

LIST OF PARTICIPANTS

Workshop: Week 3: Statistics in the Health Sciences: Diagnosis and Prediction July 21 – July 25, 1997

John Bartko	University of Maryland (Psychiatric Research Center)
Won-Jae Chang	Seoul National University (Mathematics)
Li Chen	University of Minnesota (Biostatistics)
Ronald Christensen	University of New Mexico (Mathematics & Statistics)
Tim Church	University of Minnesota
Eric Ray Cohen	University of Minnesota (Center for Magnetic Resonance Research)
David Dorr	Washington University -St. Louis (Biology and Biomedical Sciences)
Joseph L. Gastwirth	George Washington University (Statistics)
Mindy Geisser	University of Minnesota (Public Health)
Seymour Geisser	University of Minnesota (Statistics)
Anne Goldman	University of Minnesota (Biostatistics)
Claudia Henschke	Cornell University (Radiology)
Wesley Johnson	University of California-Davis (Statistics)
Karen Kafadar	University of Colorado-Denver (Mathematics)
Daniel Kaplan	Macalester College (Mathematics)
Chap Le	University of Minnesota (Biostatistics)
Sandra Lee	Harvard University (Dana Farber Cancer Institute)
Sharon-Lise Normand	Harvard Medical School (Health Care Policy)
George Papandonatos	SUNY-Buffalo (Statistics)
Giovanni Parmigani	Duke University (Institute of Statistics & Decision Science)
Karen Pettigrew	National Institutes of Health (Mental Health)
Joanna Shih	National Heart, Lung and Blood Institute (Biostatistics Research Branch)
Joe Shih	Merck & Company, Inc. (Biostatistics)
Steven Skates	Harvard University (Department of Medicine)
Jessica Utts	University of California, Davis (Statistics)
Ming-Dauh Wang	University of Minnesota (Statistics)
Rob Weiss	University of California-Los Angeles (Biostatistics School of Public Health)
Janet Wittes	Statistics Collaborative, Inc.
Marvin Zelen	Harvard School of Public Health (Biostatistics)
Daniel Zelterman	Yale University (Biostatistics Division)

IMA SUMMER PROGRAMS

- 1987 Robotics
- 1988 Signal Processing
- 1989 Robust Statistics and Diagnostics
- 1990 Radar and Sonar (June 18 - June 29)
New Directions in Time Series Analysis (July 2 - July 27)
- 1991 Semiconductors
- 1992 Environmental Studies: Mathematical, Computational, and
Statistical Analysis
- 1993 Modeling, Mesh Generation, and Adaptive Numerical Methods
for Partial Differential Equations
- 1994 Molecular Biology
- 1995 Large Scale Optimizations with Applications to Inverse Problems,
Optimal Control and Design, and Molecular and Structural
Optimization
- 1996 Emerging Applications of Number Theory (July 15 – July 26)
Theory of Random Sets (August 22 – August 24)
- 1997 Statistics in the Health Sciences
- 1998 Coding and Cryptography (July 6 – July 18)
Mathematical Modeling in Industry (July 22 – July 31)
- 1999 Decision Making under Uncertainty: Energy and Environmental Models
(July 20-24, 1999)
Codes, Systems and Graphical Models (August 2-13, 1999)

SPRINGER LECTURE NOTES FROM THE IMA:

The Mathematics and Physics of Disordered Media

Editors: Barry Hughes and Barry Ninham
(Lecture Notes in Math., Volume 1035, 1983)

Orienting Polymers

Editor: J.L. Ericksen
(Lecture Notes in Math., Volume 1063, 1984)

New Perspectives in Thermodynamics

Editor: James Serrin
(Springer-Verlag, 1986)

Models of Economic Dynamics

Editor: Hugo Sonnenschein
(Lecture Notes in Econ., Volume 264, 1986)

The IMA Volumes in Mathematics and its Applications

Current Volumes:

