

PROBABILITY **in the** **Engineering** **and** **Informational** **Sciences**

Volume 23

2009

Number 4

CAMBRIDGE
UNIVERSITY PRESS

PROBABILITY IN THE ENGINEERING AND INFORMATIONAL SCIENCES

Editor

Sheldon Ross

University of Southern California

Editorial Board

H. S. Ahn

University of Michigan

M. Brown

The City College, CUNY, U.S.A.

X. Chao

University of Michigan, U.S.A.

A. Hordijk

Leiden University, The Netherlands

F. K. Hwang

Bell Laboratories, U.S.A.

M. Katehakis

Rutgers University, U.S.A.

M. Lewis

Cornell University

G. Shanthikumar

University of California, Berkeley, U.S.A.

K. Sigman

Columbia University, U.S.A.

H. C. Tijms

The Free University, The Netherlands

R. Weber

Cambridge University, U.K.

S. Xu

Pennsylvania State University, U.S.A.

D. Yao

Columbia University, U.S.A.

Editorial Office: *Probability in the Engineering and Informational Sciences*, Epstein Department of Industrial and Systems Engineering, University of Southern California, 3715 McClintock Ave., Los Angeles, CA 90089-0193, U.S.A.; e-mail: smross@usc.edu.

2010 Subscription Information: *Probability in the Engineering and Informational Sciences* is published quarterly, in January, April, July, and October, by Cambridge University Press, 32 Avenue of the Americas, New York, NY 10013-2473 U.S.A./ Cambridge University Press, The Edinburgh Building, Shaftesbury Road, Cambridge CB2 8RU, UK. Annual rates: Institutions, print and online: US \$1030.00 in the U.S.A., Canada, and Mexico; UK £545.00 in all other countries. Institutions, online only: \$900.00 in the U.S.A., Canada, and Mexico; UK £495.00 in all other countries. Institutions print only: \$960.00 in the U.S.A., Canada, and Mexico; UK £525.00 in all other countries. Individuals, print only (prepayment by personal check or credit card only): US \$160.00 in the U.S.A., Canada, and Mexico, UK £95.00 in all other countries. Individuals, print and online (prepayment by personal check or credit card only): \$195.00 in U.S.A., Canada, and Mexico, UK £100.00 in all other countries. Individuals, online (prepayment by personal check or credit card only): 130.00 in the U.S.A., Canada, and Mexico; UK £95.00 in all other countries. Prices include postage and insurance; air mail UK £16.00 per year extra.

This journal is part of the **Cambridge Journals Online** service. Access to online tables of contents and article abstracts is available to all researchers at no cost. Institutional subscribers: Access to full-text articles online is currently included with the cost of the

print subscription. Subscription must be activated; see journals.cambridge.org for details.

Article Reprints are available from the authors. For orders of 50 or more reprints, contact the Journals Production Office.

Copyright © 2009 Cambridge University Press. All rights reserved. No part of this publication may be reproduced, in any form or by any means, electronic, photocopy, or otherwise, without permission in writing from Cambridge University Press. For further information see <http://us.cambridge.org/information/rights/> or <http://www.cambridge.org/uk/information/rights/>

Photocopying information for users in the USA: The Item-Fee Code for this publication indicates that copying for internal or personal use beyond that permitted by Sec. 107 or 108 of the US Copyright Law is authorized for users duly registered with the Copyright Clearance Center (CCC), provided that the appropriate remittance of \$25.00 per article is paid directly to: CCC, 222 Rosewood Drive, Danvers, MA 01923. Specific written permission must be obtained for all other copying: Contact your nearest Cambridge University Press office. *The Item-Fee Code* for this journal is: 0269-9648/09 \$25.00.

Application to mail at periodicals rate is pending in New York, NY, and additional mailing offices. Postmaster: Send address changes in the U.S.A. and Canada to *Probability in the Engineering and Informational Sciences*, Subscription Department, Cambridge University Press, 100 Brook Hill Drive, West Nyack, NY 10994-2133.

Printed in the United States of America.