RESEÑAS / BOOK REVIEW

ONE-DIMENSIONAL FUNCTIONAL EQUATIONS

G. Belitskii and V. Tkachenko (2003)
Birkhäuser Verlag Operator Theory. Advances and Applications Vol. 144
ISBN 3-7643-0084-1 xiv+206

The book develops a study of the solvability of functional equations with domain in the real line or the unit circle. Some particular cases are studied: The implicit function (Chapter 1), Abel and Scröder equation (Chapter 2), $\varphi(F(x)) - g(x,\varphi(x))$, (Chapter 3), $[g(x,\varphi(x((, \varphi(F_1(x)),..., \varphi(F_n(x)] = 0$ (Chapter 4) and $\sum_{k=1}^{m} a_k(x)\varphi(x)$, (Chapter 5).

The importance of this book is in its presentation of the modeling of dynamical systems. Modernly fixed-point theory is a basic tool in many applications. See for example Mathematical Economics. The connection between local and global solvability is the conducting stream of the contents of the book.

The authors present different methods in function of local mapping, glueing of local solution and decomposition. Their use in dynamical systems differential equations probability and related areas makes the theme important enough. |Mathematicians, engineers and economist will obtain a good insight in interesting themes.

Samir Khan
Business and Administration College

SPECTRAL THEORY OF LINEAR OPERATORS AND SPECTRAL SYSTEMS IN BANACH ALGEBRAS

V. Müller (2003)
Birkhäuser Verlag Operator Theory. Advances and Applications Vol. 139
ISBN 3-7643-6912 x+378

This book presents a unified treatment of linear operators in Banach algebras from a spectral theory point of view. The first three chapters present the basics on Banish Algebra's, operators and Essential Spectrum (Fredholm, semi Fredholm, Browder and Kato). Chapter 4 is devoted to Taylor spectrum. It is remarkable the treatment of the stability index of complexes. The last chapter reviews the most important results on orbits and capacity. Attached to the last two chapters there are comments.

An appendix brings basic results on Banach spaces, vector valued functions, C^{∞} and set-valued functions.

Though the author claims for 'elementarily' the reader must be an expert in mathematics for dealing with the contents. It is well written and I recommend it.

Stephen M. Katz
INMAT-Matemática

MIKROÖCONOMIK

Harald Wiesse (2003)
Springer Verlag
ISBN 3-540-43485-2 xx-455

We should consider this ouvre as a tool book and is composed of 5 chapters. They treat Game Theory, different economic models and related topics. It is adequate for teaching for German speakers.

J. Scheneweiss
IEEC

INTRODUCTION TO STOCHASTIC SEARCH AND OPTIMIZATION. ESTIMATION, SIMULATION AND CONTROL

J.C. Spall (2003)

Wiley Interscience Series in Discrete Mathematics and Optimization

This book presents the notes of graduate courses taught by the author in the theme. His experience is transmitted also in some recommendations for the possible structuration of courses on Stochastic Optimization and on Simulation and Monte Carlo Methods.

