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Kapitel: Approximations et développements en série

Équations aux différences finies, équations fonctionnelles

V. LAKSHMIKANTHAM, Donato TRIGIANTE. — **Theory of difference equations: numerical methods and applications.** — Second edition. — Pure and applied mathematics, vol. 251. — Un vol. relié, 26×18, de v, 300 p. — ISBN 0-8247-0803-2. — Prix: US$150.00. — Marcel Dekker, New York, 2002.

This text provides a clear and comprehensive overview of the fundamental theories, numerical methods, and iterative processes encountered in difference calculus and explores classical problems such as orthogonal polynomials, the Euclidean algorithm, roots of polynomials, and well-conditioning — presenting practical applications in fields such as economics, chemistry, population dynamics, and queueing theory. Containing numerous end-of-chapter examples and solved equations to highlight key mathematical concepts, this book demonstrates the versatility of difference equations with numerous models and real-world examples... offers a unified treatment of stability theory using Liapunov functions and comparison techniques... examines the relationships between difference equations and linear algebra, number theory, and population dynamics...summarizes useful methods to solve difference equations with constant coefficients... stresses the importance of difference equations in numerical analysis and combinatorics... discusses the Pascal matrix and its properties... and analyzes the Gaussian arithmetic-geometric mean.

Approximations et développements en série

Q.I. RAHMAN, G. SCHMEISSER. — **Analytic theory of polynomials.** — London Mathematical Society monographs. New series, vol. 26. — Un vol. relié, 16,5×24, de XIV, 742 p. — ISBN 0-19-853493-0. — Prix: €90.00. — Clarendon Press, Oxford, 2002.

This book presents easy to understand proofs of some of the most difficult results about polynomials demonstrated by means of applications. Readership: Professional and academic mathematicians of complex analysis, approximation theory and theoretical numerical analysis, graduate students in mathematics, engineers, statisticians and theoretical physicists. — *Contents:* Introduction. — Part 1, Critical points in terms of zeros: Fundamental results on critical points. More sophisticated methods. More specific results on critical points. Applications to compositions of polynomials. Polynomials with real zeros. Conjectures and solutions. — Part 2, Zeros in terms of coefficients: Inclusion of all zeros. Inclusion of some of the zeros. Number of zeros in an interval. Number of zeros in a domain. — Part 3, Extremal properties: Growth estimates. Mean values. Derivative estimates on the unit disc. Derivative estimates on the unit interval. Coefficient estimates.

Analyse de Fourier, analyse harmonique abstraite

Agostino ABBATE, Casimer M. DECUSATIS, Pankaj K. DAS. — **Wavelets and subbands: fundamentals and applications.** — Applied and numerical harmonic analysis. — Un vol. relié, 16×24, de XIV, 551 p. — ISBN 0-8176-4136-X (Boston), 3-7643-4136-X (Basel). — Prix: SFr. 158.00. — Birkhäuser, Boston, 2002.

The book is designed to present an understanding of wavelets and their development from a continuous-domain transformation to a frame representation and finally to multiresolution analysis tools such as subband decomposition. — *Topics and features:* provides an understanding of the link between the continuous wavelet transform, the fast wavelet transform, and subband