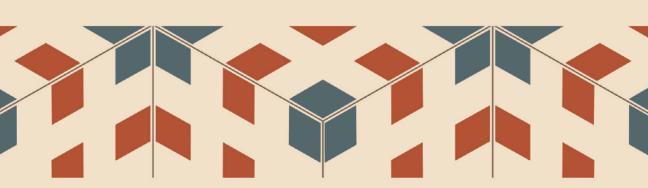


Probability in the Engineering and Informational Sciences





PROBABILITY IN THE ENGINEERING AND INFORMATIONAL SCIENCES

Editor **Sheldon Ross** University of Southern California

Editorial Board

I. J. B. F. Adan

Eindhoven University of Technology, The Netherlands

K. Avrachenkov

INRIA, France

N. Balakrishnan

McMaster University, Canada

O. Brun

LAAS-CNRS, France

N. Cai

The Hong Kong University of Science and Technology

Olympia Hadjiliadis

Brooklyn College, CUNY, U.S.A.

Tai-Zhong Hu

University of Science and Technology of China, Anhui, China

S. Kapodistria

Eindhoven University of Technology, The Netherlands

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.

2022 Subscription Information: Probability in the Engineering and Informational Sciences is published quarterly, in January, April, July, and October, by Cambridge University Press, One Liberty Plaza, New York, NY 10006 U.S.A./ Cambridge University Press, University Printing House, Shaftesbury Road, Cambridge CB2 8BS, UK. Annual rates: Institutions, online only: \$1659.00 in the U.S.A., Canada, and Mexico; UK £957.00 in all other countries. Individuals, online (prepayment by personal check or credit card only): \$226.00 in the U.S.A., Canada, and Mexico; UK £142.00 in all other countries.

This journal is part of the Cambridge Core 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 cambridge.org/journals for details.

M. Katehakis

Rutgers University, U.S.A.

J. Kharoufeh

University of Pittsburgh

L. Örmeci

Koç University, Turkey

J. Pender

Cornell University, U.S.A.

R. Righter

University of California, Berkeley

Adrien Roellin

National University of Singapore

J. K. Woo

University of New South Wales, Australia

Yuqian Xu

University of Illinois, U.S.A.

Jiheng Zhang

The Hong Kong University of Science and Technology

Article Reprints are available from the authors.

© Cambridge University Press 2022. 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/ advertising UK: ad_sales@cambridge.org; US: USAdSales@cambridge.org.

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: 0269-9648/15 \$25.00.