

Cambridge University Press

0521420741 - Adams Memorial Symposium on Algebraic Topology: Manchester 1990, 1

Edited by N. Ray and G. Walker

Frontmatter

[More information](#)

LONDON MATHEMATICAL SOCIETY LECTURE NOTE SERIES

Managing Editor: Professor J.W.S. Cassels, Department of Pure Mathematics and Mathematical Statistics, University of Cambridge, 16 Mill Lane, Cambridge CB2 1SB, England

The books in the series listed below are available from booksellers, or, in case of difficulty, from Cambridge University Press.

- 34 Representation theory of Lie groups, M.F. ATIYAH *et al*
- 36 Homological group theory, C.T.C. WALL (ed)
- 39 Affine sets and affine groups, D.G. NORTHCOTT
- 40 Introduction to H_p spaces, P.J. KOOSIS
- 46 p-adic analysis: a short course on recent work, N. KOBLITZ
- 49 Finite geometries and designs, P. CAMERON, J.W.P. HIRSCHFELD & D.R. HUGHES (eds)
- 50 Commutator calculus and groups of homotopy classes, H.J. BAUES
- 57 Techniques of geometric topology, R.A. FENN
- 59 Applicable differential geometry, M. CRAMPIN & F.A.E. PIRANI
- 66 Several complex variables and complex manifolds II, M.J. FIELD
- 69 Representation theory, I.M. GELFAND *et al*
- 74 Symmetric designs: an algebraic approach, E.S. LANDER
- 76 Spectral theory of linear differential operators and comparison algebras, H.O. CORDES
- 77 Isolated singular points on complete intersections, E.J.N. LOOIJENGA
- 79 Probability, statistics and analysis, J.F.C. KINGMAN & G.E.H. REUTER (eds)
- 80 Introduction to the representation theory of compact and locally compact groups, A. ROBERT
- 81 Skew fields, P.K. DRAXL
- 82 Surveys in combinatorics, E.K. LLOYD (ed)
- 83 Homogeneous structures on Riemannian manifolds, F. TRICERRI & L. VANHECKE
- 86 Topological topics, I.M. JAMES (ed)
- 87 Surveys in set theory, A.R.D. MATHIAS (ed)
- 88 FPF ring theory, C. FAITH & S. PAGE
- 89 An F-space sampler, N.J. KALTON, N.T. PECK & J.W. ROBERTS
- 90 Polytopes and symmetry, S.A. ROBERTSON
- 91 Classgroups of group rings, M.J. TAYLOR
- 92 Representation of rings over skew fields, A.H. SCHOFIELD
- 93 Aspects of topology, I.M. JAMES & E.H. KRONHEIMER (eds)
- 94 Representations of general linear groups, G.D. JAMES
- 95 Low-dimensional topology 1982, R.A. FENN (ed)
- 96 Diophantine equations over function fields, R.C. MASON
- 97 Varieties of constructive mathematics, D.S. BRIDGES & F. RICHMAN
- 98 Localization in Noetherian rings, A.V. JATEGAONKAR
- 99 Methods of differential geometry in algebraic topology, M. KAROUBI & C. LERUSTE
- 100 Stopping time techniques for analysts and probabilists, L. EGGHE
- 101 Groups and geometry, ROGER C. LYNDON
- 103 Surveys in combinatorics 1985, I. ANDERSON (ed)
- 104 Elliptic structures on 3-manifolds, C.B. THOMAS
- 105 A local spectral theory for closed operators, I. ERDELYI & WANG SHENGWANG
- 106 Syzygies, E.G. EVANS & P. GRIFFITH
- 107 Compactification of Siegel moduli schemes, C-L. CHAI
- 108 Some topics in graph theory, H.P. YAP
- 109 Diophantine analysis, J. LOXTON & A. VAN DER POORTEN (eds)
- 110 An introduction to surreal numbers, H. GONSHOR
- 111 Analytical and geometric aspects of hyperbolic space, D.B.A. EPSTEIN (ed)

Cambridge University Press

0521420741 - Adams Memorial Symposium on Algebraic Topology: Manchester 1990, 1

Edited by N. Ray and G. Walker

Frontmatter

[More information](#)