Chapters 1-11 constitute a cluster, where the main algorithms used in stochastic search are discussed. In the first chapter a background is given (global search vs. local search, gradients, Hessians, Steepest Descent, Newton Raphson methods). The second chapter introduces different search methods for optimization and the third chapter presents discrete search linear models where the loss function $L(\theta)$ is a quadratic function of θ. The 5^{th} Chapter tackles root finding in non-linear models (Robbins-Moro stochastic approximation [SA] search) when direct unbiased measurements of the gradient are available. In Chapter 6 a sensible change is introduced: the stochastic gradient is not available. Then, when we look for the minimisation of $L(\theta)$ the optimisation is performed using only its measurements (gradient free methods). Chapter 7 completes the basics on SA by presenting a method that is usable both for stochastic gradient and gradient –free settings (simultaneous perturbation SA). Chapter 8 presents a broad discussion on Simulated Annealing Algorithms (SAA). Metropolis methods based on Boltzman-Gibbs distribution are studied and the Markov Chain based justification of its convergence is discussed. An important addition to current results is the discussion of the role of the injection of random inputs in the basic SA procedures (studied through chapters 4- 7) to derive global optima. The stochastic rates of convergence are analysed using the results of G. Yin (1999, SIAM. J. of Optimization, vol. 10), and S. Gelfand & S.K. Metter (1993, SIAM J. of Control and Optimization, vol. 31). The fact that evolutionary computation permits to develop computational abstraction of natural processes is analysed in the next two chapters. Chapter 9 is devoted to the classic computational counterpart of a biological process: Genetic Algorithms (GA). The next one is devoted to the discussion of the general theory. We may quote that Chapter 9 follows a pattern similar to previous chapters when GA is presented as a particular approach to global optimization. The method is not only studied but characterised historically and in terms of its non convergence, see Theorem 3 and 4 of G. Rudolph (1994, IEE Trans. On Neural Network, vol. 5). The way of studying the non convergence or convergence of a particular algorithm is illustrated with two excellent examples. Chapter 11 discusses the delayed reinforcement problem and connects learning with the idea of temporal differences. It is applied to parameter estimation and implementation (batch and online cases). Temporal differential algorithms are also analysed. They are able to use prior information, present in the model, for obtaining improved predictions. Then the basic algorithm connection with stochastic gradient algorithm or stochastic approximation is discussed. Some examples of the connection to root-finding stochastic approximation are also discussed.

Chapters 12 and 13 deal with statistical models. The fist of them displays a set of statistical models for establishing the admissibility of the quality of options, based on a loss function, characterised by a finite set of parameters. Some of them are sequential methods. The other chapter focuses on the determination of an adequate model to be used to describe a set of data. Three main approaches are considered: Bias-variance trade-off, (as in portfolio selection), Cross validation (as in multivariate analysis) and the use of the Information Matrix-resampling. Chapter 17 return to statistics and the recommendability of some optimal designs of experiments is analysed.

Chapters 14-16 visit Monte Carlo (MC) Simulation theory: model building, validation, gradient-based methods, Markov Chains. The role of MC methods in Bayesian analysis is discussed together with Metropolis-Hastings and Gibbs samplers.

Five appendixes content the results needed if you are a beginner: Multivariate Analysis, Hypothesis Testing, Probability Theory, Random Numbers Generation and Markov Processes.

The book discusses the theoretical basis of the algorithms avoiding large proofs and placing the references where they can be obtained. A large set of worked out examples is included for illustrating the results. More than 300 references are listed and a web site is disposable for obtaining extra information and computation codes.

I consider that an outstanding feature of the book is its successful synthesis and the direct applicability of computer algorithms. I warmly recommend it for those specialists involved with a work on optimization.

C.N. Bouza
Universidad de La Habana.

MEASURES OF INTEROBSERVER AGREEMENT

M. Shoukri (2003)
Chapman and Hall/CRC
ISBN 10584880321-9 xi+224

This book presents a detailed discussion of common methods used in the measurement of inter-observer agreement. This is an important issue in many areas of the Social Sciences, Biology, Economy, Medicine, etc. The existence of inconsistencies among the experts and methods is the subject of study of agreement models. They look for objetivizing calibration, expertise and subjectivism. The readers will obtain the necessary knowledge on this matter in the book: reduce measurement errors, rank experts. Rank methods against a 'gold rule', to asses agreement etc. The mathematics is maintained at a minimum, which is High School calculus.

SAS codes are provided for problem solving.

Swaty N. Roy
Smith and King College

ESTADÍSTICA: TEORÍA BÁSICA Y EJERCICIOS

C.N. Bouza Herrera y V. Sistachs Vega (2002)
Editorial Félix Varela
ISBN 959-258-373-0 ix+406

Este es un libro de texto diseñado para estudiantes de carreras de perfil no matemático. Es un texto clásico, cubriendo los principales tópicos que debe conocer alguien que debe usar la estadística en su vida profesional. Cubre los temas de Estadística Descriptiva e Inferencial tras hacer una exposición de los elementos probabilísticos indispensables. Los capítulos dedicados al desarrollo de métodos representan mas del 50 % del contenido: análisis de varianza Correlación y Regresión, Métodos No Paramétricos y Análisis Multivariado. El capítulo de métodos no paramétricos es muy amplio y ofrece una visión muy completa del tema. Es recomendable su uso como complemento en cursos más especializados.

