Institute of Mathematical Statistics
LECTURE NOTES–MONOGRAPH SERIES

Selected Proceedings of the Symposium on Inference for Stochastic Processes

I.V. Basawa, C.C. Heyde and R.L. Taylor, Editors

Volume 37

Institute of Mathematical Statistics
LECTURE NOTES–MONOGRAPH SERIES
Volume 37

Selected Proceedings of the Symposium on Inference for Stochastic Processes

I.V. Basawa, C.C. Heyde and R.L. Taylor, Editors

Institute of Mathematical Statistics
Beachwood, Ohio

Institute of Mathematical Statistics
Lecture Notes-Monograph Series

Series Editor:
Joel Greenhouse

The production of the *IMS Lecture Notes-Monograph Series* is managed by the IMS Business Office: Julia A. Norton, IMS Treasurer, and Elyse Gustafson, IMS Executive Director.

Library of Congress Control Number: 2001 135427

International Standard Book Number 0-940600-51-X

Copyright © 2001 Institute of Mathematical Statistics

All rights reserved

Printed in the United States of America

Table of Contents

SECTION 1: INTRODUCTION 1

An Overview of the Symposium 3
I. V. Basawa, C. C. Heyde, and R. L. Taylor

Shifting Paradigms in Inference 9
C. C. Heyde

Section 2: Stochastic Models: General **23**

Modelling by Levy Processes 25
Ole E. Barndorff-Nielsen

Extreme Values for a Class of Shot-Noise Processes 33
W. P. McCormick and Lynne Seymour

Statistical Inference for Stochastic Partial Differential Equations 47
B. L. S. Prakasa Rao

Fixed Design Regression Under Association 71
George G. Roussas

Dependent Bootstrap Confidence Intervals 91
Wendy D. Smith and Robert L. Taylor

Section 3: Time Series **109**

Kolmogorov-Smirnov Tests for AR Models Based on Autoregression Rank Scores 111
Faouzi El Bantli and Marc Hallin

Estimation of the Long-Memory Parameter: A Review of Recent Developments and an Extension 125
Rajendra J. Bhansali and Piota S. Kokoszka

Stability of Nonlinear Time Series: What Does Noise Have to Do With It? 151
Daren B. H. Cline and Huay-min H. Pu

Section 4: Population Genetics **171**

Testing Neutrality of mtDNA Using Multigeneration Cytonuclear Data 173
Susmita Datta

Inference on Random Coefficient Models for Haplotype Effects in Dynamic Mutation Using MCMC 185
Richard M. Huggins, Guoqi Qian and Danuta Z. Loesch

Section 5: Semiparametric Inference **203**

Semiparametric Inference for Synchronization of Population Cycles 205
P. E. Greenwood and D. T. Haydon

Plug-In Estimators in Semiparametric Stochastic Process Models 213
Ursula U. Muller, Anton Schick and Wolfgang Wefelmeyer

Section 6. Estimating Functions **235**

Nuisance Parameter Elimination and Optimal Estimating Functions 237
T. M. Durairajan and Martin L. William

Optimal Estimating Equations for Mixed Effects Models with Dependent Observations 247
Jeong-gun Park and I. V. Basawa

Section 7. Spatial Models **269**

Reconstruction of a Stationary Spatial Process from a Systematic Sampling 271
Karim Benhenni

Estimating the Variance of the Maximum Pseudo-Likelihood Estimator 281
Lynne Seymour

A Review of Inhomogeneous Markov Point Processes 297
Eva B. Vedel Jensen and Linda Stougaard Nielsen

Section 8. Perfect Simulation **319**

Perfect Sampling for Posterior Landmark Distributions with an Application to the Detection of Disease Clusters 321
Marc A. Loizeaux and Ian W. McKeague

A Review of Perfect Simulation in Stochastic Geometry 333
Jesper Møller

LIST OF CONTRIBUTORS

Name	*Affiliations*
Bantli, Faouzi El	Université Libre deBruxelles, Belgium
Barndorff-Nielsen, Ole E.	University of Aarhus, Denmark
Basawa, Ishwar	University of Georgia
Benhenni, Karim	Université Pierre Mendès-France
Bhansali, Rajendra	University of Liverpool, U.K.
Cline, Daren B. H.	Texas A&M University
Datta, Susmita	Georgia State University
Durairajan, T. M.	Loyola College, India
Greenwood, Priscilla	University of British Columbia & Arizona State University
Hallin, Marc	Université Libre deBruxelles, Belgium
Haydon, D. T.	Centre for Tropical Veterinary Medicine, U.K.
Heyde, C. C.	Columbia University & Australian National University
Huggins, Richard	LaTrobe University, Australia
Jensen, Eva B. Vedel	University of Aarhus, Denmark
Kokoszka, Piota S.	University of Liverpool, U.K.
Loesch, Danuta Z.	LaTrobe University, Australia
Loizeaux, Marc A.	Florida State University
McCormick, William	University of Georgia
McKeague, Ian W.	Florida State University
Møller, Jesper	Aalborg University, Denmark
Muller, Ursula U.	Universitat Bremen, Germany
Nielsen, Linda Stougaard	University of Aarhus, Denmark
Park, Jeong-gun	Harvard University
Pu, Huay-min H.	Texas A&M University
Qian, Guoqi	LaTrobe University, Australia
Rao, B. L. S. Prakasa	Indian Statistical Institute
Roussas, George	University of California at Davis
Schick, Anton	Binghamton University
Seymour, Lynne	University of Georgia
Smith, Wendy D.	U.S. Census Bureau
Taylor, Robert L.	University of Georgia
Wefelmeyer, Wolfgang	Universität of Siegen, Germany
William, Martin L.	Loyola College, India