- 113 Lectures on the asymptotic theory of ideals, D. REES
- 114 Lectures on Bochner-Riesz means, K.M. DAVIS & Y-C. CHANG
- 115 An introduction to independence for analysts, H.G. DALES & W.H. WOODIN
- 116 Representations of algebras, P.J. WEBB (ed)
- 117 Homotopy theory, E. REES & J.D.S. JONES (eds)
- 118 Skew linear groups, M. SHIRVANI & B. WEHRFRITZ
- 119 Triangulated categories in the representation theory of finite-dimensional algebras, D. HAPPEL
- 121 *Proceedings of Groups - St Andrews 1985*, E. ROBERTSON & C. CAMPBELL (eds)
- 122 Non-classical continuum mechanics, R.J. KNOPS & A.A. LACEY (eds)
- 124 Lie groupoids and Lie algebroids in differential geometry, K. MACKENZIE
- 125 Commutator theory for congruence modular varieties, R. FREESE & R. MCKENZIE
- 126 Van der Corput's method of exponential sums, S.W. GRAHAM & G. KOLESNIK
- 127 New directions in dynamical systems, T.J. BEDFORD & J.W. SWIFT (eds)
- 128 Descriptive set theory and the structure of sets of uniqueness, A.S. KECHRIS & A. LOUVEAU
- 129 The subgroup structure of the finite classical groups, P.B. KLEIDMAN & M.W. LIEBECK
- 130 Model theory and modules, M. PREST
- 131 Algebraic, extremal & metric combinatorics, M-M. DEZA, P. FRANKL & I.G. ROSENBERG (eds)
- 132 Whitehead groups of finite groups, ROBERT OLIVER
- 133 Linear algebraic monoids, MOHAN S. PUTCHA
- 134 Number theory and dynamical systems, M. DODSON & J. VICKERS (eds)
- 135 Operator algebras and applications, 1, D. EVANS & M. TAKESAKI (eds)
- 136 Operator algebras and applications, 2, D. EVANS & M. TAKESAKI (eds)
- 137 Analysis at Urbana, I, E. BERKSON, T. PECK, & J. UHL (eds)
- 138 Analysis at Urbana, II, E. BERKSON, T. PECK, & J. UHL (eds)
- 139 Advances in homotopy theory, S. SALAMON, B. STEER & W. SUTHERLAND (eds)
- 140 Geometric aspects of Banach spaces, E.M. PEINADOR and A. RODES (eds)
- 141 Surveys in combinatorics 1989, J. SIEMONS (ed)
- 142 The geometry of jet bundles, D.J. SAUNDERS
- 143 The ergodic theory of discrete groups, PETER J. NICHOLLS
- 144 Introduction to uniform spaces, I.M. JAMES
- 145 Homological questions in local algebra, JAN R. STROOKER
- 146 Cohen-Macaulay modules over Cohen-Macaulay rings, Y. YOSHINO
- 147 Continuous and discrete modules, S.H. MOHAMED & B.J. MÜLLER
- 148 Helices and vector bundles, A.N. RUDAKOV et al
- 149 Solitons, nonlinear evolution equations and inverse scattering, M.J. ABLOWITZ & P.A. CLARKSON
- 150 Geometry of low-dimensional manifolds 1, S. DONALDSON & C.B. THOMAS (eds)
- 151 Geometry of low-dimensional manifolds 2, S. DONALDSON & C.B. THOMAS (eds)
- 152 Oligomorphic permutation groups, P. CAMERON
- 153 L-functions and arithmetic, J. COATES & M.J. TAYLOR (eds)
- 154 Number theory and cryptography, J. LOXTON (ed)
- 155 Classification theories of polarized varieties, TAKAO FUJITA
- 156 Twistors in mathematics and physics, T.N. BAILEY & R.J. BASTON (eds)
- 157 Analytic pro- p groups, J.D. DIXON, M.P.F. DU SAUTOY, A. MANN & D. SEGAL
- 158 Geometry of Banach spaces, P.F.X. MÜLLER & W. SCHACHERMAYER (eds)
- 159 Groups St Andrews 1989 volume 1, C.M. CAMPBELL & E.F. ROBERTSON (eds)
- 160 Groups St Andrews 1989 volume 2, C.M. CAMPBELL & E.F. ROBERTSON (eds)
- 161 Lectures on block theory, BURKHARD KÜLSHAMMER
- 162 Harmonic analysis and representation theory for groups acting on homogeneous trees, A. FIGA-TALAMANCA & C. NEBBIA
- 163 Topics in varieties of group representations, S.M. VOVSİ
- 166 Surveys in combinatorics, 1991, A.D. KEEDWELL (ed)
- 167 Stochastic analysis, M.T. BARLOW & N.H. BINGHAM (eds)
- 175 Adams memorial symposium on algebraic topology 1, N. RAY & G. WALKER (eds)
- 176 Adams memorial symposium on algebraic topology 2, N. RAY & G. WALKER (eds)

Cambridge University Press

0521420741 - Adams Memorial Symposium on Algebraic Topology: Manchester 1990, 1

Edited by N. Ray and G. Walker

Frontmatter

[More information](#)

London Mathematical Society Lecture Note Series. 175

Adams Memorial Symposium on Algebraic Topology: 1

Manchester 1990

Edited by

N. Ray and G. Walker

Department of Mathematics, University of Manchester



Cambridge University Press

0521420741 - Adams Memorial Symposium on Algebraic Topology: Manchester 1990, 1

Edited by N. Ray and G. Walker

Frontmatter

[More information](#)

Published by the Press Syndicate of the University of Cambridge
The Pitt Building, Trumpington Street, Cambridge CB2 1RP
40 West 20th Street, New York, NY 10011-4211, USA
10 Stamford Road, Oakleigh, Victoria 3166, Australia

© Cambridge University Press 1992

First published 1992

Library of Congress cataloguing in publication data available

British Library cataloguing in publication data available

ISBN 0 521 42074 1 paperback

Transferred to digital printing 2004

Contents of Volume 1

1	The work of J. F. Adams J. P. May	1
	Bibliography of J. F. Adams	22
2	Twisted tensor products of DGA's and the Adams-Hilton model for the total space of a fibration Kathryn P. Hess	29
3	Hochschild homology, cyclic homology and the cobar construction J. D. S. Jones and J. McCleary	53
4	Hermitian A_∞ -rings and their K -theory Z. Fiedorowicz, R. Schwanzl and R. Vogt	67
5	A splitting result for the second homology group of the general linear group Dominique Arlettaz	83
6	Low dimensional spinor representations, Adams maps and geometric dimension K. Y. Lam and D. Randall	89
7	The characteristic classes for the exceptional Lie groups Mamoru Mimura	103
8	How can you tell two spaces apart when they have the same n -type for all n ? C. A. McGibbon and J. M. Møller	131

