

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

Volume 2

1988

Number 3

*Cambridge University Press*

# PROBABILITY IN THE ENGINEERING AND INFORMATIONAL SCIENCES

Editor

**Sheldon Ross**

*University of California, Berkeley*

Editorial Board

**F. K. Hwang**

*Bell Laboratories, U.S.A.*

**F. Kelly**

*Cambridge University, U.K.*

**F. J. Radermacher**

*Passau University, F.R.Germany*

**M. Sakaguchi**

*Osaka University, Japan*

**N. Singpurwalla**

*George Washington University, U.S.A.*

**H. M. Taylor**

*University of Delaware, U.S.A.*

**H. C. Tijms**

*The Free University, The Netherlands*

**J. Walrand**

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

**R. Weber**

*Cambridge University, U.K.*

**G. Weiss**

*Georgia Tech University, U.S.A.*

**K. Yao**

*UCLA, U.S.A.*

**U. Yechiali**

*Tel Aviv University, Israel*

---

**Editorial Office:** *Probability in the Engineering and Informational Sciences*, College of Engineering, Department of Industrial Engineering and Operations Research, University of California, Berkeley, CA 94720, U.S.A. Tel. (415) 642-3615.

**Publishing, Production and Advertising Offices:** Cambridge University Press, 32 East 57th Street, New York, NY 10002, U.S.A.

**Subscription Offices:** Cambridge University Press, 510 North Avenue, New Rochelle, NY 10501, U.S.A. (for US/Canada); or Cambridge University Press, The Edinburgh Building, Shaftesbury Road, Cambridge CB2 2RU, England (for UK/rest of world).

**1988 Subscription Information:** *Probability in the Engineering and Informational Sciences* (ISSN 0269-9648) is published quarterly. Institutional rates: US \$110 in the U.S.A. and Canada; UK £80.00 in the U.K. and Eire; UK £85.00 elsewhere. Individual rates (prepayment by personal check or credit card only): US \$55.00 in the U.S.A. and Canada, UK £42.00 elsewhere. Prices include postage and insurance; air mail or registered mail extra.

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

**Copyright © 1988 Cambridge University Press**

All rights reserved. No part of this publication may be reproduced, in any form or by any means, electronic, photocopying or otherwise, without permission in writing from the copyright holder.

**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) Transactional Reporting Service, provided that the appropriate remittance of \$5.00 per article is paid directly to: CCC, 27 Congress Street, Salem, MA 01970. 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: 0269-9648/88 \$5.00 + .00

Application to mail at second-class rates 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, 510 North Avenue, New Rochelle NY 10501.