Homology, Homotopy and Applications

Volume 4 (2002), No. 2

Special issue in honor of

Jan Erik Roos

on the occasion of his
65th birthday

Editor Larry Lambe
Guest Editor Clas Löfwall

Table of Contents

1. The work of Jan-Erik Roos on the cohomology of commutative rings
Luchezar L. Avramov 1–16

2. Homotopy Lie algebras and Poincaré series of algebras with monomial relations
Luchezar L. Avramov 17–27

3. Secondary cohomology and the Steenrod square
Hans–Joachim Baues 29–62

4. Crossed extensions of algebras and Hochschild cohomology
Hans-Joachim Baues and Elias Gabriel Minian 63–82

5. An analogue of holonomic D-modules on smooth varieties in positive characteristics
Rikard Bögvad 83–116

6. An algebraic model for homotopy fibers
Nicolas Dupont and Kathryn Hess 117–139

7. Nonsplit extensions of modular Lie algebras of rank 2
A. S. Dzhumadil'daev and S. S. Ibraev 141–163

8. Trees, Free Right-Symmetric Algebras, Free Novikov Algebras and Identities
Askar Dzhumadil'daev and Clas Löfwall 165–190

9. On minimal models in integral homotopy theory
Torsten Ekedahl 191–218

10. Growth and Lie brackets in the homotopy Lie algebra
Yves Félix, Stephen Halperin and Jean-Claude Thomas 219–225

11. Koszul homology and Lie algebras with application to generic forms and points
R. Fröberg and C. Löfwal 227–258

12. Defining relations for classical Lie superalgebras without Cartan matrices
P. Grozman, D. Leites and E. Poletaeva 259–275

13. Resolutions by mapping cones
Jürgen Herzog and Yukihide Takayama 277–294

14. Presentation Depth and the Lipman-Sathaye Jacobian Theorem
Melvin Hochster 295–314

15. On Constructing Resolutions Over the Polynomial Algebra
Leif Johansson, Larry Lambe and Emil Sköldberg 315–336

16. A periodisation of semisimple Lie algebras
Anna Larsson 337–355

17. Noncommutative deformations of modules
O. A. Laudal 357–396

18. The Riemann tensor for nonholonomic manifolds
Dimitry Leites 397–407

19. Some conjectures about the Hilbert series of generic ideals in the exterior algebra
Guillermo Moreno-Socías and Jan Snellman 409–426

20. Resolutions and Lattices
Irena Peeva 427–437

Homology, Homotopy and Applications (ISSN 1512 - 0139) is the all-electronic, refereed journal on Homological and Homotopical Algebra and their applications in the mathematical sciences.

The influence of homology and homotopy is found in many fundamental domains of mathematics and the aim of "Homology, Homotopy and Applications" is to unify such applications, to show its merit, importance and diversity and to present in time to its reader new information about the progress of the area and the relationships with other fields.

To this end "Homology, Homotopy and Applications" will publish carefully refereed significant and original research papers and expository survey papers of high level in the area, as well as research papers having substantial applications of results and technique of homological and homotopical algebra, for example to general algebra, algebraic topology, algebraic homotopy, algebraic geometry, K-theory, category theory,computer science, Galois theory, functional analysis, algebraic number theory, differential geometry and topology.

Articles appearing in the journal have been carefully and critically refereed under the responsibility of members of the Editorial Board. Only papers judged excellent are accepted for publication.

The method of distribution of the journal is via Internet tools (`WWW`, `ftp`, etc.)

The journal is archived electronically and in printed paper format.

Subscribers to the journal receive abstracts of accepted papers by electronic mail. Compiled TEX(.dvi) and Postscript files of the full articles are available by `WWW/ftp`.

The journal is free to individuals.

University Departments, Libraries, and other institutional subscribers are invited to consult with the Editor-in-Chief about subscription and archiving. Authors retain copyright to articles appearing in the Journal. The Journal is copyrighted by its Editorial Board. For further information, contact the Editor-in-Chief, Hvedri Inassaridze, `hvedri@rmi.acnet.ge`.