Cambridge University Press
0521420741 - Adams Memorial Symposium on Algebraic Topology: Manchester 1990, 1
Edited by N. Ray and G. Walker
Frontmatter
[More information](#)

vi	Contents of volume 1	
9	A generalized Grothendieck spectral sequence David Blanc and Christopher Stover	145
10	Localization of the homotopy set of the axes of pairings Nobuyuki Oda	163
11	Fibrewise reduced product spaces I. M. James	179
12	Computing homotopy types using crossed n -cubes of groups Ronald Brown	187
13	On orthogonal pairs in categories and localization Carles Casacuberta, Georg Peschke and Markus Pfenniger	211
14	A note on extensions of nilpotent groups Carles Casacuberta and Peter Hilton	225
15	On the Swan subgroup of metacyclic groups Victor P. Snaith	235
16	Fields of spaces M. C. Crabb, J. R. Hubbuck and Kai Xu	241
17	Maps between p -completed classifying spaces, III Zdzisław Wojtkowiak	255
18	Retracts of classifying spaces Kenshi Ishiguro	271
19	On the dimension theory of dominant summands John Martino and Stewart Priddy	281

Cambridge University Press

0521420741 - Adams Memorial Symposium on Algebraic Topology: Manchester 1990, 1

Edited by N. Ray and G. Walker

Frontmatter

[More information](#)

Preface

The international Symposium on algebraic topology which was held in Manchester in July 1990 was originally conceived as a tribute to Frank Adams by mathematicians in many countries who admired and had been influenced by his work and leadership. Preparations for the meeting, including invitations to the principal speakers, were already well advanced at the time of his tragic death in a car accident on 7 January 1989, at the age of 58 and still at the height of his powers.

Those members of the Symposium, and readers of these volumes, who had the good fortune to know Frank as a colleague, teacher and friend will need no introduction here to the qualities of his intellect and personality. Others are referred to Ioan James's article, published as *Biographical Memoirs of Fellows of the Royal Society*, Vol. 36, 1990, pages 3–16, and to the Memorial Address and the Reminiscences written by Peter May and published in *The Mathematical Intelligencer*, Vol. 12, no. 1, 1990, pages 40–44 and 45–48.

We, the editors of these proceedings, were both research students of Frank's during his years at Manchester. As might be imagined, this was a remarkable and unforgettable experience. There was inspiration in plenty, and, on occasion, humble pie to be eaten as well. The latter became palatable as we learned to appreciate that the vigour of Frank's responses was never directed at us as individuals, but rather towards the defence of mathematics. In fact we both discovered that when suitably prompted, Frank was astonishingly willing to repeatedly explain arguments that we had bungled. He also provided warm and understanding support, friendship and guidance far beyond his role as research supervisor.

This was an exciting period for Manchester, where Frank's influence was admirably complemented by Michael Barratt, and for algebraic topology in general. When he came to Manchester in 1962, Frank had just developed the K -theory operations he used to solve the problem of vector fields on spheres. In the years that followed he developed his series of papers on $J(X)$, and regularly lectured on subject matter which eventually became his Chicago Lecture Notes volume "Stable homotopy and generalised homology".

Our opening article, by Peter May, describes these and other achievements in more detail, and forms in a sense an introduction to the whole of the book. Although some attempt has been made to group papers according to the themes which May identifies, we cannot pretend that anything very systematic has been attained, or is even desirable. Most of the contributions here are based on talks given at the Symposium, as the reader will see by consulting lists on pages xi–xii. Aside from this, we feel it sufficient to remark that all the articles have been refereed, and that every attempt has been made to attain a mathematical standard worthy of association with the name of J. F. Adams – with what success we must leave the reader to judge.

Cambridge University Press

0521420741 - Adams Memorial Symposium on Algebraic Topology: Manchester 1990, 1

Edited by N. Ray and G. Walker

Frontmatter

[More information](#)

viii

Preface

We also hope that the Symposium itself might be seen as a significant tribute to his philosophy and powers. In keeping with his views on the value of mathematics in transcending political and geographical boundaries, we were fortunate to attract a large number of participants from many countries, including Eastern Europe and the Soviet Union.

In conclusion, we would like to thank the many organisations and individuals who made possible both the Symposium and these volumes.

The bulk of the initial funding was provided by the Science and Engineering Research Council, with substantial additions being made by the London Mathematical Society and the University of Manchester Research Support Fund. Support for important peripherals was given by the NatWest Bank, Trinity College Cambridge, and the University of Manchester Mathematics Department and Vice-Chancellor's Office. We would especially like to thank John Easterling and Mark Shackleton in this context.

During the Symposium our sanity would not have survived intact without the able assistance of all our Manchester students and colleagues in algebraic topology, and most significantly, the fabulous organisational and front-desk skills of the Symposium Secretary, Jackie Minshull. And the high point of the Symposium, an ascent of Tryfan (Frank's favourite Welsh Peak), would have been far less enjoyable without the presence of Manchester guide Bill Heaton.

