

Volume 5 Number 4 December 1996



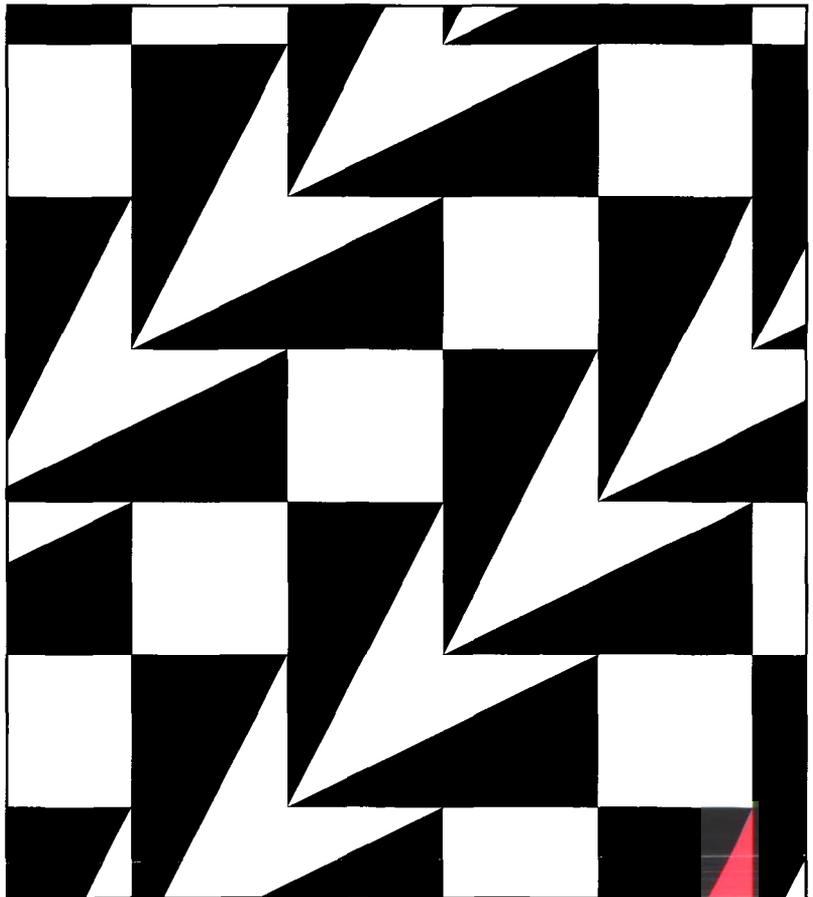
Combinatorics, Probability & Computing

Editor-in-Chief: Béla Bollobás

Managing Editors: Graham Brightwell, Imre Leader, Alex Scott

Editors:

Noga Alon
László Babai
Jean-Claude Bermond
Norman Biggs
Alan Frieze
Zoltán Füredi
Ron Graham
Mark Jerrum
Jeff Kahn
Greg Lawler
Tomasz Łuczak
Colin McDiarmid
Brendan McKay
James Oxley
Hans Jürgen Prömel
Alexander Razborov
Vojtek Rödl
Vera Sós
Simon Tavaré
Dominic Welsh
Peter Winkler



Cambridge University Press

EDITOR-IN-CHIEF

BÉLA BOLLOBÁS

Department of Mathematical Sciences, University of Memphis, Memphis, TN 38152, USA,
 Email: bollobab@ibex.msci.memphis.edu and Department of Pure Mathematics and Mathematical Statistics,
 16 Mill Lane, Cambridge CB2 1SB, Email: B.Bollobas@dpmms.cam.ac.uk

MANAGING EDITORS

GRAHAM BRIGHTWELL

Department of Mathematics, London School of Economics, Houghton Street, London, WC2A 2AE,
 Email: g.r.brightwell@lse.ac.uk

IMRE LEADER

Department of Mathematics, University College London, Gower Street, London WC1E 6BT,
 Email: imre@math.ucl.ac.uk

ALEX SCOTT

Department of Mathematics, University College London, Gower Street, London WC1E 6BT,
 Email: a.d.scott@pmms.cam.ac.uk

JOURNAL EMAIL ADDRESS: cpc@ibex.msci.memphis.edu

EDITORIAL BOARD

NOGA ALON

Department of Mathematics, Tel Aviv
 University, Ramat Aviv, 69978 Tel Aviv, Israel,
 Email: noga@math.tau.ac.il

Probabilistic methods in combinatorics

LÁSZLÓ BABAÍ

Department of Computer Science,
 University of Chicago, 1100 East 58th Street,
 Chicago, IL 60637,
 Email: laci@cs.uchicago.edu

Algebraic methods, finite groups, algorithms

JEAN-CLAUDE BERMOND
 135 CNRS, Université de Nice – Sophia
 Antipolis, BP 145, F-06903 Sophia Antipolis
 Cedex, France,
 Email: bermond@unice.fr

Interconnection networks, graph theory and parallel computing

NORMAN BIGGS

Department of Mathematics, London School of
 Economics, Houghton Street, London
 WC2A 2AE,
 Email: n.l.biggs@lse.ac.uk

Algebraic combinatorics, computational learning theory

ALAN FRIEZE

Department of Mathematics, Carnegie-Mellon
 University, Pittsburgh, PA 15213,
 Email: aflp+@andrew.cmu.edu

Random graphs, algorithms

ZOLTÁN FÜREDI

Department of Mathematics, University of
 Illinois at Urbana-Champaign, Urbana,
 IL 61801, USA,
 Email: zoltan@math.uiuc.edu

Set systems, extremal graph theory

RON GRAHAM

AT&T Bell Laboratories, 2T102
 600 Mountain Avenue, Murray Hill, N.J. 07974,
 Email: rlg@research.att.com

