Martin–Luther–Universität
Halle–Wittenberg
Fachbereich Mathematik und Informatik

Sixth International Seminar

NUMERICAL TREATMENT

OF

DIFFERENTIAL EQUATIONS

NUMDIFF–6

September 21 - 25, 1992

Halle, Germany

Scientific Program

Organizing Committee

Chairmen : P. J. van der Houwen, Amsterdam

K. Strehmel, Halle

Secretary : R. Weiner, Halle

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Friday 25.9.1992

Hörsaal

8.30 – 9.25   E. Hairer, Genf

Study of Runge–Kutta methods for DAEs.

9.30 – 10.25   M. N. Spijker, Leiden

Numerical ranges and stability estimates.

10.30 – 10.55   K. Balla, Budapest

On a special class of BVP's for ODE's.

11.00 – 11.25   D. Quinney, Keele

Deferred & difference correction for two point boundary value problems.

11.30 – 11.55   M. Hermann, Jena (with K. Ullrich and D. Kaiser)

Numerik nichtlinearer Zweipunkt-Randwertprobleme aus der Sicht des Wissenschaftlichen Rechnens.

12.00   Concluding Address

SR II

10.30 – 10.55   N. N. Kalitkin, Moscow (with L. V. Kuznina)

Lp-stability and monotony of schemes.

11.00 – 11.25   D. Guzhev, Moscow (with P. Shirkov, K. Kochetkov)

Tests with exact solutions for stiff applied problems.

11.30 – 11.55   N. D. Morozkin, Ufa

Optimization of the process of induction heating of cylinder taking into account the limitations on thermotentions.

15.15 – 15.40   M. Kamenski, Voronezh

On semi–discretisation methods for abstract quasilinear parabolic equations with delay.

15.45 – 16.10   N. N. Gudovich, Voronezh

Difference schemes of block structure for differential equations.

General information

1. Conference office

The conference office is in the building of the Department of Pharmacy of the Martin-Luther-University, Weinbergweg 15. It is open

Sunday: 16.00–20.00

Monday - Thursday: 8.30–16.00

Friday: 8.30–11.00

Phone: Halle 622 488

From the railway station you can go to the conference office by tram 5 or 9 in direction "Heide" to the station "Weinbergweg".

2. Lecture rooms

All lectures will be held in the rooms of the Department of Pharmacy, Weinbergweg 15.

3. Registration fee

The conference fee of 100,– DM has to be paid at the conference office.

4. Lunch

All participants have the possibility to have Lunch in the Mensa Weinbergweg.

5. Conference dinner

On Wednesday, 23.9.1992, at 19.00 hours there will be a Conference dinner.

6. Accomodation

At the conference office you will get the address of your dormitory or hotel.

7. Cultural activities

On Wednesday, 23.9., there is the possibility to visit the Kustodie (art collection) of the Martin-Luther-University and the Händel-Museum.

About cultural activities in Halle you can get information at the conference office.

SR II

11.00 – 11.25   S. Spivak, Ufa

Informativity of kinetic and thermodynamic measurements and inverse problems of chemical kinetics and thermodynamics.

11.30 – 11.55   R. Asadullin, Ufa

Analysis of inverse problems for dynamical models of chemical and biochemical kinetics.

– L u n c h –

14.00 – 14.25   B. Garcia–Archilla, Valladolid

Stability and convergence of multistep methods for sectorial operators.

14.30 – 14.55   G. Vanden Berghe, Gent

Numerical solution of Fredholm equations based on mixed interpolation.

– B r e a k –

15.15 – 15.40   Nguyen huu Cong, Amsterdam

Direct collacation–based Runge–Kutta–Nyström methods for parallel computers.

15.45 – 16.10   A. David, Bratislava

One method of numerical derivation of functions.

16.15 – 16.40   J. Pekar, Bratislava

Runge–Kutta methods for solving multi-dimensional integral equations.

SR IV

14.00 – 14.25   K. -D. Werner, Geesthacht

The geometrical shock correction method for solving Cauchy problems of scalar hyperbolic conservation laws in 1 and 2 space dimensions.

14.30 – 14.55   E. Dnestrovskaya, Moscow (with N. N. Kalitkin)

Schemes with complex coefficients for complicated PDE systems.

– B r e a k –

Hörsaal

9.15 — Opening address

9.30 – 10.25 — P. J. van der Houwen, Amsterdam — Performance evaluation of block predictor-corrector methods of Runge–Kutta type.

11.00 – 11.55 — P. Rentrop, München — Multirate ROW's.

