

Jiří Fábera

Czechoslovak conference on differential equations and their applications Equadiff  
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CZECHOSLOVAK CONFERENCE ON DIFFERENTIAL EQUATIONS  
AND THEIR APPLICATIONS EQUADIFF 4

From August 22 to 26, 1977, the Czechoslovak Conference on Differential Equations and their Applications EQUADIFF 4 was held in Prague. It was organized by the Institute of Mathematics of the Czechoslovak Academy of Sciences in cooperation with the Faculty of Mathematics and Physics of the Charles University in Prague, with the Faculty of Science of the Comenius University in Bratislava, with the Czech Technical University in Prague and with the Technical University in Brno. The International Mathematical Union granted a financial support.

To prepare the Conference an Organizing Committee consisting of O. BORŮVKA, J. BRILLA, J. FÁBERA (chairman), O. HAJKR, J. KURZWEL, I. MAREK, J. MORAVČÍK, J. NEČAS, B. NOVÁK, M. PRÁGER, M. RÁB, K. REKTORYS, M. ŠVEC, O. VEJVODA, M. ZLÁMAL, was established.

The headquarters of the Conference were at the Faculty of Electrotechnical Engineering and the attendance numbered 354 mathematicians from 23 countries; among them 167 were from Czechoslovakia and 187 from abroad. The following countries were represented: Austria (3), Belgium (6), Bulgaria (6), Canada (4), Egypt (1), France (9), German Democratic Republic (26), German Federal Republic (14), Great Britain (1), Hungary (13), Italy (11), Japan (2), Netherlands (1), Poland (37), Roumanie (4), Saudi Arabia (1), Sweden (2), Switzerland (3), U.S.A. (12), U.S.S.R. (27), West Berlin (2), Yugoslavia (2).

The activity of the Conference was organized in plenary sessions and in sections. The following sections were set up:

- I. Ordinary Differential Equations
- II. Partial Differential Equations
- III. Numerical Methods and Applications

The scientific program of the Conference was focussed on 40 minute invited papers. Among them 5 were presented in plenary sessions (3 by Czechoslovak and 2 by foreign authors), 21 in the section of Ordinary Differential Equations, 17 in the section of Partial Differential Equations and 20 in the section of Numerical Methods and Applications. The following invited papers were presented:

1. Plenary Invited Addresses:

BORŮVKA O.: *Algebraic methods in the theory of global properties of the oscillatory differential equations  $y'' = Q(t)y$*

EVERITT W. N.: *Singular problems in the calculus of variations and ordinary differential equations*

MAREK I.: *Eigenvalues and bifurcations in reactor physics and chemistry*

NEČAS J.: *On the existence and regularity of weak solutions to variational equations and inequalities*

OLEJNIK O.: *Энергетические оценки, аналогичные принципу Сен-Венана и их приложения*

## 2. Invited Addresses in Sections:

### Ordinary Differential Equations:

- ANTOSIEWICZ H. A.: *Some remarks on the solution of boundary value problems*
- BAINOV D., MILUŠEVA S.: *Application of the averaging method for solving boundary problems for ordinary differential and integrodifferential equations*
- BEBERNES J.: *Invariance and solution set properties for some nonlinear differential equations*
- BIHARI I.: *Asymptotic invariant sets of some nonlinear autonomous systems of differential equations*
- BLAGODATSKICH V.: *Some problems in the theory of differential inclusions*
- CODDINGTON E. A.: *Differential subspaces associated with pairs of differential operators*
- CONTI R.: *Control and the Van der Pol equation*
- GAMKRELIDZE R. V.: *Exponential representation of solutions of ordinary differential equations*
- HALANAY A.: *Singular perturbations and linear feedback control*
- KAMENSKIJ G. A., MYŠKIS A. D.: *Variational and boundary problems for differential equations with deviated argument*
- KIGURADZE I. T.: *О колеблющихся и монотонных решениях обыкновенных дифференциальных уравнений*
- KNOBLOCH H. W.: *Boundary value problems for systems of nonlinear differential equations*
- MAWHIN J.: *New results on nonlinear perturbations of linear noninvertible mappings and applications to differential equations*
- NEUMAN F.: *Global properties of the  $n^{\text{th}}$  order linear differential equations*
- OLECH C.: *Lower semicontinuity of integral functionals*
- PLISS V. A.: *Инвариантные множества периодических систем дифференциальных уравнений*
- RJABOV J. A.: *Ограниченные операторы в теории обыкновенных дифференциальных уравнений*
- SCHWABIK Š., TVRDÝ M.: *Linear problems in the space BV*
- ŠEDA V.: *On de la Vallée Poussin problem*
- ŠVEC M.: *Some problems concerning the functional differential equations*
- VRKOČ I.: *A new definition and some modifications of Fillipov's cone*