Discrete mathematics, combinatorial probability

MARK JERRUM

Department of Computer Science, The
 University of Edinburgh, The King's Buildings,
 Edinburgh EH9 3JZ,
 Email: mrj@dcsc.ed.ac.uk

Randomised algorithms, complexity theory

JEFF KAHN

Department of Mathematics, Rutgers University,
 New Brunswick, NJ 08903,
 Email: jkahrf@math.rutgers.edu

Extra-combinatorial methods, hypergraphs

GREG LAWLER

Department of Mathematics, Box 90320,
 Duke University, Durham,
 NC 27708-0320, USA,
 Email: jose@math.duke.edu

Probability theory

TOMASZ ŁUCZAK

Institute of Mathematics, Adam Mickiewicz
 University, Matejki 48/49, PL-60 769 Poznań,
 Poland,
 Email: tomasz@math.amu.edu.pl

Probabilistic methods, random structures

COLIN MCDIARMID

Department of Statistics, University of Oxford,
 11 Keble Road, Oxford OX1 3QD,
 Email: cmcd@stats.ox.ac.uk

Combinatorics, probability and algorithms

BRENDAN MCKAY

Computer Science Department,
 Australian National University, G.P.O. Box 4,
 Canberra, ACT 2601, Australia,
 Email: bdm@anuesd.anu.edu.au

Probability theory, enumeration, asymptotics

JAMES OXLEY

Department of Mathematics, Louisiana State
 University, Baton Rouge, LA 70803-4918,
 Email: oxley@marais.math.lsu.edu

Matroid theory

HANS JÜRGEN PRÖMEL

Institut für Informatik, Humboldt-Universität zu
 Berlin, Unter den Linden 6, D-10099 Berlin,
 Germany,
 Email: proemel@informatik.hu-berlin.de

Graph theory and algorithms, Ramsey theory

ALEXANDER RAZBOROV

Steklov Mathematical Institute,
 Vavilova 42, GSP-1, 117966 Moscow,
 Email: razborov@class.mian.su

Boolean complexity theory

VOJTEK RÖDL

Department of Mathematics and Computer
 Science, Emory University, Atlanta, GA 30322-
 2390, USA,
 Email: rodl@mathcs.emory.edu

Ramsey theory, set systems, extremal problems

VERA SÓS

Mathematical Research Institute,
 Reáltanoda utca 13–15, P.O. Box 127,
 H-1364 Budapest, Hungary,
 Email: sos@math-inst.hu

Graph theory, combinatorics, number theory

SIMON TAVARÉ

Department of Mathematics, University of
 Southern California, Los Angeles, CA 90089-
 1113, USA,
 Email: stavare@hto-d.usc.edu

Random processes, applied probability

DOMINIC WELSH

Mathematical Institute, University of Oxford,
 24–29 St Giles, Oxford, OX1 3LB,
 Email: dwelsh@maths.ox.ac.uk

Complexity, algorithms, matroid theory

PETER WINKLER

Fundamental Mathematics Research, Bell
 Laboratories, 2C-379, 700 Mountain Avenue,
 Murray Hill, NJ 07974-0636, USA,
 Email: pw@bell-labs.com

Posets, random structures

© CAMBRIDGE UNIVERSITY PRESS 1996

SUBSCRIPTIONS

Combinatorics, Probability & Computing (ISSN: 0963-5483) is published quarterly in March, June, September and December. The subscription price of Volume 5, 1996, is £104 net (USA, Canada and Mexico US\$190) post free; single parts cost £28 net (USA, Canada and Mexico US\$49) plus postage. Four parts form a volume. Orders, which must be accompanied by payment, may be sent to any bookseller, subscription agent or to the publisher: Cambridge University Press, The Edinburgh Building, Shaftesbury Road, Cambridge CB2 2RU, or in the USA, Canada and Mexico to Cambridge University Press, Journals Department, 40 West 20th Street, New York, NY 10011-4211, USA. EU subscribers (outside the UK) who are not registered for VAT should add VAT at their country's rate. VAT registered subscribers should provide their VAT registration number. Japanese prices for institutions (including ASP delivery) are available from Kinokuniya Company Ltd, P.O. Box 55, Chitose, Tokyo 156, Japan.

Copies of the *Journal* for subscribers in the USA, Canada and Mexico are sent by air to New York. Periodicals postage is paid at New York, NY, and at additional mailing offices. POSTMASTER: send address changes in USA, Canada and Mexico to *Combinatorics, Probability & Computing*, Cambridge University Press, 110 Midland Avenue, Port Chester, New York, NY 10573-4930, USA.

Claims for missing issues can only be considered if made immediately upon receipt of the subsequent issue. Copies of back numbers are available from Cambridge University Press.

COPYING

This journal is registered with the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA, 01923, USA. Organisations in the USA who are also registered with the C.C.C. may therefore copy material (beyond the limits permitted by section 107 and 108 of US copyright law) subject to payment to C.C.C. of the per-copy fee of \$11.00. This consent does not extend to multiple copying for promotional or commercial purposes. Code 0963 5483/96 \$11.00 + .10. Organisations authorised by the Copyright Licensing Agency may also copy material subject to the usual conditions. *ISI Tear Sheet Service*, 3501 Market Street, Philadelphia, Pennsylvania 19104, USA, is authorised to supply single copies of separate articles for private use only.

For all other use, permission should be sought from Cambridge University Press.

Cover design by Gabriella Bollobás based on a tessellation by Andreas Dress.

Information on *Combinatorics, Probability & Computing* and all other Cambridge journals can be accessed via <http://www.cup.cam.ac.uk/> and in North America via <http://www.cup.org/>.