

## THEORY AND APPLICATIONS OF CATEGORIES

## Volume 26, 2012

Kan extensions and lax idempotent pseudomonads F. Marmolejo and R.J. Wood	1
On the iteration of weak wreath products Gabriella Böhm	30
On diagram-chasing in double complexes George M. Bergman	60
Commutative monads as a theory of distributions Anders Kock	97
Closed categories vs. closed multicategories Oleksandr Manzyuk	132
Syntactic characterizations of properties of classifying toposes Olivia Caramello	176
Note on star-autonomous comonads Craig Pastro	194
A characterization of representable intervals Michael A. Warren	204
Graphical Methods for Tannaka duality of weak bialgebras and weak Hopf algebras Micah Blake McCurdy	232

<sup>©</sup> The Editors of Theory and Applications of Categories 2012. Permission to copy for private use granted.

Theory and Applications of Categories, Vol. 26	ii
Notes on Bimonads and Hopf Monads Bachuki Mesablishvili and Robert Wisbauer	281
The coalgebraic structure of cell complexes Thomas Athorne	304
Congruences of Morita equivalent small categories Valdis Laan	331
Injective hulls of partially ordered monoids J. Lambek, Michael Barr, John F. Kennison, R. Raphael	338
Biequivalences in tricategories Nick Gurski	349
Skew monoidales, skew warpings and quantum categories Stephen Lack and Ross Street	385
A presheaf interpretation of the generalized Freyd conjecture Anna Marie Bohmann and J. P. May	403
Range categories I: General theory J.R.B. Cockett, Xiuzhan Guo and Pieter Hofstra	412
Range categories II: Towards regularity J.R.B. Cockett, Xiuzhan Guo and Pieter Hofstra	453
Opetopes and chain complexes Richard Steiner	501
Modeling stable one-types Niles Johnson, Anglica M. Osorno	501
Yoneda representations of flat functors and classifying toposes Olivia Caramello	538
Bimonadicity and the explicit basis property Matias Menni	554
Duality and traces for indexed monoidal categories Kate Ponto and Michael Shulman	582

Theory and Applications of Categories, Vol. 26	iii
Isotropy and crossed toposes Jonathon Funk, Pieter Hofstra and Benjamin Steinberg	660
Site characterizations for geometric invariants of toposes Olivia Caramello	710
Span, cospan, and other double categories Susan Niefield	729
Tangled circuits R. Rosebrugh, N. Sabadini and R. F. C. Walters	743
Décalage and Kan's simplicial loop group functor Danny Stevenson	533
Internal categories, anafunctors and localisations David Michael Roberts	768

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.

Full text of the journal is freely available in .dvi, Postscript and PDF from the journal's server at http://www.tac.mta.ca/tac/ and by ftp. It is archived electronically and in printed paper format.

SUBSCRIPTION INFORMATION. Individual subscribers receive by e-mail abstracts of articles by e-mail as they are published. 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.

INFORMATION FOR AUTHORS. The typesetting language of the journal is TeX, and  $\text{LATeX} 2_{\varepsilon}$  is strongly encouraged. Articles should be submitted by e-mail directly to a Transmitting Editor. Please obtain detailed information on submission format and style files from http://www.tac.mta.ca/tac/.

Managing editor. Robert Rosebrugh, Mount Allison University: rrosebrugh@mta.ca

TEXnical editor. Michael Barr, McGill University: barr@math.mcgill.ca

Assistant TEX editor. Gavin Seal, Ecole Polytechnique Fédérale de Lausanne: gavin\_seal@fastmail.fm

Transmitting editors.

Clemens Berger, Université de Nice-Sophia Antipolis: cberger@math.unice.fr

Richard Blute, Université d' Ottawa: rblute@uottawa.ca

Lawrence Breen, Université de Paris 13: breen@math.univ-paris13.fr

Ronald Brown, University of North Wales: ronnie.profbrown(at)btinternet.com

Valeria de Paiva: valeria.depaiva@gmail.com

Ezra Getzler, Northwestern University: getzler(at)northwestern(dot)edu

Kathryn Hess, Ecole Polytechnique Fédérale de Lausanne: kathryn.hess@epfl.ch

 $Martin\ Hyland,\ University\ of\ Cambridge:\ {\tt M.Hyland@dpmms.cam.ac.uk}$ 

Anders Kock, University of Aarhus: kock@imf.au.dk

Stephen Lack, Macquarie University: steve.lack@mg.edu.au

F. William Lawvere, State University of New York at Buffalo: wlawvere@buffalo.edu

Tom Leinster, University of Edinburgh: Tom.Leinster@ed.ac.uk

Ieke Moerdijk, Radboud University Nijmegen: i.moerdijk@math.ru.nl

Susan Niefield, Union College: niefiels@union.edu

Robert Paré, Dalhousie University: pare@mathstat.dal.ca

Jiri Rosicky, Masaryk University: rosicky@math.muni.cz

Giuseppe Rosolini, Università di Genova: rosolini@disi.unige.it

Alex Simpson, University of Edinburgh: Alex.Simpson@ed.ac.uk

James Stasheff, University of North Carolina: jds@math.upenn.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: rfcwalters@gmail.com

R. J. Wood, Dalhousie University: rjwood@mathstat.dal.ca