91 (2008), 122–125. MR2009e:20015, ZB1151.20040

- [96] (with S. Iyengar and H. Krause.) *Support varieties for triangulated categories*. Annales Scientifiques de l'École Normale Supérieure 4^e série, t. 41 (2008), 1–47.
- [97] (with P. Balmer and J. F. Carlson.) *Gluing representations via idempotent modules and constructing endotrivial modules*. J. Pure & Applied Algebra 213 (2009), 173–193.
- [98] *An algebraic model for chains on $\Omega(BG_p^\wedge)$* . Transactions of the American Math. Soc. 361 (2009), 2225–2242.
- [99] *Modules of constant Jordan type with one non-projective block*. To appear in Algebras and Representation Theory (2009).
- [100] *Periodic resolutions for certain finite groups*. To appear in International Electronic Journal of Algebra.
- [101] (with S. Doty.) *Schur–Weyl duality over finite fields*. Submitted to Archiv der Math, Aug 2008.
- [102] (with S. Iyengar and H. Krause.) *Stratifying modular representations of finite groups*. Submitted for publication, Nov 2008.
- [103] *Modules of constant Jordan type and the Horrocks–Mumford bundle*. Preprint, April 2008.
- [104] (with J. P. C. Greenlees.) *Complete intersections and derived categories*. In preparation.
- [105] (with S. Iyengar and H. Krause.) *Stratifying triangulated categories*. In preparation.
- [106] (with J. Pevtsova) *Modules of constant Jordan type and vector bundles on projective space*. In preparation.
- [107] (with S. Iyengar and H. Krause.) *Cosupport and colocalising subcategories for finite groups*. In preparation.

OTHER ITEMS

- [108] **The Simple Group J_4** . Ph. D. Thesis, Cambridge 1982.
Scan of thesis downloadable from <http://maths.abdn.ac.uk/~bensondj/html/archive/benson.html>
- [109] Book review: C. W. Curtis and I. Reiner. **Methods of Representation Theory, with Applications to Finite Groups and Orders, Volume II**. (Wiley & Sons Ltd., 1987) Bull. London Math. Soc. 20 (1988), 535–542.
- [110] *Simplicial and Cosimplicial Homotopy Theory*. Printed lecture notes, Oxford, 1993.
- [111] *The Brauer homomorphism*. One page article, Encyclopædia of Mathematics Supplement Volume I, Editor-in-Chief M. Hazewinkel, Kluwer Academic Publishers (1997), 151. Online at <http://eom.springer.de/B/b110860.htm>.
- [112] Editor for problem session: A.M.S. Summer Research Institute on Cohomology, Representations and Actions of Finite Groups, Seattle, July 7–27 1996. Proc. Symp. Pure Math. 63 (1998), 519–532.
- [113] *Commutative algebra and duality in the cohomology of groups*, Four lectures given at the ICTP in Trieste, 2004. Lecture notes available online from ICTP website, 17 pages.
- [114] *The geometry of surprise*. This contributed essay on elementary teacher education appeared as pages 495–497 of R. J. Milgram, *The Mathematics Pre-Service Teachers Need to Know* (2005), a document prepared with support from the US Department of Education, and distributed for free at <http://math.stanford.edu/ftp/milgram/FIE-book-high-res.pdf>
- [115] *Modules with injective cohomology*, Oberwolfach Reports 2 (1) (2005), 350–352.
- [116] *Complexes of injective kG -modules*, Oberwolfach Reports 3 (2) (2006), 930–933.
- [117] *Musical scales and the baker's dozen*. Matilde, Nyhedsbrev for Dansk Matematisk Forening, vol. 28 (2006), 15–16.
- [118] Book review: J. E. Humphreys. **Modular Representations of Finite Groups of Lie Type**. (CUP, 2006) SIAM Review 49 (2007), 129–131.