Mrs Grace Adams and her family were most helpful in providing photographs and other information, and were very supportive of the Symposium despite their bereavement.

The production of these volumes was first conceived by the Cambridge University Press Mathematical Editor David Tranah, and their birth pangs were considerably eased by his laid-back skills. Our referees rose to the task of supplying authoritative reports within what was often a tight deadline. We should also thank those authors who offered a manuscript which we have not had space to publish.

Finally, we both owe a great debt to our respective families, for sustaining us throughout the organisation of the Symposium, and for continuing to support us as its ripples spread downwards through the following months. Therefore, to Sheila Kelbrick and our daughter Suzanne, and to Wendy Walker, thank you.

These volumes are dedicated to Frank's memory.

Nigel Ray Grant Walker

University of Manchester
September 1991

Contents of Volume 2

1	Progress report on the telescope conjecture Douglas C. Ravenel	1
2	On K_* -local stable homotopy theory A. K. Bousfield	23
3	Detruncating Morava K-theory John Robert Hunton	35
4	On the p -adic interpolation of stable homotopy groups N. P. Strickland	45
5	Some remarks on v_1 -periodic homotopy groups Donald M. Davis and Mark Mahowald	55
6	The unstable Novikov spectral sequence for $Sp(n)$, and the power series $\sinh^{-1}(x)$ Martin Bendersky and Donald M. Davis	73
7	Unstable Adams spectral sequence charts Dianne Barnes, David Poduska and Paul Shick	87
8	On a certain localization of the stable homotopy of the space X_{Γ} Goro Nishida	119
9	Cooperations in elliptic homology Francis Clarke and Keith Johnson	131
10	Completions of G-spectra at ideals of the Burnside ring J.P.C. Greenlees and J.P. May	145
11	Theorems of Poisson, Euler and Bernoulli on the Adams spectral sequence Martin C. Tangora	179

x	Contents of volume 2	
12	Algebras over the Steenrod algebra and finite H -spaces Alain Jeanneret	187
13	The boundedness conjecture for the action of the Steenrod algebra on polynomials D. P. Carlisle and R. M. W. Wood	203
14	Representations of the homology of BV and the Steenrod algebra I Mohamed Ali Alghamdi, M. C. Crabb and J. R. Hubbuck	217
15	Generic representation theory and Lannes' T -functor Nicholas J. Kuhn	235
16	Some chromatic phenomena in the homotopy of MSp Andrew Baker	263
17	On a conjecture of Mahowald concerning bordism with singularities V. G. Gorbunov and V. V. Vershinin	281
18	Topological gravity and algebraic topology Jack Morava	291

Cambridge University Press

0521420741 - Adams Memorial Symposium on Algebraic Topology: Manchester 1990, 1

Edited by N. Ray and G. Walker

Frontmatter

[More information](#)**Programme of one-hour invited lectures**

A. K. Bousfield	On K_* -local stable homotopy theory.
G. E. Carlsson	Applications of bounded K -theory.
F. W. Clarke	Cooperations in elliptic homology.
M. C. Crabb	The Adams conjecture and the J map.
E. S. Devinatz	Duality in stable homotopy theory.
W. G. Dwyer	Construction of a new finite loop space.
P. Goerss	Projective and injective Hopf algebras over the Dyer-Lashof algebra.
M. J. Hopkins	p -adic interpolation of stable homotopy groups.
J. R. Hubbuck	Fields of spaces.
S. Jackowski	Maps between classifying spaces revisited.
J. D. S. Jones	Morse theory and classifying spaces.
N. J. Kuhn	A representation theoretic approach to the Steenrod algebra.
J. Lannes	The Segal conjecture from an unstable viewpoint.
M. E. Mahowald	On the tertiary suspension.
J. P. May	The work of J.F. Adams.
M. Mimura	Characteristic classes of exceptional Lie groups.
S. A. Mitchell	Harmonic localization and the Lichtenbaum-Quillen conjecture.
G. Nishida	p -adic Hecke algebra and $\text{Ell}_*(X_\Gamma)$.
S. B. Priddy	The complete stable splitting of BG .
D. C. Ravenel	The telescope conjecture.
C. A. Robinson	Ring spectra and the new cohomology of commutative rings.
Y. Rudyak	Orientability of bundles and fibrations and related topics.
V. Vershinin	The Adams spectral sequence as a method of studying cobordism theories.
C. W. Wilkerson	Lie groups and classifying spaces.

Cambridge University Press

0521420741 - Adams Memorial Symposium on Algebraic Topology: Manchester 1990, 1

Edited by N. Ray and G. Walker

Frontmatter

[More information](#)