- 1 **Homogenization and Effective Moduli of Materials and Media**
J. Ericksen, D. Kinderlehrer, R. Kohn, and J.-L. Lions (eds.)
- 2 **Oscillation Theory, Computation, and Methods of Compensated Compactness** C. Dafermos, J. Ericksen, D. Kinderlehrer, and M. Slemrod (eds.)
- 3 **Metastability and Incompletely Posed Problems**
S. Antman, J. Ericksen, D. Kinderlehrer, and I. Muller (eds.)
- 4 **Dynamical Problems in Continuum Physics**
J. Bona, C. Dafermos, J. Ericksen, and D. Kinderlehrer (eds.)
- 5 **Theory and Applications of Liquid Crystals**
J. Ericksen and D. Kinderlehrer (eds.)
- 6 **Amorphous Polymers and Non-Newtonian Fluids**
C. Dafermos, J. Ericksen, and D. Kinderlehrer (eds.)
- 7 **Random Media** G. Papanicolaou (ed.)
- 8 **Percolation Theory and Ergodic Theory of Infinite Particle Systems** H. Kesten (ed.)
- 9 **Hydrodynamic Behavior and Interacting Particle Systems**
G. Papanicolaou (ed.)
- 10 **Stochastic Differential Systems, Stochastic Control Theory, and Applications** W. Fleming and P.-L. Lions (eds.)
- 11 **Numerical Simulation in Oil Recovery** M.F. Wheeler (ed.)
- 12 **Computational Fluid Dynamics and Reacting Gas Flows**
B. Engquist, M. Luskin, and A. Majda (eds.)
- 13 **Numerical Algorithms for Parallel Computer Architectures**
M.H. Schultz (ed.)
- 14 **Mathematical Aspects of Scientific Software** J.R. Rice (ed.)
- 15 **Mathematical Frontiers in Computational Chemical Physics**
D. Truhlar (ed.)
- 16 **Mathematics in Industrial Problems** A. Friedman
- 17 **Applications of Combinatorics and Graph Theory to the Biological and Social Sciences** F. Roberts (ed.)
- 18 **q -Series and Partitions** D. Stanton (ed.)
- 19 **Invariant Theory and Tableaux** D. Stanton (ed.)
- 20 **Coding Theory and Design Theory Part I: Coding Theory**
D. Ray-Chaudhuri (ed.)
- 21 **Coding Theory and Design Theory Part II: Design Theory**
D. Ray-Chaudhuri (ed.)
- 22 **Signal Processing Part I: Signal Processing Theory**
L. Auslander, F.A. Grünbaum, J.W. Helton, T. Kailath, P. Khargonekar, and S. Mitter (eds.)