UK GRANTS

2008–9: LMS Grant for Support of Skye Conference

NSF GRANTS

6/1/2003–9/1/2005 (then transferred to D. K. Nakano):
DMS-0242909 University of Georgia (three summers' support)

6/1/2000–11/30/2003: DMS-9988110 University of Georgia (three summers' support)
 5/1/2000–11/30/2000: DMS-9988229 Conference Support,
 Representation Theory and Computational Algebra, University of Georgia, May 2000.
 6/1/1997–11/30/2000: DMS-9700416 University of Georgia (three summers' support)
 6/1/1994–11/30/1997: DMS-9401004 University of Georgia (three summers' support)
 6/1/1985–11/30/1986: DMS-8503300 Northwestern University (two summers' support)
 6/1/1983–11/30/1984: Yale University (two summers' support)

GRADUATE STUDENTS (ABERDEEN)

Shawn Balland, 2008—

Topic:

Kay Jin Lim, 2006—

Topic: Varieties for Specht modules

GRADUATE STUDENTS (GEORGIA)

Peter Hindman, 1996–2002

Thesis: Representation rings of finite groups.

Gilles Gnacadja, 1995–2000

Thesis: Phantom maps and purity over finite-dimensional self-injective algebras.

GRADUATE STUDENTS (OXFORD)

Katrina Hicks, Apr '92 – Sept '93 (taken over by K. Erdmann, completed Aug '94)

Thesis: The representation theory of some groups with blocks of defect group $C_3 \times C_3$ in characteristic three.

Dan Brown, Jun '91 – Oct '93

Thesis: The relative cohomology of finite groups and products in negative Tate cohomology.

Jon Clark, Oct '90 – Nov '93

Thesis: Cohomology of some finite groups.

Paul Day, Oct '88 – Jun '94

Thesis: The May spectral sequence.

Laurence Barker, Oct '87 – Jun '89, Apr '90 – Dec '91

Thesis: Blocks of endomorphism algebras of modules.

John Fitzgerald, June '87 – Oct '90

Thesis: Weyl modules for groups of type B_2 and G_2 .

JOURNALS

Editorial board, Algebra and Number Theory, Mathematical Science Publishers, from its inception in 2006.

Editorial board, Journal of Mathematics and Music, Taylor and Francis, 2005–2009.

Editorial board, Bulletin of the American Mathematical Society, from 2005.

Editorial board, Advances in Mathematics, Elsevier, 2001–2009.

Editorial board, *Electronic Research Announcements of the American Mathematical Society*, 1999–2005.

COMMITTEES, ETC.

Organising committee for the *Conference on Algebraic Topology, Group Theory and Representation Theory*, Isle of Skye, 9–15 June 2009.

DFG panel to evaluate research proposals for the Schwerpunktprogramm in representation theory, 15–16 Jan 2009.

Organising committee for the Workshop, *Homological Methods in Representation Theory*, MSRI, Berkeley, California, 31 Mar to 4 Apr 2008.

Committee to design a new M.Sc. Degree, Aberdeen, 2006.

Scientific committee for *Sound and Music Computing '05*, Salerno, Italy, 24–26 Nov 2005.

Coorganiser with Henning Krause of joint AMS–DMV conference on *Representation Theory*, Mainz, Germany, June 2005.

Executive committee, University of Georgia, 2003–2005

NSF Grant Panel, Autumn 2003.

Coorganiser with Henning Krause of conference on *Representation Theory*, Canberra, as part of the special year in Geometry and Topology organised by Amnon Neeman, June 2003.

Chair of Personnel Committee, University of Georgia, 2000–2001.

Principal Organiser of Conference at the University of Georgia, on *Representation Theory and Computational Algebra*, May 2000.

Search committee for “Mildred Goodrum Heyward” Endowed Professorship of Choral Music, University of Georgia, 1998–9.

Executive committee, University of Georgia, 1998–2000.

Faculty research grants committee, University of Georgia, Autumn 1998.

Graduate committee, University of Georgia, 1994–8.

Organiser of special session at the regional meeting of the AMS in Orlando, Florida, March 1995.