Programme of contributed lectures

- | | |
|--------------------|---|
| A. J. Baker | MSp from a chromatic viewpoint. |
| M. Bendersky | v_1 -periodic homotopy groups of Lie groups — II. |
| C.-F. Bödigheimer | Homology operations for mapping class groups. |
| B. Botvinnik | Geometric properties of the Adams-Novikov spectral sequence. |
| D. M. Davis | v_1 -periodic homotopy groups of Lie groups. |
| B. I. Gray | Unstable periodicity. |
| J. P. C. Greenlees | Completions, dimensionality and local cohomology. |
| J. Harris | Lannes' T functor on summands of $H^*(B(Z/p)^n)$. |
| H.-W. Henn | Refining Quillen's description of $H^*(BG; F_p)$. |
| K. Hess | The Adams-Hilton model for the total space of a fibration. |
| J. R. Hunton | Detruncating Morava K -theory. |
| S. Hutt | A homotopy theoretic approach to surgery on Poincaré spaces. |
| A. Jeanneret | Topological realisation of certain algebras associated to Dickson algebras. |
| K. Y. Lam | The geometric dimension problem according to J.F. Adams. |
| J. R. Martino | The dimension of a stable summand of BG . |
| J. McCleary | Hochschild homology and the cobar construction. |
| J. McClure | Integral homotopy of $THH(bu)$
— an exercise with the Adams spectral sequence. |
| N. Minami | The stable splitting of $BSL_3(Z)$. |
| J. Morava | The most recent bee in Ed Witten's bonnet. |
| F. Morel | The representability of mod p homology after one suspension. |
| E. Ossa | Vector bundles over loop spaces of spheres. |
| M.M. Postnikov | Simplicial sets with internal symmetries. |
| H. Sadofsky | The Mahowald invariant and periodicity. |
| R. Schwänzl | Hermitian K -theory of A_∞ -rings. |
| K. Shimomura | On a spectrum whose BP_* -homology is $(BP_*/I_n)[t_1, \dots, t_k]$. |
| V. P. Snaith | Adams operations and the determinantal congruence conjecture of M.J. Taylor. |
| M. C. Tangora | The theorems of Poisson, Euler and Bernoulli on the Adams spectral sequence. |
| C. B. Thomas | Characteristic classes of modular representations. |
| R. M. W. Wood | The boundedness conjecture for the action of the Steenrod algebra on polynomials. |

Cambridge University Press

0521420741 - Adams Memorial Symposium on Algebraic Topology: Manchester 1990, 1

Edited by N. Ray and G. Walker

Frontmatter

[More information](#)

Programme of Posters

- D. Arlettaz:** The Hurewicz homomorphism in dimension 2.
- M. Beattie:** Proper suspension and stable proper homotopy groups.
- T. Bisson:** Covering spaces as geometric models of cohomology operations.
- D. Blanc:** Operations on resolutions and the reverse Adams spectral sequence.
- J. M. Boardman:** Group cohomology and gene splitting.
- P. Booth:** Cancellation and non-cancellation amongst products of spherical fibrations.
- C. Casacuberta and M. Pfenniger:** On orthogonal pairs in categories and localization.
- S. Edwards:** Complex manifolds with c_1 non-generating.
- V. Franjou:** A short proof of the \mathcal{U} -injectivity of H^*RP^∞ .
- V. G. Gorbunov:** Symplectic bordism of projective spaces and its application.
- T. Hunter:** On Steenrod algebra module maps between summands in $H^*((\mathbb{Z}/2)^s; F_2)$.
- K. Ishiguro:** Classifying spaces of compact simple Lie groups and p -tori.
- N. Iwase:** Generalized Whitehead spaces with few cells.
- M. Kameko:** Generators of $H^*(RP^\infty \times RP^\infty \times RP^\infty)$.
- S. Kochman:** Lambda algebras for generalized Adams spectral sequences.
- I. Leary and N. Yagita:** p -group counterexamples to Atiyah's conjecture on filtration of $R_C(G)$.
- A. T. Lundell:** Concise tables of homotopy of classical Lie groups and homogeneous spaces.

Cambridge University Press

0521420741 - Adams Memorial Symposium on Algebraic Topology: Manchester 1990, 1

Edited by N. Ray and G. Walker

Frontmatter

[More information](#)

xiv

Programme of posters

G. Moreno: Lower bounds for the Hurewicz map and the Hirzebruch Riemann-Roch formula.

R. Nadiradze Adams spectral sequence and elliptic cohomology.

N. Oda: Localisation of the homotopy set of the axes of pairings.

A. A. Ranicki: Algebraic L -theory assembly.

N. Ray: Tutte algebras of graphs and formal groups.

J. Rutter: The group of homotopy self-equivalence classes of non-simply connected spaces: a method for calculation.

C. R. Stover On the structure of $[\Sigma\Omega\Sigma X, Y]$, described independently of choice of splitting $\Sigma\Omega\Sigma X \longrightarrow \bigvee_{n=1}^{\infty} \Sigma X^{(n)}$.

P. Symonds: A splitting principle for group representations.

Z. Wojtkowiak: On 'admissible' maps and their applications.

K. Xu: Representing self maps.

Cambridge University Press

0521420741 - Adams Memorial Symposium on Algebraic Topology: Manchester 1990, 1

Edited by N. Ray and G. Walker

Frontmatter

[More information](#)

