

# THE BULLETIN OF SYMBOLIC LOGIC

## Edited by

Frank Wagner, *Managing Editor*

Patricia Blanchette      Menachem Kojman

Andrea Cantini          Leonid Libkin

Thierry Coquand        André Nies

Deirdre Haskell

## Reviews Editors

Ernest Schimmerling, *Managing Editor for Reviews*

Mark Colyvan            Colin McLarty

Anuj Dawar              Rahim Moosa

Michael Fourman        Henry Towsner

Steffen Lemp            Kai Wehmeier

Bernard Linsky

VOLUME 21 • NUMBER 3 • SEPTEMBER 2015 • ISSN 1079-8986

Copyright © 2015 by the Association for Symbolic Logic. All rights reserved.  
Reproduction by photostat, photo-print, microfilm, or like process by permission only.



PUBLISHED BY CAMBRIDGE UNIVERSITY PRESS FOR  
AND ON BEHALF OF THE ASSOCIATION OF SYMBOLIC LOGIC.

The BULLETIN, the JOURNAL and the REVIEW OF SYMBOLIC LOGIC are the official organs of the Association for Symbolic Logic, an international organization for furthering research in logic and the exchange of ideas among mathematicians, computer scientists, linguists, and others interested in this field. The BULLETIN encourages submissions of *Articles* and *Communications* in all areas of logic, including mathematical or philosophical logic, logic in computer science or linguistics, the history or philosophy of logic, and applications of logic to other fields. The BULLETIN also publishes reviews of publications in logic.

#### Editors

Frank Wagner (Managing Editor), Institut Camille Jordan, UMR 5208, Bâtiment Braconnier, Université Lyon 1, 21, avenue Claude Bernard, 69622 Villeurbanne Cedex, France

wagner@math.univ-lyon1.fr

Patricia Blanchette, Department of Philosophy, University of Notre Dame, 100 Malloy Hall, Notre Dame, IN 46556, USA

blanchette.1@nd.edu

Andrea Cantini, Department of Philosophy Università degli Studi di Firenze, Via Bolognese 52, I-50139 Firenze, Italy

cantini@unifi.it

Thierry Coquand, University of Gothenburg, Department of Computer Science and Engineering, SE-4196 Gothenburg, Sweden

Thierry.Coquand@gu.se

Deirdre Haskell, Department of Mathematics and Statistics, McMaster University, 1280 Main St. W, Hamilton ON L8S 4K1, Canada

haskell@math.mcmaster.ca

Menachem Kojman, Department of Mathematics, Ben-Gurion University of the Negev, Beer-Sheva, Israel 84105

kojman@math.bgu.ac.il

Leonid Libkin, Laboratory for Foundations of Computer Science, University of Edinburgh, Informatics Forum, IF 5.33, Crichton Street, Edinburgh, EH8 9AB, UK

libkin@inf.ed.ac.uk

Andre Nies, Department of Computer Science, University of Auckland, Private Bag 92019, Auckland, New Zealand

nies.editor@gmail.com

#### Reviews editors

Ernest Schimmerling (Managing Editor), Department of Mathematical Sciences, Carnegie Mellon University, Pittsburgh, PA 15213, USA, eschimme@andrew.cmu.edu

Mark Colyvan mcolyvan@usyd.edu, Anuj Dawar Anuj.Dawar@cl.cam.ac.uk,

Michael Fourman Michael.Fourman@ed.ac.uk, Steffen Lempp lempp@math.wisc.edu,

Bernard Linsky bernard.linsky@ualberta.ca, Colin McLarty colin.mclarty@case.edu,

Rahim Moosa rmoosa@uwaterloo.ca, Henry Towsner htowsner@math.upenn.edu,

and Kai Wehmeier wehmeier@uci.edu.

Please follow the submission procedure described at

<http://www.aslonline.org/journals-bulletin-guide.html>

It is recommended that papers be prepared in  $\text{\LaTeX}$  using the ASL's class file, especially for manuscripts having extensive symbolic or mathematical notation. This style file is available from the ASL's website at <http://www.aslonline.org>; links from that site provide further information about the BULLETIN and about submitting papers for publication.

No print offprints will be supplied but authors will receive a link to a freely accessible electronic pdf of their published article. Print offprints may be purchased if required.

*Articles* present topics of broad interest in a way that is accessible to a large audience. They can be purely expository, survey, or historical articles or they may contain, in addition, new ideas or results or new approaches to old ones.

*Communications* should be announcements of important new results and ideas in any aspect of logic; they may be short papers in their final form or preliminary announcements (extended abstracts, position papers) of longer, full papers that will be published elsewhere. In any case, they should include, in addition to a description of the new results or ideas, enough history, background, and explanation to make the significance of the work apparent to a wide audience. *Communications* will be quickly refereed and published within six months of the submission of final version.

Books for review in the BULLETIN should be sent to ASL, BOX 742, Vassar College, 124 Raymond Avenue, Poughkeepsie, NY 12604, USA.

## TABLE OF CONTENTS

### ARTICLES

Chang's conjecture, generic elementary embeddings and inner models for huge cardinals, by MATTHEW FOREMAN.....	251
Demuth's path to randomness, by ANTONÍN KUČERA, ANDRÉ NIES, and CHRISTOPHER P. PORTER .....	270
Saturated free algebras revisited, by ANAND PILLAY and RIZOS SKLINOS .....	306
The constraint satisfaction problem and universal algebra, by LIBOR BARTO.....	319

### REVIEWS

D. R. Hirschfeldt, <i>Slicing the truth: On the computable and reverse mathematics of combinatorial principles</i> , Reviewed by JEFFRY L. HIRST.....	338
I. Neeman, <i>Forcing with sequences of models of two types</i> . Notre Dame Journal of Formal Logic, Reviewed by DIMA SINAPOVA.....	339
K. Tent and M. Ziegler, <i>A Course in Model Theory</i> , Reviewed by BRADD HART.....	342

---

2015 North American Annual Meeting of the Association for Symbolic Logic, University of Illinois at Urbana-Champaign, Urbana, IL, USA, March 25–28, 2015 .....	344
Notices .....	366