Maintainer of the electronic preprint archive “Groups, Representations and Cohomology” since 1995. Current location:

<http://www.maths.abdn.ac.uk/~bensondj/html/archive.html>

Advisory board, Musical Bridges, Inc. from 1994 (became Siberian Intercultural Bridges, Inc. in 2002).

NSF postdoc selection panel, Autumn 1994.

Algebra speaker selection committee for the 1994 International Congress of Mathematicians in Zürich, Switzerland.

Editorial committee of *Romulus*, college magazine of Wolfson College, Oxford, 1988–1991.

TEACHING EXPERIENCE

(i) CAMBRIDGE UNIVERSITY (undergraduate supervisions, 1978–1981)

Group theory
 Representation theory
 Algebraic geometry
 Galois theory
 Number theory
 First year algebra and analysis
 Second year complex variables

(ii) YALE UNIVERSITY

1982–3: (undergraduate)

Calculus 112 (Differentiation)
 Calculus 115 (Integration)

(graduate)

Modular representation theory

1983–4: (undergraduate)

Early Concentration Mathematics for Freshmen
 (Topics included: ordinary differential equations,
 Fourier series and Fourier transforms, and some analytic number theory)

(graduate)

Ordinary representations of finite Chevalley groups

(iii) NORTHWESTERN UNIVERSITY

1984–5: (undergraduate)

B20 Calculus of several variables
 A11 Finite mathematics (Probability and Markov chains)

(graduate)

E11–1 Integral and modular representation theory

1985–6: (undergraduate)

C35 Number theory

(graduate)

D46–1 Algebraic topology: Homotopy theory
 D46–3 Topological K -theory

(iv) UNIVERSITY OF OXFORD

1986–7: (graduate)

Representation theory and cohomology of groups I, II

1987–8: (3rd year undergraduate)

Representation theory of finite groups

(graduate)

Representations of algebras

1988–9: (graduate)

Representation theory and cohomology of finite groups I, II, III

- 1989–90: (graduate)
 Block theory
 Introduction to algebraic geometry
- 1990–1: (graduate)
 Commutative algebra I: Intersection theory
 Commutative algebra II: Invariant theory
- 1991–2: (3rd year undergraduate)
 Representation theory of finite groups
 (graduate)
 Classifying spaces of finite groups
 (seminar)
 Cohomology of groups seminar (2 terms)
- 1992–3: (graduate)
 Simplicial and cosimplicial homotopy theory (2 terms)
 Introduction to algebraic geometry

(v) UNIVERSITY OF MINNESOTA

- 1991: (undergraduate)
 1211 Differential calculus
 5245 Introduction to abstract algebra

(vi) UNIVERSITY OF GEORGIA

- 1993–4: (graduate)
 843–5 Algebra (3 terms)
 (undergraduate)
 256 Linear algebra
- 1994–5: (graduate)
 810–2 Topology (3 terms)
 (undergraduate)
 254 Integral calculus
- 1995–6: (graduate)
 892 Lie algebras, Lie groups and
 representation theory (3 terms)
 (undergraduate)
 254 Integral calculus
- 1996–7: (graduate)
 892 Cohomology of groups
 (undergraduate)
 263 Honors differential calculus
 255 Calculus of several variables
 264 Honors integral calculus

- 1997–8: 263 Honors differential calculus
 255 Calculus of several variables
 264 Honors integral calculus
 465/665 Complex analysis
- 1998–9: 2310 Honors integral calculus
 2200 Differential calculus
 3100 Sequences and series
- 1999–2000: (graduate)
 8000 Algebra
 (undergraduate)
 4760 Mathematics and music
- 2000–1: 2700 Differential equations
 4760 Mathematics and music
- 2001–2: 2210 Integral calculus
 2700 Differential equations
 2200 Differential calculus
 2500 Calculus of several variables
 5002 Mathematics for elementary teachers: Geometry and problem solving
- 2002–3: No teaching (visiting MSRI, Berkeley, California, USA)
- 2003–4: FRES 1010 (Freshman seminar): Mathematics and music
 2210 Integral calculus
 5001 Mathematics for elementary teachers: Numbers and operations
 8040 Representations of finite groups
- 2004–5: 2210 Integral calculus
 4000 Abstract algebra
 GRSC 7770: Graduate student teaching seminar