Participants in the Symposium

- | | |
|--|---|
| Jaume Agudé (<i>Barcelona</i>) | Marek Golasinski (<i>Toru, Poland</i>) |
| Sadoon Al-Musawe (<i>Birmingham</i>) | Vassily Gorbunov (<i>Novosibirsk</i>) |
| Dominique Arlettaz (<i>Lausanne</i>) | Brayton Gray (<i>UIC</i>) |
| Peter Armstrong (<i>Edinburgh</i>) | David Green (<i>Cambridge</i>) |
| Tony Bahri (<i>Rider Coll, New Jersey</i>) | John Greenlees (<i>Sheffield</i>) |
| Andrew Baker (<i>Manchester</i>) | J. Gunawardena (<i>Hewlett-Packard</i>) |
| Michael Barratt (<i>Northwestern</i>) | Derek Hacon (<i>Rio de Janeiro</i>) |
| Malcolm Beattie (<i>Oxford</i>) | Keith Hardie (<i>Cape Town</i>) |
| Martin Bendersky (<i>CUNY</i>) | John Harris (<i>Toronto</i>) |
| Terence Bisson (<i>Buffalo</i>) | Adam Harrison (<i>Manchester</i>) |
| David Blanc (<i>Northwestern</i>) | Philip Heath (<i>Newfoundland</i>) |
| Michael Boardman (<i>Johns Hopkins</i>) | Hans-Werner Henn (<i>Heidelberg</i>) |
| C.-F. Bodigheimer (<i>Göttingen</i>) | Matthias Hennes (<i>Bonn</i>) |
| Imre Bokor (<i>Zurich</i>) | Kathryn Hess (<i>Stockholm</i>) |
| Peter Booth (<i>Newfoundland</i>) | Peter Hilton (<i>SUNY, Binghamton</i>) |
| Boris Botvinnik (<i>Khabarovsk</i>) | Peter Hoffman (<i>Waterloo, Canada</i>) |
| Pete Bousfield (<i>UIC</i>) | Mike Hopkins (<i>MIT</i>) |
| Ronnie Brown (<i>Bangor</i>) | John Hubbuck (<i>Aberdeen</i>) |
| Shaun Bullett (<i>QMWC, London</i>) | Reinhold Hübl (<i>Regensburg</i>) |
| Mike Butler (<i>Manchester</i>) | Tom Hunter (<i>Kentucky</i>) |
| David Carlisle (<i>Manchester</i>) | John Hunton (<i>Manchester</i>) |
| Gunnar Carlsson (<i>Princeton</i>) | Steve Hutt (<i>Edinburgh</i>) |
| Carles Casacuberta (<i>Barcelona</i>) | Kenshi Ishiguro (<i>Purdue</i>) |
| Francis Clarke (<i>Swansea</i>) | Norio Iwase (<i>Okayama</i>) |
| Fred Cohen (<i>Rochester</i>) | Stefan Jackowski (<i>Warsaw</i>) |
| Michael Crabb (<i>Aberdeen</i>) | Jan Jaworowski (<i>Indiana</i>) |
| Don Davis (<i>Lehigh</i>) | Alain Jeanneret (<i>Neuchâtel</i>) |
| Ethan Devinatz (<i>Chicago</i>) | David Johnson (<i>Kentucky</i>) |
| Albrecht Dold (<i>Heidelberg</i>) | Keith Johnson (<i>Halifax, Nova Scotia</i>) |
| Emmanuel Dror-Farjoun (<i>Jerusalem</i>) | John Jones (<i>Warwick</i>) |
| Bill Dwyer (<i>Notre Dame</i>) | Masaki Karneko (<i>Johns Hopkins</i>) |
| Peter Eccles (<i>Manchester</i>) | Klaus Heiner Kamps (<i>Hagen</i>) |
| Steven Edwards (<i>Indiana</i>) | Nondas Kechagias (<i>Queens, Ont</i>) |
| Michael Eggar (<i>Edinburgh</i>) | John Klippenstein (<i>Vancouver</i>) |
| Sam Evens (<i>Rutgers</i>) | Karlheinz Knapp (<i>Wuppertal</i>) |
| Vincent Franjou (<i>Paris</i>) | Stan Kochman (<i>York U, Ont</i>) |
| Paul Goerss (<i>Washington</i>) | Akira Kono (<i>Kyoto</i>) |

Cambridge University Press

0521420741 - Adams Memorial Symposium on Algebraic Topology: Manchester 1990, 1

Edited by N. Ray and G. Walker

Frontmatter

[More information](#)