- 23 **Signal Processing Part II: Control Theory and Applications of Signal Processing** L. Auslander, F.A. Grünbaum, J.W. Helton, T. Kailath, P. Khargonekar, and S. Mitter (eds.)
- 24 **Mathematics in Industrial Problems, Part 2** A. Friedman
- 25 **Solitons in Physics, Mathematics, and Nonlinear Optics** P.J. Olver and D.H. Sattinger (eds.)
- 26 **Two Phase Flows and Waves** D.D. Joseph and D.G. Schaeffer (eds.)
- 27 **Nonlinear Evolution Equations that Change Type** B.L. Keyfitz and M. Shearer (eds.)
- 28 **Computer Aided Proofs in Analysis** K. Meyer and D. Schmidt (eds.)
- 29 **Multidimensional Hyperbolic Problems and Computations** A. Majda and J. Glimm (eds.)
- 30 **Microlocal Analysis and Nonlinear Waves** M. Beals, R. Melrose, and J. Rauch (eds.)
- 31 **Mathematics in Industrial Problems, Part 3** A. Friedman
- 32 **Radar and Sonar, Part I** R. Blahut, W. Miller, Jr., and C. Wilcox
- 33 **Directions in Robust Statistics and Diagnostics: Part I** W.A. Stahel and S. Weisberg (eds.)
- 34 **Directions in Robust Statistics and Diagnostics: Part II** W.A. Stahel and S. Weisberg (eds.)
- 35 **Dynamical Issues in Combustion Theory** P. Fife, A. Liñán, and F.A. Williams (eds.)
- 36 **Computing and Graphics in Statistics** A. Buja and P. Tukey (eds.)
- 37 **Patterns and Dynamics in Reactive Media** H. Swinney, G. Aris, and D. Aronson (eds.)
- 38 **Mathematics in Industrial Problems, Part 4** A. Friedman
- 39 **Radar and Sonar, Part II** F.A. Grünbaum, M. Bernfeld, and R.E. Blahut (eds.)
- 40 **Nonlinear Phenomena in Atmospheric and Oceanic Sciences** G.F. Carnevale and R.T. Pierrehumbert (eds.)
- 41 **Chaotic Processes in the Geological Sciences** D.A. Yuen (ed.)
- 42 **Partial Differential Equations with Minimal Smoothness and Applications** B. Dahlberg, E. Fabes, R. Fefferman, D. Jerison, C. Kenig, and J. Pipher (eds.)
- 43 **On the Evolution of Phase Boundaries** M.E. Gurtin and G.B. McFadden
- 44 **Twist Mappings and Their Applications** R. McGehee and K.R. Meyer (eds.)
- 45 **New Directions in Time Series Analysis, Part I** D. Brillinger, P. Caines, J. Geweke, E. Parzen, M. Rosenblatt, and M.S. Taqqu (eds.)

- 46 **New Directions in Time Series Analysis, Part II**
D. Brillinger, P. Caines, J. Geweke, E. Parzen, M. Rosenblatt,
and M.S. Taquq (eds.)
- 47 **Degenerate Diffusions**
W.-M. Ni, L.A. Peletier, and J.-L. Vazquez (eds.)
- 48 **Linear Algebra, Markov Chains, and Queueing Models**
C.D. Meyer and R.J. Plemmons (eds.)
- 49 **Mathematics in Industrial Problems, Part 5** A. Friedman
50 **Combinatorial and Graph-Theoretic Problems in Linear Algebra**
R.A. Brualdi, S. Friedland, and V. Klee (eds.)
- 51 **Statistical Thermodynamics and Differential Geometry
of Microstructured Materials**
H.T. Davis and J.C.C. Nitsche (eds.)
- 52 **Shock Induced Transitions and Phase Structures in General
Media** J.E. Dunn, R. Fosdick, and M. Slemrod (eds.)
- 53 **Variational and Free Boundary Problems**
A. Friedman and J. Spruck (eds.)
- 54 **Microstructure and Phase Transitions**
D. Kinderlehrer, R. James, M. Luskin, and J.L. Ericksen (eds.)
- 55 **Turbulence in Fluid Flows: A Dynamical Systems Approach**
G.R. Sell, C. Foias, and R. Temam (eds.)
- 56 **Graph Theory and Sparse Matrix Computation**
A. George, J.R. Gilbert, and J.W.H. Liu (eds.)
- 57 **Mathematics in Industrial Problems, Part 6** A. Friedman
58 **Semiconductors, Part I**
W.M. Coughran, Jr., J. Cole, P. Lloyd, and J. White (eds.)
- 59 **Semiconductors, Part II**
W.M. Coughran, Jr., J. Cole, P. Lloyd, and J. White (eds.)
- 60 **Recent Advances in Iterative Methods**
G. Golub, A. Greenbaum, and M. Luskin (eds.)
- 61 **Free Boundaries in Viscous Flows**
R.A. Brown and S.H. Davis (eds.)
- 62 **Linear Algebra for Control Theory**
P. Van Dooren and B. Wyman (eds.)
- 63 **Hamiltonian Dynamical Systems: History, Theory,
and Applications**
H.S. Dumas, K.R. Meyer, and D.S. Schmidt (eds.)
- 64 **Systems and Control Theory for Power Systems**
J.H. Chow, P.V. Kokotovic, R.J. Thomas (eds.)
- 65 **Mathematical Finance**
M.H.A. Davis, D. Duffie, W.H. Fleming, and S.E. Shreve (eds.)
- 66 **Robust Control Theory** B.A. Francis and P.P. Khargonekar (eds.)
- 67 **Mathematics in Industrial Problems, Part 7** A. Friedman
68 **Flow Control** M.D. Gunzburger (ed.)