(vii) UNIVERSITY OF ABERDEEN

- 2005–6: (undergraduate)
 MX3528 Optimisation
- 2006–7: (graduate)
 MA5003 Commutative algebra and algebraic geometry
 (undergraduate)
 MA2004 Sets and algebraic structures
 MA1505 Topics in mathematics (Mathematics and Music, and
 Elementary Number Theory; 2 of 6 topics taught with other staff)
- 2007–8: (graduate)
 MA5003 Modular representation theory
 (undergraduate)

MA2004 Sets and algebraic structures

2008–9: (undergraduate)

MX3022 Optimisation and numerical analysis

MA2506 Linear Algebra

INVITED TALKS (SELECTION)

“Varieties and injective modules over group cohomology.” Special session on modular representation theory of finite and algebraic groups, AMS/MAA Joint Mathematics Meeting, Atlanta GA, USA, 8 Jan 2005.

“Modules with injective cohomology.” Representation Theory of Finite-Dimensional Algebras, organised by Ringel and Reiten, Oberwolfach, Germany, 8 Feb 2005.

“Regularity in the cohomology of finite groups.” Two seminars at the Centre Bernoulli, EPFL, Lausanne, Switzerland, 23 Feb and 2 Mar 2005.

“Modular representations and E_∞ ring spectra.” Conference on Topology, Representation Theory and Geometry, EPFL, Lausanne, Switzerland, 6 April 2005.

“Polynomial and power series invariants of finite groups.” Algebra Seminar, University of Cambridge, UK, 27 April 2005.

“Modular representation theory and E_∞ ring spectra.” Seminar, University of Manchester, UK, 3 June 2005.

“Commutative algebra and the cohomology of finite groups.” Seminar, University of Aberdeen, UK, 10 June 2005.

“Modular representation theory and E_∞ ring spectra.” Plenary talk at the Conference on Pure and Applied Topology, Isle of Skye, UK, 24 June 2005.

“Polynomial and power series invariants of finite groups.” Farewell Algebra Seminar, University of Georgia, USA, 22 August 2005.

“Modular representation theory and E_∞ ring spectra.” One day Topology Meeting, Barcelona, Spain, 13 Sept 2005.

“Polynomial and power series invariants of finite groups.” EMS/SCM Joint Mathematics Meeting, Barcelona, Spain, 16 Sept 2005.

“Polynomial and power series invariants of finite groups.” Representation Theory Workshop, Paderborn, Germany, 21 Oct 2005.

“Polynomial and power series invariants of finite groups.” Sixth Century Conference on Representation Theory, Aberdeen, Scotland, 27 Oct 2005.

“Cohomology of groups and duality.” Seminar, Bonn, Germany, 8 Nov 2005.

“Localisation and duality in topology and modular representation theory.” Conference on Homotopy Theory and Group Actions, Banff, Canada, 13 Nov 2005.

“Representations, cohomology and duality.” Conference on Flavours of Groups, Banff, Canada, 19 Nov 2005.

“Regularity in the cohomology of finite groups.” Seminar, Jena Universität, Germany, 29 Nov 2005.

“Polynomial and power series invariants.” Algebra Seminar, Hannover Universität, Germany, 5 Dec 2005.

“Complexes of injectives and the derived category of cochains on BG .” Seminar, Strasbourg, France, 13 Dec 2005.

“Complexes of injective modules.” Sheffield Homotopy Mini-Conference, Sheffield, UK, 13 Jan 2006.

“Polynomial and power series invariants of finite groups.” Seminar, University of Kent, Canterbury, UK, 16 Jan 2006.

“Complexes of injective modules.” Algebra Seminar, University of Oxford, UK, 17 Jan 2006.