– L u n c h –

14.00 – 14.25 — A. Ostermann, Innsbruck — Half-explicit methods for index 3 DAEs.

14.30 – 14.55 — M. Arnold, Rostock — Stability of numerical methods for differential-algebraic equations of higher index.

– B r e a k –

15.15 – 15.40 — M. Hanke, Berlin — Differential-algebraic equations.

15.45 – 16.10 — B. Simeon, München — Numerik von Mehrkörpersystemen.

16.15 – 16.40 — R. Schulze, Greifswald — Index-free description of differential-algebraic-equations.

SR II

14.00 – 14.25 — I. Farago, Budapest (with N. Komaromi) — On the conservation of the basic properties of the linear parabolic problems in numerical methods.

14.30 – 14.55 — M. A. López-Marcos, Valladolid — Pseudospectral methods for the Kuramoto-Sivashinsky equation.

– B r e a k –

SR IV

14.00 - 14.25 — P. Seifert, Dresden (with N. N. Kalitkin, D. Guzhev, P. Shirkov) — Numerical methods for problems of chemical kinetics with diffusion.

14.30 – 14.55 — T. Akramov, Ufa — On the solution of hyperbolic systems arising in chemical reactor theory.

– B r e a k –

15.15 - 15.40 — S. A. Tscherbinin, Ufa — Mathematical simulation of interactive physical processes in high temperature devices.

15.45 – 16.10 — I. S. Achatov, Ufa — Numerical simulation of thermoconvective phenomena in non-Newtonian liquids.

16.15 – 16.40 — Z. Horvath, Györ — On a second order positivity conserving method.

Wednesday 23.9.1992

Hörsaal

8.30 – 9.25 — J. M. Sanz-Serna, Valladolid (with S. Larsson) — Numerical methods near a saddle-point.

9.30 – 10.25 — H. G. Bock, Heidelberg — Topics in multibody systems simulation.

– B r e a k –

11.00 – 11.55 — K. Böhmer, Marburg — A Ljapunov-Schmidt method for operator equations.

15.15 - 15.40 G. Lube, Magdeburg
Stabilized FEM for the nonstationary, incompressible and non-isothermal Navier–Stokes equations.

15.45 – 16.10 A. Y. Zakharov, Moscow
Many point space approximation in the MOL for time dependent problems.

16.15 – 16.40 K. Ehrhardt, Berlin
The nonisothermal Stefan–Maxwell diffusion theory.

Tuesday, 22.09.1992

Hörsaal

8.30 – 9.25 R. Weiner, Halle (with B. A. Schmitt, M. Büttner)
Automatic partitioning in linearly–implicit Runge–Kutta methods.

9.30 – 10.25 B. P. Sommeijer, Amsterdam
Parallel methods for second order equations.

– B r e a k –

11.00 – 11.25 B. A. Schmitt, Marburg
Construction of higher order algebraic one–step schemes in stiff BVPs.

11.30 – 11.55 K.-H. Schild, Marburg
Stability properties of non–rationally stabilized collocation methods for stiff BVPs.

– L u n c h –

14.00 – 14.25 R. Lamour, Berlin
A shooting method for index 2 differential–algebraic equations.

14.30 – 14.55 E.-M. Reich, Greifswald
Einige Ausführungen zu streng quasilinearen Algebro-Differential-gleichungen.

– B r e a k –

15.15 – 15.40 D. Hietel, Darmstadt
Stability and convergence of DAE-semidiscretizations for PDEs.

15.45 – 16.10 J.-P. Kauthen, Fribourg
Implicit Runge–Kutta methods for integro–differential–algebraic equations.

16.15 – 16.40 R. von Schwerin, Heidelberg
An ADAMS-method for constrained multibody systems.

SR II

11.00 – 11.25 J. Lang, Berlin (with A. Walter)
A finite element method adaptiv in space and time for nonlinear reaction–diffusion-systems.

11.30 – 11.55 J. A. M. Ferreira, Coimbra
The diffusion – convection problem: regridding methods.

– L u n c h –

14.00 – 14.25 M. van Veldhuizen, Amsterdam
On the approximation of connecting orbits.

14.30 – 14.55 W. Vogt, Ilmenau
Numerical approximation of invariant tori.

– B r e a k –

15.15 – 15.40 F. W. Lubyshev, Ufa
Difference and difference–differential approximation and regular-ization of optimal control problems for parabolics equations with controls in the coefficients.

15.45 – 16.10 A. Kruglov, Ufa
Parameter identification of ode's by methods of interval analysis.

16.15 – 16.40 V. L. Hatzkevich, Voronezh
The averaging of dissipative differential inclusions.