Un grupo de ejercicios resueltos acompaña la exposición de cada idea método o modelo. Una amplia batería de ejercicios es propuesta en cada capítulo.

Es recomendable su uso como texto en cursos de estadística aplicada.

Nadia Cruz
INMAT-Biometría

MATHEMATICAL METHODS IN ECONOMICS AND SOCIAL CHOICE

Norman Schofield (2003)
Mathematical Methods in Economics ad social choice
Springer Verlag
ISBN 3-5-40-0086 xii+300

This book goes into the stream of Mathematical Economy. It introduces the main ideas at a comprehensive level for Msc. students without concession to the mathematical formalisms. The needed geometrical topological concepts are presented. The qualitative aspects of the behavior in economics, politics are presented at an accessible level for non-mathematicians.

J.G.H. Mitra
Smith and King College

MARKET GAMES AND ORGANIZATIONS (ESSAYS IN HONOR OF ROY RADNER)

Tatsuro Ichiishi and Thomas Marshak ,Editors. (2003)
Springer Verlag
ISBN 3-540-43897-1 vi+314

A set of experts wrote essays related with the work of Roy Radner. They considered equilibrium analysis of markets, transition economies, organization and resource allocation, normative optimum criteria, games and other connected different themes.

Anita Wang
Brouque Consultors S.A.

News/Anuncios

CONFERENCE AND PLACE/CONFERENCIA Y LUGAR	DATE AND CONTACTS/FECHA Y CONTACTOS
14th International Conference on Automated Planning & Scheduling Whistler, British Columbia, Canada	June 3-7, 2004 http://icaps04.icaps-conference.org/
II Congreso Nacional de Ciencias Básicas como soporte de Ingenieria y Arquitectura Universidad César Vallejo, Trujillo, Perú	25-27 June, 2004 bulloa@ucv.edu.pe
II Congreso Latino Americano de Matemáticos Cancún, México	20 y 26 de Junio del 2004 http://www.matmor.unam.mx/eventos/latino/default.html
Multi-Echelon / MSOM 2004 Eindhoven, the Netherlands	June 30 - July 2, 2004 http://www.tm.tue.nl/opc/msom2004
40th Workshop: Large Scale Nonlinear Optimization Erice, Italy	June 22 - July 1, 2004 http://www.dis.uniroma1.it/~erice2004 erice2004@dis.uniroma1.it
24th International Symposium on Forecasting Sidney, Australia	July 04 – 07, 2004 isf2004@unsw.edu.au
XXII EURO Summer Institute EURO Middle East Technical University (METU) Ankara,Turkey	July 9 -25, 2004. http://www.euro-online.org/display.php?page=institutes& http://www.iam.metu.edu.tr/esi04/index.html
2nd International Conference on Computing, Communication and Control Technologies Austin, Texas, USA (Silicon Hills	August 14-17, 2004 http://www.utexas.edu
New Directions in Probability Theory Toronto, Canada	August 06 - 07, 2004 www.imstat.org/meetings/
2004 Joint Statistical Meetings Toronto (Ontario), Canada	8-12 August, 2004 L. Minor (meetings@amstat.org)
Latin-American Conference on Combinatorics, Graphs and Applications Santiago, Chile	16-20 August, 2004 http://www.dii.uchile.cl/~lacga04/ lacga04@dii.uchile.cl
Thirteenth International Workshop on Matrices and Statistics Bedlewo, Poland	August 18 –21, 2004. amark@owl.au.poznan.pl
COMPSTAT 2004, 16th Symposium Prague, Czech Republic	24-27 August, 2004 http://compstat2004.cuni.cz compstat2004@cni.cz
Int. Workshop Session at ISDA'04 - 4th International and Conference on Intelligent Systems, Design and Applications Budapest, Hungary	August 26-28, 2004 Vitorino Ramos (CVRM- IST, Technical University of Lisbon) vitorino.ramos@alfa.ist.utl.pt
(**IPC) for the IASTED International Conference on Artificial Intelligence and Soft Computing (ASC)** Marbella, Spain	September 1- September 3, 2004. http://www.iasted.org/
2nd International Conference on Soft Methods in Probability and Statistics Oviedo, Spain	September 02 – 04, 2004 HTTP://web.uniovi.es/SMPS

