is the derivation of identities for sums of squares of orthogonal polynomials. These generalize the well-known trigonometric identity $\cos^2 x + \sin^2 x = 1$ and have applications in mathematical physics. As a final application in this chapter, a generalization of the classical Chebyshev approximation problem

$$\min_{a_i} \sup_{x \in [-1, 1]} \left| x^m - \sum_{j=0}^{m-1} a_j x_j \right|,$$

which investigates the best approximation of x^m (with respect to the sup-norm on the interval $[-1, 1]$) by polynomials of degree $m-1$, is considered. A new proof is presented of the fact that the best polynomial $x^m - \sum_{j=0}^{m-1} a_j x^j$ is given by $2^{-m+1} T_m(x)$, where $T_m(x)$ is the Chebyshev polynomial of the first kind. This proof is based on a game-theoretic argument and the theory of canonical moments.

Chapter 8 deals with the relationship between canonical moments, birth and death chains and orthogonal polynomials. Finally in Chapter 10, two other problems are studied: Bayesian estimation of a binomial probability and the asymptotic distribution of random moment sequences.

This volume clearly illustrates the powerful mathematical role of canonical moments and their beautiful application in statistics, probability, and analysis. The book is well written, well presented, easy to read, and with a lot of clear examples. The bibliography offers a very complete overview of the relevant literature. It can be recommended to anyone who is interested in moment theory and wants to learn, in a limited time, basic things about canonical moments and their applications.

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Proceedings

General Inequalities 7, C. Bandle, W. N. Everitt, L. Losonczi, and W. Walter, Eds., International Series of Numerical Mathematics **123**, Birkhäuser Verlag, Basel, 1997, xii + 404 pp.

Since 1976 there have been several meetings at Oberwolfach (Germany) regarding *General Inequalities*. The present volume contains the proceedings of the seventh meeting held in 1995. According to the list of participants there were 51 people attending this meeting. The material in this book is arranged in seven chapters, which are: Inequalities in Analysis; Inequalities for Matrices and Discrete Problems; Inequalities for Eigenvalue Problems; Inequalities for Differential Operators Convexity; Inequalities in

Functional Analysis and Functional Equations; Applications, Problems, and Remarks. Each chapter contains four or five contributions containing the latest results presented by the participants.

ARTICLE NO. AT983297

Topics in Interpolation Theory, H. Dym, B. Fritzsche, V. Katsnelson, and B. Kirstein, Eds., Operator Theory Advances and Applications **95**, Birkhäuser, Basel, 1997, xxii + 494 pp.

In August 1994 a workshop *Recent Developments in Schur Analysis* was held at the University of Leipzig, Germany, in Honor of Vladimir Petrovich Potapov who would have been 80 years old then. About one half of the material in this book is based on lectures presented at this workshop. In addition to this there is some historical material based on reminiscences of former colleagues, students and associates of Potapov, translations of a number of important papers clarifying Potapov's approach to problems of interpolation and extension, and two expository papers especially written for this volume. The technical papers can be grouped into six categories: multiplicative decompositions, fundamental matrix inequalities, canonical systems of differential equations, the abstract interpolation problem, spaces with an indefinite metric, and other directions.

ARTICLE NO. AT983298

Multivariate Approximation and Splines, G. Nürnberger, J. W. Schmidt, G. Walz, Eds., International Series of Numerical Mathematics **125**, Birkhäuser, Basel, 1997, x + 324 pp.

An international conference on *Multivariate Approximation and Splines* was held in Mannheim, Germany, in September 1996. This book contains 24 refereed papers which were presented at this conference. It was the aim of the conference to give an overview of recent developments in multivariate approximation with special emphasis on spline methods. Some of the topics covered are: data fitting, approximation, interpolation, splines, radial basis functions, neural networks, computer aided design methods, subdivision algorithms, and wavelets.

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