- 69 **Linear Algebra for Signal Processing**
A. Bojanczyk and G. Cybenko (eds.)
- 70 **Control and Optimal Design of Distributed Parameter Systems**
J.E. Lagnese, D.L. Russell, and L.W. White (eds.)
- 71 **Stochastic Networks** F.P. Kelly and R.J. Williams (eds.)
- 72 **Discrete Probability and Algorithms**
D. Aldous, P. Diaconis, J. Spencer, and J.M. Steele (eds.)
- 73 **Discrete Event Systems, Manufacturing Systems,
and Communication Networks**
P.R. Kumar and P.P. Varaiya (eds.)
- 74 **Adaptive Control, Filtering, and Signal Processing**
K.J. Åström, G.C. Goodwin, and P.R. Kumar (eds.)
- 75 **Modeling, Mesh Generation, and Adaptive Numerical Methods
for Partial Differential Equations** I. Babuska, J.E. Flaherty,
W.D. Henshaw, J.E. Hopcroft, J.E. Oliger, and T. Tezduyar (eds.)
- 76 **Random Discrete Structures** D. Aldous and R. Pemantle (eds.)
- 77 **Nonlinear Stochastic PDEs: Hydrodynamic Limit and Burgers'
Turbulence** T. Funaki and W.A. Woyczynski (eds.)
- 78 **Nonsmooth Analysis and Geometric Methods in Deterministic
Optimal Control** B.S. Mordukhovich and H.J. Sussmann (eds.)
- 79 **Environmental Studies: Mathematical, Computational,
and Statistical Analysis** M.F. Wheeler (ed.)
- 80 **Image Models (and their Speech Model Cousins)**
S.E. Levinson and L. Shepp (eds.)
- 81 **Genetic Mapping and DNA Sequencing**
T. Speed and M.S. Waterman (eds.)
- 82 **Mathematical Approaches to Biomolecular Structure and Dynamics**
J.P. Mesirov, K. Schulten, and D. Sumners (eds.)
- 83 **Mathematics in Industrial Problems, Part 8** A. Friedman
- 84 **Classical and Modern Branching Processes**
K.B. Athreya and P. Jagers (eds.)
- 85 **Stochastic Models in Geosystems**
S.A. Molchanov and W.A. Woyczynski (eds.)
- 86 **Computational Wave Propagation**
B. Engquist and G.A. Kriegsmann (eds.)
- 87 **Progress in Population Genetics and Human Evolution**
P. Donnelly and S. Tavaré (eds.)
- 88 **Mathematics in Industrial Problems, Part 9** A. Friedman
- 89 **Multiparticle Quantum Scattering With Applications to Nuclear,
Atomic and Molecular Physics** D.G. Truhlar and B. Simon (eds.)
- 90 **Inverse Problems in Wave Propagation** G. Chavent, G. Papanicolau,
P. Sacks, and W.W. Symes (eds.)
- 91 **Singularities and Oscillations** J. Rauch and M. Taylor (eds.)

