B O O K R E V I E W S

THE MAZ'YA ANNIVERSARY COLLECTION BIRKÄUSER

Birkäuser Verlag gives us again the possibility to encounter the work of a major mathematician of the XXth Century. This time, Birkhauser's collection on "Operator Theory Advances and Applications" devotes volumes 109 and 110 to honour Professor Vladimir Maz'ya on his 60th anniversary.

Vladimir Maz'ya is the autor and co-author of many publications, the topics of which extend from functional análisis, function theory and numerical análisis to partial differential equations and their broad applications.

Maz'ya provided significant contributions, among other to the theory of Sobolev Space, tha capacity theory, boundary integral methods, qualitative and asymptotic methods of análisis of linear and nonlinear elliptic differential equations, the Cauchy problem for ellipotic and hyperbolic equations, the theory of multipliers in spaces of differentiable functions, maximum principles for elliptic and parabolic system, and boundary value problem iun domains with piecewise smooth bopundaries.

V. G. Maz'ya scientific commitment and creativity has influenced both his colleagues throughout the world and his research students. He is a master of crating a School of thought, and many young mathematicians owe their graduation to him.

The first volume of "The Maz'ya Anniversary Collection", on Maz'ya work in functional analysis, partial differential equations and applications, contains a survey on his work in fields on mathematics where he made essential contributions.

Other papers of this volume have their origen in the joint work with Maz'ya. Outstanding matheticians dedicate their paper to different contributions of Maz'ya: G. Wildenhaim, I. Gohberg, L. I. Hedberg, N. G. Kuznetsov, B. R. Vainberg,. J. Elschner, J. Rossmann, V. Havin, G. Schmidt, R. Cooke, A. Grigoryan, T. Shaposhnikova, V. A. Koslov, S. Poborchi, A. Morchan, J. Aslund, A. Kozhevnikov, A. Solokiev, S. Eilertsen, G. Kresin and M. Langer.

The second volume contains a collection of articles dedicates to V.G. Maz'ya on the occasion of his 60th birthday. It contains most of the invited lñectures of the Conference on Functional Analysis, Partial Differential Equation and Applications held in Rostock in September 1998 in honor of V. G. Maz'ya. Here different problems of functional analysis, potential theory, linear and nonlinear partial differential equations, theory of functions space and numerical analysis are treated. The authors, who are outstanding expedrts in these fields, present surveys as well as new results.

Among principal contributions to this volume figure: D. R. Adams, B. Alzyari, J. Fleckinger, P. Takác, H. Ammari, J. C. Nédélec, V. V. Chepyzhov, M. I. Vishik, E. B. Davies, E: B. Dynkin, S. E. Kuznetsov, D. Edmunds, H. Triebel, T. Ehrhardt, B. Silvermann, D: Elton, D. Vasiliev, L. E. Fraenkel, G. Hsiao, E. Schnack, W. L. Wenland, V., Kondrat'ev, M. Shubin, A. Laptev, E. Meister, A., Passow, K. Rottbrand, P. E. Ricci, Tu. Safarov, W. Sickel, I. E. Verbitsky and T. Weidl.

Both volumes were edited by Jünger Rossmann, Peter Takác and Günter Wildenhaim.

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A PROBABILITY PATH

Sydney I. Resnick
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Contents:

As the impact of probability theory increases in so diverse applied fields as engineering, finance, biology and sociology, to mention but a few, more students that are not mathematicians need to achieve a deep knowledge of advances, measure theoretic probability. This is specially true for those students oriented towards future scientific research. Because they will require a sound understanding of the probability techniques applied in the modern scientific literature in order to contribute to the development of new ones.

This book is intended to aid to fulfill this need. In contrast wit elementary textbooks oriented towards non-mathematicians and middle-level mathematical textbook, the exposition starts with a modern presentation of the foundation of measure theory that covers measurable structures and extensions theorems in great generality. This book also differs from classic and current probability texts written by mathematicians in that it follows a detailed, step by step presentation of the material with abundant pedagogical comments, motivating discussions and clarifying examples. A large number of exercises are included at the end of each chapter, which constitute a valuable part of the book. Indications are given for the organization of a one-semester course providing the essentials. This covers the heart of the book, namely the different modes of convergence which lead to the laws of large numbers, convergence in distribution and central limit theorems for random variables with values in finite-dimensional Euclidean spaces (chapters 6-9).

In spite of sporadic excursions in finance and operational research, the potential reader should be warned that this book does not provide a guide to learn current models and techniques of applied probability in some specific fields. The examples and exercises are oriented towards the mathematical comprehension of general probability concepts, not towards modeling, simulation, numerical analysis or probabilistic interpretation of common practical situations. In this sense, this is not a book on applied probability but on fundamentals, that is, an introductory measure-theoretic probability textbook. Also, in spite of the first two chapters on abstract measure theory and the last chapter on martingales, it does not offer the essentials about the theory of stochastic processes. The reader interested in the basics of this topic should consult additional, specialized literature.

Surprisingly, the concept of conditional expectation is postponed to the last chapter on (discrete-time) martingales, Surely, many teachers would like to introduce this concept early in the course, due to its basic role both in theory and applications.

Other similar suggestions about variants in the organization and balance of the contents will probability be made by different teachers, depending on personal taste and foreseen students. But, in any case, this book can be recommended as a nive additional, valuable aid for an increasingly important and far from simple task-namely, teaching advanced, modern probability theory to non-mathematicians.

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