“Complexes of injective modules and the derived category of cochains on BG ”, Colloquium, University of Aberdeen, Scotland, 1 Feb 2006.

“Polynomial and power series invariants of finite groups.” Algebra/Geometry/Integrable Systems/Topology Seminar, University of Glasgow, 22 Feb 2006.

“Polynomial and power series invariants of finite groups.” Algebra Seminar, University of Edinburgh, 28 Feb 2006.

“Complexes of injective kG -modules.” Representations of Finite Groups, Oberwolfach, Germany, 28 Mar 2006.

“Adams resolutions in modular representation theory.” Topology Seminar, Université de Lausanne, Switzerland, 13 Jun 2006.

“Polynomial and power series invariants of finite groups.” Algebra Seminar, Université de Lausanne, Switzerland, 15 Jun 2006.

“Blocks not equivalent to their Frobenius twist.” Algebra Seminar, Universität Bielefeld, Germany, 23 Jun 2006.

“The homotopy category of complexes of injective modules.” First Copenhagen Topology Conference, Denmark, 3 Sept 2006.

“Modules with no cohomology and centralisers that are not p -nilpotent.” Conference, “The Hall-Higman theorems: Fifty years on”, Oxford, UK, 5–6 Jan 2007.

“An algebraic model for ΩBG_p^\wedge ”, Topology seminar, Oxford, UK, 8 Jan 2007.

“An algebraic model for the loop space on the p -completion of the classifying space of a finite group”, Algebra Seminar, Paderborn, Germany, 15 March 2007.

“Cohomology of finite groups”, Colloquium, Paderborn, Germany, 17 April 2007, repeated by popular request as IRTG Research Seminar, Paderborn, Germany, 23 April 2007.

“An algebraic model for chains on ΩBG_p^\wedge ”, 7th NRW Topology Meeting, Osnabrück, Germany, 27 April 2007.

“Complexes of injective kG -modules”, Conference on Representations of Algebraic Groups and Related Topics, Bielefeld, Germany, 30 April 2007.

“An algebraic model for loops on the p -completion of the classifying space of a finite group”, Workshop on p -local finite groups, Copenhagen, Denmark, 18 July 2007.

MSRI 25th Anniversary Special Event: Pianist Christopher Taylor in conversation with David Benson and Robert Osserman about Mathematics and Music, in preparation for Taylor’s performance of Messiaen’s *Vingt Regards* the following day. Berkeley, California, USA, 26 Jan 2008.

“Squeezed resolutions over the group algebra of a finite group”, MSRI workshop on representation theory, Berkeley, California, USA, 8 Feb 2008.

“What does p -completion do to the classifying space of a finite group?”, Representation Theory Day at UC Santa Barbara, California, USA, 8 Mar 2008.

“Classifying spaces and cohomology of finite groups”, MSRI Evens Lecture Series, 31 Mar 2008, Berkeley, California, USA.

“What does p -completion do to the classifying space of a finite group?”, Colloquium, UC Santa Cruz, California, USA, 22 Apr 2008.

“Modules of constant Jordan type”, David Eisenbud’s commutative algebra seminar, Berkeley, California, USA, 13 May 2008.

“Squeezed resolutions and the loop space on BG p -completed”, Conference on “Commutative Algebra: Connections with Algebraic Topology and Representation Theory”, Lincoln, Nebraska, USA, 21 May 2008.

“Modules of constant Jordan type”, Seminar, Universität Bielefeld, Germany, 13 Jun 2008.

“Modules of constant Jordan type”, Algebra Seminar, Universität Hannover, Germany, 23 Jun 2008.

“Classifying localising subcategories of the stable module category of a finite group”, HOCAT, Barcelona, Spain, 3 Jul 2008.

“Mathematics and music”, Inaugural Lecture, University of Aberdeen, Scotland, 17 Nov 2008.

“Modules of constant Jordan type”, Conference on Representations of Finite Groups, Oberwolfach, 25 Mar 2009.