Advanced Problems in Constructive Approximation

3rd International Dortmund Meeting on Approximation Theory (IDoMAT) 2001

Edited by

M.D. Buhmann
D.H. Mache
# Table of Contents

Preface .......................................................... vii

List of Participants ........................................... ix

Linear Perturbations of the Classical Orthogonal Polynomials which are Eigenfunctions of Linear Differential Operators

*Herman Bavinck* .................................................. 1

(0,1) Pál-type Interpolation: A General Method for Regularity

*Marcel G. de Bruin and Detlef H. Mache* ...................... 21

De la Vallée Poussin Means for the Hankel Transform

*Wolfgang zu Castell and Frank Filbir* ......................... 27

Polynomial Bases on the Sphere

*Noemi Laín Fernández* ......................................... 39

A Shooting Method for Symbolic Computation of Splines

*Christoph Fredebeul* ........................................... 53

Error Estimates for the Caratheodory-Fejér Method in Polynomial Approximation

*Manfred Hollenhorst* .......................................... 63

Shape Preserving Widths of Weighted Sobolev-Type Classes

*V. N. Konovalov and Dany Leviatan* .......................... 79

On Approximation Methods by Using Orthogonal Polynomial Expansions

*Rupert Lasser, Detlef H. Mache and Josef Obermaier* ....... 95
Curious $q$-Series as Counterexamples in Padé Approximation
   Doron S. Lubinsky .................................................. 109

On the Degree of Approximation in Multivariate Weighted Approximation
   Hrushikesh N. Mhaskar ............................................. 129

Semigroups Associated to Mache Operators
   Ioan Rasa .............................................................. 143

A Survey on Lagrange Interpolation Based on Equally Spaced Nodes
   Michael Revers ...................................................... 153

Multiresolution Analysis with Pulses
   Carl H. Rohwer ...................................................... 165

$H$-Splines and Quasi-interpolants on a Three Directional Mesh
   Paul Sablonniere ................................................... 187

Approximation by Positive Definite Kernels
   Robert Schaback and Holger Wendland ......................... 203

Inequalities for Polynomials With Weights Having Infinitely many Zeros on the Real Line
   Joseph Szabados .................................................... 223

Some Erdős-type Convergence Processes in Weighted Interpolation
   László Szilí and Péter Vértesi .................................. 237

Absolute Continuity of Spectral Measure for Certain Unbounded Jacobi Matrices
   Ryszard Szwarc ..................................................... 255

Approximation on Compact Subsets of $R$
   Vilmos Totik ......................................................... 263