xvi

Participants in symposium

- | | |
|---|---|
| Piotr Krason (<i>Virginia</i>) | Alan Robinson (<i>Warwick</i>) |
| Nick Kuhn (<i>Virginia</i>) | Yuli Rudjak (<i>Moscow</i>) |
| Kee Yuen Lam (<i>Vancouver</i>) | John Rutter (<i>Liverpool</i>) |
| Peter Landweber (<i>Rutgers</i>) | Hal Sadofsky (<i>MIT</i>) |
| Jean Lannes (<i>Paris</i>) | Brian Sanderson (<i>Warwick</i>) |
| Ian Leary (<i>Cambridge</i>) | Pepe Sanjurjo (<i>Madrid</i>) |
| Kathryn Lesh (<i>Brandeis</i>) | Bill Schmitt (<i>Memphis, Tenn</i>) |
| Al Lundell (<i>Boulder, Col</i>) | Roland Schwanzl (<i>Osnabruck</i>) |
| Maria Luisa Sa Magalheas (<i>Porto</i>) | Lionel Schwartz (<i>Paris</i>) |
| Zafer Mahmud (<i>Kuwait</i>) | Graeme Segal (<i>Oxford</i>) |
| Mark Mahowald (<i>Northwestern</i>) | Paul Shick (<i>John Carroll Univ</i>) |
| Howard Marcum (<i>Ohio</i>) | Don Shimamoto (<i>Swarthmore Coll</i>) |
| John Martino (<i>Yale</i>) | Katsumi Shimomura (<i>Tottori</i>) |
| Tadeusz Marx (<i>Warsaw</i>) | Hubert Shutrick (<i>Karlstad, Sweden</i>) |
| Yoshihoro Mataga (<i>UMDS, Japan</i>) | Raphael Sivera (<i>Valencia</i>) |
| Honoré Mavinga (<i>Wisconsin</i>) | Vic Snaith (<i>McMaster, Ont</i>) |
| Peter May (<i>Chicago</i>) | Richard Steiner (<i>Glasgow</i>) |
| John McCleary (<i>Vassar Coll</i>) | Christopher Stover (<i>Chicago</i>) |
| Jim McClure (<i>Kentucky</i>) | Chris Stretch (<i>Ulster</i>) |
| Chuck McGibbon (<i>Wayne State</i>) | Neil Strickland (<i>Manchester</i>) |
| Haynes Miller (<i>MIT</i>) | Michael Sunderland (<i>Oxford</i>) |
| Mamoru Mimura (<i>Okayama</i>) | Wilson Sutherland (<i>Oxford</i>) |
| Norihiko Minami (<i>MSRI</i>) | Peter Symonds (<i>McMaster</i>) |
| Bill Mitchell (<i>Manchester</i>) | Martin Tangora (<i>UIC</i>) |
| Steve Mitchell (<i>Washington</i>) | Charles Thomas (<i>Cambridge</i>) |
| Jack Morava (<i>Johns Hopkins</i>) | Rob Thompson (<i>Northwestern</i>) |
| Fabien Morel (<i>Paris</i>) | Japie Vermeulen (<i>Cape Town</i>) |
| Guillermo Moreno (<i>Mexico</i>) | Vladimir Vershinin (<i>Novosibirsk</i>) |
| Fix Mothebe (<i>Manchester</i>) | Rainer Vogt (<i>Osnabruck</i>) |
| Roin Nadiradze (<i>Tbilisi</i>) | Grant Walker (<i>Manchester</i>) |
| Goro Nishida (<i>Kyoto</i>) | Andrzej Weber (<i>Warsaw</i>) |
| Nobuyuki Oda (<i>Fukuoka</i>) | Clarence Wilkerson (<i>Purdue</i>) |
| Bob Oliver (<i>Aarhus</i>) | Steve Wilson (<i>Johns Hopkins</i>) |
| Erich Ossa (<i>Wuppertal</i>) | Zdzislaw Wojtkowiak (<i>Bonn</i>) |
| Akimou Osse (<i>Neuchâtel</i>) | Reg Wood (<i>Manchester</i>) |
| John Palmieri (<i>MIT</i>) | Lyndon Woodward (<i>Durham</i>) |
| Markus Pfenninger (<i>Zurich</i>) | Xu Kai (<i>Aberdeen</i>) |
| Mikhail Postnikov (<i>Moscow</i>) | Nobuaki Yagita (<i>Tokyo</i>) |
| Stewart Priddy (<i>Northwestern</i>) | |
| Andrew Ranicki (<i>Edinburgh</i>) | |
| Douglas Ravenel (<i>Rochester</i>) | |
| Nige Ray (<i>Manchester</i>) | |

Cambridge University Press

0521420741 - Adams Memorial Symposium on Algebraic Topology: Manchester 1990, 1

Edited by N. Ray and G. Walker

Frontmatter

[More information](#)

Addresses of Contributors

J P May	Department of Mathematics University of Chicago 5734 University Avenue Chicago, Illinois 60637, U.S.A.
Kathryn P Hess	Département de Mathématiques Ecole Polytechnique Fédérale de Lausanne CH-1015 Lausanne, Switzerland
J D S Jones	Mathematics Institute University of Warwick Coventry CV4 7AL, U.K.
J McCleary	Department of Mathematics Vassar College Poughkeepsie, New York 12601, U.S.A.
Z Fiedorowicz	Department of Mathematics Ohio State University 231 West 18th Avenue Columbus, Ohio 43210-1174, U.S.A.
R. Schwanzl	Fachbereich Mathematik/Informatik Universität Osnabrück 45 Osnabrück, Postfach 4469 Germany.
R. Vogt	Fachbereich Mathematik/Informatik Universität Osnabrück 45 Osnabrück, Postfach 4469 Germany.

xviii	Addresses of contributors
Dominique Arlettaz	Institut de Mathematiques Université de Lausanne CH-1015 Lausanne, Switzerland.
K. Y. Lam	Department of Mathematics University of British Columbia Vancouver, B.C. V6T 1Y4, Canada
D. Randall	Department of Mathematics Loyola University New Orleans, Louisiana 70018, U.S.A.
Mamoru Mimura	Department of Mathematics Faculty of Science, Okayama University Okayama 700, Japan
C. A. McGibbon	Department of Mathematics Wayne State University Detroit, Michigan 48202, U.S.A.
J. M. Møller	Mathematisk Institut Universitetsparken 5 DK-2100 København Ø, Denmark
David Blanc	Department of Mathematics The Hebrew University Givat Ram Campus 91 000 Jerusalem, Israel
Christopher Stover	Department of Mathematics University of Chicago 5734 University Avenue Chicago, Illinois 60637, U.S.A.