- 92 **Large-Scale Optimization with Applications, Part I: Optimization in Inverse Problems and Design**
L.T. Biegler, T.F. Coleman, A.R. Conn, and F. Santosa (eds.)
- 93 **Large-Scale Optimization with Applications, Part II: Optimal Design and Control**
L.T. Biegler, T.F. Coleman, A.R. Conn, and F. Santosa (eds.)
- 94 **Large-Scale Optimization with Applications, Part III: Molecular Structure and Optimization**
L.T. Biegler, T.F. Coleman, A.R. Conn, and F. Santosa (eds.)
- 95 **Quasiclassical Methods**
J. Rauch and B. Simon (eds.)
- 96 **Wave Propagation in Complex Media**
G. Papanicolaou (ed.)
- 97 **Random Sets: Theory and Applications**
J. Goutsias, R.P.S. Mahler, and H.T. Nguyen (eds.)
- 98 **Particulate Flows: Processing and Rheology**
D.A. Drew, D.D. Joseph, and S.L. Passman (eds.)
- 99 **Mathematics of Multiscale Materials** K.M. Golden, G.R. Grimmett, R.D. James, G.W. Milton, and P.N. Sen (eds.)
- 100 **Mathematics in Industrial Problems, Part 10** A. Friedman
- 101 **Nonlinear Optical Materials** J.V. Moloney (ed.)
- 102 **Numerical Methods for Polymeric Systems** S.G. Whittington (ed.)
- 103 **Topology and Geometry in Polymer Science** S.G. Whittington, D. Sumners, and T. Lodge (eds.)
- 104 **Essays on Mathematical Robotics** J. Baillieul, S.S. Sastry, and H.J. Sussmann (eds.)
- 105 **Algorithms For Parallel Processing** M.T. Heath, A. Ranade, and R.S. Schreiber (eds.)
- 106 **Parallel Processing of Discrete Problems** P.M. Pardalos (ed.)
- 107 **The Mathematics of Information Coding, Extraction, and Distribution** G. Cybenko, D.P. O'Leary, and J. Rissanen (eds.)
- 108 **Rational Drug Design** D.G. Truhlar, W. Howe, A.J. Hopfinger, J. Blaney, and R.A. Dammkoehler (eds.)
- 109 **Emerging Applications of Number Theory** D.A. Hejhal, J. Friedman, M.C. Gutzwiller, and A.M. Odlyzko (eds.)
- 110 **Computational Radiology and Imaging: Therapy and Diagnostics** C. Börgers and F. Natterer (eds.)
- 111 **Evolutionary Algorithms** L.D. Davis, K. DeJong, M.D. Vose, and L.D. Whitley (eds.)
- 112 **Statistics in Genetics** M.E. Halloran and S. Geisser (eds.)
- 113 **Grid Generation and Adaptive Algorithms** M.W. Bern, J.E. Flaherty, M. Luskin (eds.)
- 114 **Diagnosis and Prediction** S. Geisser (ed.)
- 115 **Pattern Formation in Continuous and Coupled Systems: A Survey Volume** M. Golubitsky, D. Luss, S.H. Strogatz (eds.)

FORTHCOMING VOLUMES

1992–1992: *Control Theory*
Robotics

1996 Summer Program: *Emerging Applications of Number Theory*

1996–1997: *Mathematics in High Performance Computing*
Algorithms for Parallel Processing
Evolutionary Algorithms
The Mathematics of Information Coding, Extraction and Distribution
Structured Adaptive Mesh Refinement Grid Methods
Computational Radiology and Imaging: Therapy and Diagnostics
Mathematical and Computational Issues in Drug Design
Rational Drug Design
Grid Generation and Adaptive Algorithms
Parallel Solution of Partial Differential Equations

1997 Summer Program: *Statistics in the Health Sciences*
Week 1: Genetics
Week 2: Imaging
Week 3: Diagnosis and Prediction
Weeks 4 and 5: Design and Analysis of Clinical Trials
Week 6: Statistics and Epidemiology: Environment and Health

1997–1998: *Emerging Applications for Dynamical Systems*
Numerical Methods for Bifurcation Problems
Multiple-time-scale Dynamical Systems
Dynamics of Algorithms