Homology, Homotopy and Applications uses the TEXtypesetting system to define its contents and the Internet to disseminate them. Authors are invited to submit articles to any member of the Editorial Board and the Editor-in-Chief in any standard flavour of TEX(i.e. plain, LATEX, AMS-(La) TEX.). Tex sorces files may be submitted by email directly to only one member of the Editorial Board.

Accepted papers will be archived electronically in DVI and Postscript format by the journal. A printed paper version of each article in the journal is archived in the Razmadze Mathematical Institute library.

EDITORIAL BOARD

Editors-in-Chief:

Hvedri Inassaridze,
A. Razmadze Mathematical Institute,
Georgian Academy of Sciences,
M. Alexidze Str.1, Tbilisi 380093, Georgia.
hvedri@rmi.acnet.ge hvedri.inassari@usa.net

Gunnar Carlsson,
University of Stanford, USA
gunnar@math.stanford.edu

Managing Editors:

Ronald Brown, University of North Wales, UK: r.brown@bangor.ac.uk
J. Nigel Ray, University of Manchester, UK: nige@ma.man.ac.uk
Lionel Schwartz, Universit de Paris 13, France: schwartz@math.univ-paris13.fr

Editors:

Luchezar Avramov, Purdue University, USA:
avramov@Math.Purdue.Edu
Michael Barr, McGill University, Canada:
barr@triples.math.mcgill.ca
Lawrence Breen, Universite de Paris 13, France:
breen@math.univ-paris13.fr
Winfried Bruns, Universitt Osnabrck, Germany:
winfried@mathematik.Uni-Osnabrueck.de
Aurelio Carboni, University of Insubria, Italy:
acarboni@mailserver.unimi.it
Antonio Martinez Cegarra, University of Granada, Spain:
acegarra@goliat.ugr.es
Claude Cibils, University of Montpellier, France.
cibils@math.univ-montp2.fr
Ralph Cohen, Stanford University, USA:
ralph@math.stanford.edu
R. Keith Dennis, Cornell University, Ithaca, USA:
rkd@ams.org,
dennis@math.cornell.edu
Graham Ellis, University College of Galway, Ireland:
Graham.Ellis@ucg.ie
Daniel Guin, University of Montpellier, France
dguin@math.univ-montp2.fr
Jürgen Herzog, Universität GH Essen, Germany:
mat300@uni-essen.de
Johannes Hübschmann, Université de Lille, France:
Huebschmann@Univ-Lille1.fr
G. Max Kelly, University of Sydney, Australia:
maxk@maths.usyd.edu.au

Frans Keune, University of Nijmegen, The Netherlands:
keune@sci.kun.nl
Larry Lambe, University of Stockholm, Sweden:
lambe@matematik.su.se
Jean-Louis Loday, Universit de Strasbourg, France:
loday@math.u-strasbg.fr
Andy R. Magid, University of Oklahoma, USA:
amagid@uoknor.edu
Wolfgang Metzler, University of Frankfurt, Germany
metzler@math.uni-frankfurt.de
R. James Milgram, Stanford University, USA:
milgram@math.stanford.edu
Alexander Mishchenko, Moscow State University, Russia
asmish@mech.math.msu.su
Shigeyuki Morita, University of Tokyo, Japan:
morita@ms.u-tokyo.ac.jp
Maria Cristina Pedicchio, University of Trieste, Italy:
pedicchi@uts.univ.trieste.it
Ulf Rehmann, University of Bielefeld, Germany:
rehmann@mathematik.uni-bielefeld.de
Jonathan M. Rosenberg, University of Maryland, USA:
jmr@math.umd.edu
Andrea Solotar, University of Buenos Aires, Argentina
asolotar@dm.uba.ar,
asolotar@topo.math.u-psud.fr
James Stasheff, University of North Carolina, USA:
jds@math.unc.edu
Ross Street, Macquarie University, Australia:
street@macadam.mpce.mq.edu.au
Tomohide Terasoma, University of Tokyo, Japan:
terasoma@gauss.ms.u-tokyo.ac.jp
Walter Tholen, York University, Canada:
tholen@mathstat.yorku.ca
Charles A. Weibel, Rutgers University, New Brunswick, USA:
weibel@euler.rutgers.edu