ISSN 1201-561X

THEORY AND APPLICATIONS OF CATEGORIES

Volume 12, 2004

Baer invariants in semi-abelian categories I: General theory
T. Everaert and T. Van der Linden 1

Simplicial approximation
J.F. Jardine 34

Operads in higher-dimensional category theory
Tom Leinster 73

Baer invariants in semi-abelian categories II: Homology
T. Everaert and T. Van der Linden 195

Notions of flatness relative to a Grothendieck topology
Panagis Karazeris 225

Moore categories
Diana Rodelo 237

Change of base for relational variable sets
Susan Niefield 248

On subgroups of the Lambek pregroup
Michael Barr 262

© The Editors of Theory and Applications of Categories 2004. Permission to copy for private use granted.

Algebraically closed and existentially closed substructures in categorical context
Michel Hebert 269

Vertically iterated classical enrichment
Stefan Forcey 299

Several constructions for factorization systems
Dali Zangurashvili 326

K-purity and orthogonality
Michel Hebert 355

The double powerlocale and exponentiation: A case study in geometric logic
Steven Vickers 372

Higher-Dimensional Algebra V: 2-Groups
John C. Baez and Aaron D. Lauda 423

Higher-Dimensional Algebra VI: Lie 2-Algebras
John C. Baez and Alissa S. Crans 492

THEORY AND APPLICATIONS OF CATEGORIES (ISSN 1201-561X) will disseminate articles that significantly advance the study of categorical algebra or methods, or that make significant new contributions to mathematical science using categorical methods. The scope of the journal includes: all areas of pure category theory, including higher dimensional categories; applications of category theory to algebra, geometry and topology and other areas of mathematics; applications of category theory to computer science, physics and other mathematical sciences; contributions to scientific knowledge that make use of categorical methods.

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

The method of distribution of the journal is via the Internet tools `WWW/ftp`. The journal is archived electronically and in printed paper format.

Subscription information. Individual subscribers receive (by e-mail) abstracts of articles as they are published. Full text of published articles is available in .dvi, Postscript and PDF. Details will be e-mailed to new subscribers. To subscribe, send e-mail to `tac@mta.ca` including a full name and postal address. For institutional subscription, send enquiries to the Managing Editor, Robert Rosebrugh, `rrosebrugh@mta.ca`.

Information for authors. The typesetting language of the journal is TEX, and LATEX is the preferred flavour. TEX source of articles for publication should be submitted by e-mail directly to an appropriate Editor. They are listed below. Please obtain detailed information on submission format and style files from the journal's WWW server at `http://www.tac.mta.ca/tac/`. You may also write to `tac@mta.ca` to receive details by e-mail.

Editorial board.
John Baez, University of California, Riverside: `baez@math.ucr.edu`
Michael Barr, McGill University: `barr@barrs.org`, *Associate Managing Editor*
Lawrence Breen, Université Paris 13: `breen@math.univ-paris13.fr`
Ronald Brown, University of Wales Bangor: `r.brown@bangor.ac.uk`
Jean-Luc Brylinski, Pennsylvania State University: `jlb@math.psu.edu`
Aurelio Carboni, Università dell Insubria: `aurelio.carboni@uninsubria.it`
Valeria de Paiva, Palo Alto Research Center: `paiva@parc.xerox.com`
Martin Hyland, University of Cambridge: `M.Hyland@dpmms.cam.ac.uk`
P. T. Johnstone, University of Cambridge: `ptj@dpmms.cam.ac.uk`
G. Max Kelly, University of Sydney: `maxk@maths.usyd.edu.au`
Anders Kock, University of Aarhus: `kock@imf.au.dk`
Stephen Lack, University of Sydney: `stevel@maths.usyd.edu.au`
F. William Lawvere, State University of New York at Buffalo: `wlawvere@acsu.buffalo.edu`
Jean-Louis Loday, Université de Strasbourg: `loday@math.u-strasbg.fr`
Ieke Moerdijk, University of Utrecht: `moerdijk@math.uu.nl`
Susan Niefield, Union College: `niefiels@union.edu`
Robert Paré, Dalhousie University: `pare@mathstat.dal.ca`
Robert Rosebrugh, Mount Allison University: `rrosebrugh@mta.ca`, *Managing Editor*
Jiri Rosicky, Masaryk University: `rosicky@math.muni.cz`
James Stasheff, University of North Carolina: `jds@math.unc.edu`
Ross Street, Macquarie University: `street@math.mq.edu.au`
Walter Tholen, York University: `tholen@mathstat.yorku.ca`
Myles Tierney, Rutgers University: `tierney@math.rutgers.edu`
Robert F. C. Walters, University of Insubria: `robert.walters@uninsubria.it`
R. J. Wood, Dalhousie University: `rjwood@mathstat.dal.ca`