

516

Algebraic Methods in Statistics and Probability II

AMS Special Session Algebraic Methods in Statistics and Probability March 27–29, 2009 University of Illinois at Urbana-Champaign Champaign, IL

> Marlos A. G. Viana Henry P. Wynn Editors



American Mathematical Society Providence, Rhode Island

Contents

Preface	vii
Kiefer-complete Classes of Designs for Cubic Mixture Models STEEN A. ANDERSSON AND THOMAS KLEIN	1
Some Algebraic Methods in Semi-Markov Chains VLAD STEFAN BARBU AND NIKOLAOS LIMNIOS	19
Self-avoiding Generating Sequences for Fourier Lattice Designs Ronald A. Bates, Hugo Maruri-Aguilar, Eva Riccomagno, Rainer Schwabe, and Henry P. Wynn	37
Weakly Invariant Designs, Rotatable Designs and Polynomial Designs Frédéric Bertrand	49
Geometry of Diagonal-effect Models for Contingency Tables CRISTIANO BOCCI, ENRICO CARLINI, AND FABIO RAPALLO	61
Statistical Topology via Morse Theory Persistence and Nonparametric Estimation Peter Bubenik, Gunnar Carlsson, Peter T. Kim, and Zhi-Ming Luo	75
Convolution Products of Probability Measures on a Compact Semigroup with Applications to Random Measures GREGORY BUDZBAN AND GÖRAN HÖGNÄS	93
Completely Simple Semigroups of Real $d \times d$ Matrices and Recurrent Random Walks SANTANU CHAKRABORTY AND ARUNAVA MUKHERJEA	99
Structural Properties of the Generalized Dirichlet Distributions Wan-Ying Chang, Rameshwar D. Gupta, and Donald St. P. Richards	109
On Qualitative Comparison of Partial Regression Coefficients for Gaussian Graphical Markov Models SANJAY CHAUDHURI AND GUI LIU TAN	125
Geometry of the Restricted Boltzmann Machine María Angélica Cueto, Jason Morton, and Bernd Sturmfels	135

Smoothness of Gaussian Conditional Independence Models MATHIAS DRTON AND HAN XIAO	155
Projections on Invariant Subspaces WERNER EHM	179
A Zero-one Law for Linear Transformations of Lévy Noise STEVEN N. EVANS	189
Connecting Tables with Zero-one Entries by a Subset of a Markov Basis HISAYUKI HARA AND AKIMICHI TAKEMURA	199
Covariance Trees and Wishart Distributions on Cones KSHITIJ KHARE AND BALA RAJARATNAM	215
A Kernel Smoothing Approach to Censored Preference Data PAUL KIDWELL AND GUY LEBANON	225
Combining Statistical Models M. Sofia Massa and Steffen L. Lauritzen	239
Algebraic Statistics for a Directed Random Graph Model with Reciprocation Sonja Petrović, Alessandro Rinaldo, and Stephen E. Fienberg	261
Regular Fractions and Indicator Polynomials GIOVANNI PISTONE AND MARIA PIERA ROGANTIN	285
Dihedral Fourier Analysis Marlos A.G. Viana	305
On a Class of Singular Nonsymmetric Matrices with Nonnegative Integer Spectra	
Tatjana von Rosen and Dietrich von Rosen	319
Some Hypothesis Tests for Wishart Models On Symmetric Cones A. SAEID YASAMIN	327

CONTENTS

vì