3rd Argentinean Informatic and Operations Research Workshop	September 20, 2004 cazcona@eco.unc.edu.ar
Statistics - Investment in the Future Prague, Czech Republic	September 06 – 07, 2004 www.czso.cz/conference2004
Fourth International Conference on Applied Mathematics (ICAM4) Baia Mare - Suior , Romania,	September 23-26, 2004 http://www.ubm.ro/site-ro/facultati/departament/manifestari/icam4/index.html.
Modelling and Control for Participatory Planning and Managing Water Systems Venice, Italy	September 29- the 1st October, 2004. http://www.elet.polimi.it/IFAC_TC_Environment/Venice2004
XII Conferencia Latino Iberoamericana de Investigación Operacional (CLAIO) Ciudad Habana, Cuba	4-8 October, 2004. sira@matcom.uh.cu
International Conference on the Future of Statistical Theory Hyderabad, India	December 29, 2004 - January 01, 2005
INFORMS Computing Society Conference Annapolis, MD , USA	January 5- 7, 2005 http://www.informs.org/
Second International IMS/ISBA Joint Meeting **The Past, Present, and Future of Gibbs Sampling** Bormio, Italy (Italian Alps)	January 12-14, 2005 http://alien.eco.uninsubria.it/IMS-ISBA-05/
The International Symposium on Stochastic Models in Reliability, Safety, Security and Logistics Beer Sheva, Israel	February 16 – 18, 2005 HTTP://www.nace.ac.il
55th Session of the International Statistical Institute Sydney, Australia Includes the meetings of the Bernoulli Society, International Association for Statistical Computing, International Association of Survey Statisticians, International Association of Official Statistics and the International Association for Statistical Education)	5-12 April, 2005 A. Harris (annette.harris@abs.gov.au; isi-2005@tourthosts.com.au
Gini Lorenz Conference Siena, Italy	May 23 –26, 2005 ginilorenz05@unisi.it
INFORMS Marketing Science Conference Atlanta, GA. USA.	June 16- 19, 2005 http://www.informs.org/
22nd IFIP TC 7 Conference on System Modeling and Optimization Turin, Italy	July 18-22, 2005 http://www.polito.it/ifip2005
17th Triennial Conference of the International Federation of Operational Research Societies 2005 Honolulu, Hawaii. USA.	July 11 -15, 2005 http://www.informs.org
25th European Meeting of Statisticians Oslo, Norway	July 24 – 28, 2005 HTTP://www.ems2005.no
Annual Meeting of the Statistical Society of Canada Saskatoon, Sasketchewan, Canada	Sometime in the Summer of 2005 www.ssc.ca
INFORMS Annual Meeting, New Orleans 2005 New Orleans, Louisiana USA	November 13 - 16, 2005 http://www.informs.org
Winter Simulation Conference 2005 Orlando, FL. USA	December 4-7, 2005 http://www.informs.org
International Congress of Mathematicians	August 22-30, 2006

Palacio Municipal de Congresos de Madrid Madrid, Spain	http://www.icm2006.org/ icm2006@unicongress.com Carlos Andradas & Manuel de Leon
IAOS Conference 2006 Amman, Jordan	Sometime in the Spring or Sumer 2006 http:/www.singstat.gov.sg/IAOS/index.html
2006 Joint Statistical Meetings Seattle, Washington. To be held at the Seattle Convention Center.	August 6-10, 2006 meetings@amstat.org
2007 Joint Statistical Meetings Salt Lake City, Utah. To be held at the Salt Palace Convention Center	July 29 - August 2, 2007 meetings@amstat.org
2008 Joint Statistical Meetings Denver, Colorado. To be held at the Denver Convention Center.	August 3-7, 2008, meetings@amstat.org
2009 Joint Statistical Meetings Washington, DC. To be held at the Washington Convention Center.	August 2-6, 2009 meetings@amstat.org