Addresses of contributors xix

Nobuyuki Oda	Department of Applied Mathematics Faculty of Science Fukuoka University 8.19.1 Nanakuma Jonan-ku Fukuoka 814-01, Japan
I. M. James	Mathematical Institute 24-29 St Giles Oxford OX1 3LB.
Ronald Brown	School of Mathematics University of Wales Dean Street, Bangor LL57 1UT, U.K.
Carles Casacuberta	SFB 170, Mathematisches Institut Universität Göttingen 3400 Göttingen, Germany
Georg Peschke	Department of Mathematics University of Alberta Edmonton T6G 2G1, Canada
Markus Pfenniger	School of Mathematics University of Wales Dean Street, Bangor LL57 1UT, U.K.
Peter Hilton	Department of Mathematical Sciences SUNY at Binghamton Binghamton, New York 13901, U.S.A.
Victor P. Snaith	Department of Mathematics McMaster University Hamilton, Ontario L8S 4K1, Canada

M. C. Crabb	Department of Mathematics University of Aberdeen The Edward Wright Building Dunbar Street, Aberdeen AB9 2TY.
J. R. Hubbuck	Department of Mathematics University of Aberdeen The Edward Wright Building Dunbar Street, Aberdeen AB9 2TY.
Kai Xu	present address unknown Please send c/o J. R. Hubbuck at University of Aberdeen, see above
Zdzisław Wojtkowiak	Département de Mathématiques Université de Nice Parc Valrose, F-06034 Nice, France
Kenshi Ishiguro	SFB 170, Mathematisches Institut Universität Göttingen 3400 Göttingen, Germany
John Martino	Department of Mathematics University of Virginia Charlottesville, Virginia 22903, U.S.A.
Stewart Priddy	Department of Mathematics Northwestern University Evanston, Illinois 60208, U.S.A.
Douglas C. Ravenel	Department of Mathematics University of Rochester Rochester, New York 14627, U.S.A.

Addresses of contributors xxi

A. K. Bousfield	Department of Mathematics University of Illinois at Chicago Chicago, Illinois 60680, U.S.A.
John R. Hunton	DPMMS University of Cambridge 16 Mill Lane, Cambridge CB2 1SB
N. P. Strickland	Department of Mathematics University of Manchester Manchester M13 9PL, U.K.
Donald M. Davis	Department of Mathematics Lehigh University Bethlehem, Pennsylvania 18015, U.S.A.
Mark Mahowald	Department of Mathematics Northwestern University Evanston, Illinois 60208, U.S.A.
Martin Bendersky	Department of Mathematics CUNY, Hunter College New York 10021, U.S.A.
Dianne Barnes	Department of Mathematics Northwestern University Evanston, Illinois 60208, U.S.A.
David Poduska	Department of Mathematics Case Western Reserve University Cleveland Ohio 44106, U.S.A.

Cambridge University Press
0521420741 - Adams Memorial Symposium on Algebraic Topology: Manchester 1990, 1
Edited by N. Ray and G. Walker
Frontmatter
[More information](#)

xxii	Addresses of contributors
Paul Shick	Department of Mathematics John Carroll University Cleveland, Ohio 44118, U.S.A.
Goro Nishida	Research Institute for Mathematical Sciences Kyoto University Kitashirakawa Sakyo-ku, Kyoto 606, Japan
Francis Clarke	Department of Mathematics University College of Swansea Singleton Park, Swansea SA2 8PP, U.K.
Keith Johnson	Department of Mathematics Dalhousie University Halifax, Nova Scotia B3H 3J5, Canada
J.P.C. Greenlees	Department of Mathematics University of Sheffield Hicks Building, Hounsfield Road Sheffield S3 7RH
Martin C. Tangora	Department of Mathematics University of Illinois at Chicago Chicago, Illinois 60680, U.S.A.
Alain Jeanneret	Institut de Mathématique Université de Neuchatel Chantemerle 20 Neuchatel, CH-2000, Switzerland.
D. P. Carlisle	Department of Computer Science University of Manchester Manchester M13 9PL, U.K.

Cambridge University Press
0521420741 - Adams Memorial Symposium on Algebraic Topology: Manchester 1990, 1
Edited by N. Ray and G. Walker
Frontmatter
[More information](#)

Addresses of contributors xxiii

R. M. W. Wood	Department of Mathematics University of Manchester Manchester M13 9PL, U.K.
Mohamed Ali Alghamdi,	Department of Mathematics Faculty of Science King Abdulaziz University PO Box 9028, Jeddah 21413, Saudi Arabia
Nicholas J. Kuhn	Department of Mathematics University of Virginia Charlottesville, Virginia 22903, U.S.A.
Andrew Baker	Department of Mathematics University of Glasgow University Gardens, Glasgow G12 8QW, U.K.
V. G. Gorbunov	Department of Mathematics University of Manchester Manchester M13 9PL, U.K.
V. V. Vershinin	Institute of Mathematics Universitetskii Pr. 4 Novosibirsk, USSR 630090
Jack Morava	Department of Mathematics Johns Hopkins University Baltimore, Maryland 21218, U.S.A.

Cambridge University Press

0521420741 - Adams Memorial Symposium on Algebraic Topology: Manchester 1990, 1

Edited by N. Ray and G. Walker

Frontmatter

[More information](#)