### Partial Differential Equations:

- AMANN H.: *Invariant sets for semi-linear parabolic and elliptic systems*
- BOJARSKI B.: *Overdetermined nonlinear systems of partial differential equations and general quasi-conformal mappings*
- DROŽŽINOV J. N.: *Тауберовы теоремы в комплексной плоскости и некоторые их применения*
- DÜMMEL S.: *On some inverse problems for partial differential equations*
- FUČÍK S.: *Nonlinear boundary value problems*
- GAJEWSKI H.: *On the iterative solution of some nonlinear evolution equations*
- HALL W. S.: *Monotone operators and the two-time method*
- HANSEN W.: *On the Dirichlet problem*
- HESS P.: *Existence and multiplicity results for nonlinear perturbations of linear elliptic and parabolic problems at resonance*
- KLUGE R.: *On the determination of parameter functions in partial differential equations*
- KRÁL J.: *Boundary behavior of potentials*
- KUFNER A.: *Some modifications of Sobolev spaces and boundary value problems*
- LADYŽENSKAJA O.: *On formulations and solvability of boundary value problems for incompressible fluids in domains with noncompact boundaries*
- MOSCO V.: *Dual estimates and regularity of solutions of some quasivariational inequalities*
- RABINOWITZ P. H.: *Free vibrations for a nonlinear wave equation*

SOVA M.: *Laplace transform and linear differential equations in Banach spaces*

TRIEBL H.: *Strongly degenerate elliptic differential operators*

#### Numerical Methods and Applications:

AXELSSON O.: *On the numerical solution of nonlinear partial differential equations on divergence form*

BECKERT H.: *Remarks on dynamic and static stability theory in nonlinear mechanics*

BRILLA J.: *Stability problems in mathematical theory of viscoelasticity*

CAPRIZ G.: *On the branching of solutions and Signorini's perturbation procedure in elasticity*

DESCLOUX J., NASSIF N., RAPPAZ J.: *Numerical approximation of the spectrum of linear operators*

HLAVÁČEK I.: *Dual finite element analysis for unilateral boundary value problems*

ILJIN V.: *Conjugate gradient alternating direction methods for difference equations*

KAČUR J.: *Application of Rothe's method to nonlinear parabolic boundary value problems*

KLÖTZLER R.: *On a general conception of duality in optimal control*

MIKA J.: *Asymptotic methods for the singularly perturbed differential equations in Banach spaces*

NASHED M. Z.: *Iterative and projection methods for illposed boundary value problems and operator equations*

NEDELEC J. C.: *Finite element approximations of singular integral equations*

NEDOMA J.: *The solution of parabolic models by finite element space and A-stable time discretization*

NOHEL J. A.: *Volterra integrodifferential equations for materials with memory*

RAVIART P. A.: *Mixed finite element approximations of the Navier-Stokes equations*

REKTORYS K.: *Approximations of very weak solutions of the first biharmonic problem for multiply connected regions*

STETTER H. J.: *The principle of defect correction and its application to discretization methods*

SULTANGAZIN U. M.: *Исследование решений симметрических положительных систем методом сферических гармоник*

TAUFER J., VITÁSEK E.: *Numerical solution of evolution problems in Banach spaces*

ZLÁMAL M.: *Superconvergence in the finite element method*

For scientific communications 15 minutes were allowed. There were 60 scientific communications (13 by Czechoslovak and 47 by foreign authors) in the section of Ordinary Differential Equations, 51 communications (15 by Czech and 36 by foreign authors) in the section of Partial Differential Equations and 46 communications (21 by Czechoslovak and 25 by foreign authors) in the section of Numerical Methods and Applications.

In addition to the scientific program there was a number of social events. The members of the Conference met at a friendly gettogether in the evening on Monday August 22. In the afternoon the next day, a group of leading foreign and Czechoslovak participants were invited to the Presidium of the Czechoslovak Academy of Sciences. On behalf of the Chairman of the Academy, Academician JAROSLAV KOŽEŠNÍK taken ill, they were received by the Deputy of the General Secretary of the Academy, Corresponding Member VLADIMÍR LANDA. On the same day, August 23, a concert was given for all members of the Conference in St George Basilica at the Prague Castle. The program included compositions by old Czech masters. In the afternoon on Wednesday 24, several half-day tours were organized to Prague environs (Karlštejn, Konopiště, Orlík, Mělník). In conclusion of the Conference a banquet was given on Friday, August 26. The Travel Agency Čedok organized a whole-day tour to Karlovy Vary and South Bohemia for members from abroad, on Saturday, August 27. A special program was set up for associate members.

The Conference EQUADIFF 4 was the fourth in the EQUADIFF Conference series. In the same way as in case of previous Conferences one of its aims was to strengthen the integrations

trends of the main fields of Differential Equations. That is the reason why plenary sessions were included in the program. In addition, the members of the Conference largely took the opportunity of attending lectures in various sections according to their field of interest. The proof of success of the EQUADIFF Conferences is also the growing interest in their attendance among mathematicians; number of them have taken part in several or even in all four of them.

*Jiří Fábera, Praha*