

C O N T E N T S

P l e n a r y l e c t u r e s

AXELSSON O.: A priori bounds and discretization error estimates for parabolic problems	8
DOUGLAS J. Jr.: Three models for waterflooding in a naturally fractured petroleum reservoir	19
FEISTAUER M., ŽENÍŠEK A.: Finite element variational crimes in nonlinear elliptic problems	28
FOLTA J.: Notes on the history of numerical analysis in its connections with Prague	36
GODUNOV S. K.: A survey of convergence criteria of orthogonal power processes	51
HACKBUSCH W.: A new multi-grid method	59
NEČAS J.: Finite element approach to the transonic flow problem	70
PARTER S. V.: Remarks on the solution of Toeplitz systems of equations	75
TICHONOV A. N.: On problems with inaccurate data	82

S e c t i o n l e c t u r e s

AL-ZANAIDY M., GROSSMANN Ch.: Monotone discretization in boundary value problems using PASCAL-SC	91
ANDĚL J., ZVÁRA K.: Simulation methods in time series	99
BENDA J.: Solution of an ideal compressible fluid flow in a plane cascade by the finite element method	114
BÖHMER K.: Difference solutions for linear least squares boundary value problems with asymptotic expansions	120
BRILLA J.: Error analysis for Laplace Transform - boundary element solution of parabolic equations	125
EIERMANN M., MAREK I., NIETHAMMER W.: On semiiterative methods for the solution of singular linear systems	131
GARUS R., KÜPPER T.: Computation of the smallest positive eigenvalue of a quadratic λ -matrix	139
HLAVÁČEK I.: Shape optimization of elasto-plastic bodies by the finite element method	150
HOFMANN W., ZHENG O.: Autonomous oscillations in connection with non continuous regulations	157
HOSSEINI Ali Abadi M., ORTIZ E. L.: On the numerical behaviour of different formulations of the Tau method for the treatment of differential inclusions	162
HŘEBIČEK J., KOTOUĽ M., POLCAR P.: Numerical analysis of dynamical post-critical behaviour of solids	175
HŘEBIČEK J., MIKULÍK M.: Shape preserving splines	183
HŘEBIČEK J., ŠIK F., VESELY V.: Digital convolution filters and smoothing splines	187

JANOVSKY V., MAREK I.: Generalized Ljapunov-Schmidt reduction and its numerical significance	194
KANTCHEV V.: Superconvergence of the gradient for linear finite elements for nonlinear elliptic problems	199
KLEIN P. P.: Inclusion of eigenvalues for nonselfadjoint eigenvalue problems	205
KOSTOVA T.: Numerical solutions of some hyperbolic differential-integral equations	210
KOZEL K., VAVŘINCOVÁ M.: Finite volume solution of the Euler equations	215
KUBLANOVSKAYA V., BELY V.: Solution of spectral problems for polynomial matrix pencils	221
MANDL P.: On evaluating the performance of self-tuning regulators	228
MÄRZ R.: Recent advances in the numerical treatment of differential-algebraic equations	233
MILLER J. J. H., WANG S., WU C. H.: A mixed finite element method for the stationary semiconductor continuity equations	240
NAAB K., WEYH B.: Generalized Hill-method for stability analysis of periodic parameter-excited systems	244
NEITTAANMÄKI P., KŘÍŽEK M.: On $O(h^4)$ -superconvergence of piecewise bilinear FE-approximations	250
ROMERA M ^a R.: Time-average optimal controlled Markov processes with cost criterion	256
SCHERER R., TÜRKE H.: The Lyapunov matrix equation for Runge-Kutta methods	263
SCHMIDT J. W.: Unconstrained pendants to discretized constrained variational problems	268
SEGETH K.: MLAT solutions to the nonlinear Poisson equation in semiconductor device models	273
SMELOV V. V.: Approximation of functions by eigenfunctions of the Sturm-Liouville problems	277
STOJANOVIĆ M.: Exponentially fitted mid point spline difference scheme on non-uniform mesh for singular perturbation problem	282
STREHMELO K., WEINER R.: Linearly implicit Runge-Kutta methods and their modification for stiff problems	288
VOSS H.: Free vibration analysis by finite dynamic element methods	295
ZAKARIN E. A., SULTANGAZIN U. M.: Mathematical modelling of urban air pollution	299
ZHANLAV T.: Spline approximation in the stabilization method for solving nonlinear boundary value problems	306