

## JOSEF KOLOMÝ IN OUR MEMORY

Josef Kolomý was our teacher at Charles University, a supervisor of our PhD theses and then our collaborator and friend.

We are grateful to him for introducing us to research work, for supervising our first steps in Banach space theory and for the constant professional and moral support he offered us subsequently.

Starting in the early sixties, for more than a quarter of century we had an opportunity to follow his substantial influence on many young Prague mathematicians.

Already in the sixties, Josef recognized the great potential of Banach space theory and its use in non-linear analysis and partial differential equations. Since then until his early death he worked systematically and effectively to establish the group of scholars in Prague in this area.

In 1969 he arranged for Zizler a stay in Seattle USA, on the IREX scholarship, to study Banach space theory there with Professor Victor Klee. This had a crucial influence on Zizler's further work in this area. Upon his return to Prague in 1970, Zizler together with K. John did their best to establish a Prague school of Banach space theory. They were later joined by Fabian, Frolík, Preiss and Zajíček, their students and others.

The Winter and Spring schools have since been organized by this group annually in the Czech Republic (more than 40 so far).

Collaboration with research centers like Paris (Talagrand, Godefroy, Deville), Poland (Mankiewicz, Kwapień, Figiel, Tomczak-Jaegermann, Hudzik, Lipecki), Sofia (Troyanski, Kenderov), Canada (Whitfield) and others gradually developed.

Now the Prague Banach space group has about 15 active members. By a constant effort of all of them, the group has gradually gained a decent world recognition, namely in the area of nonseparable Banach spaces. The group closely collaborates with many world centers (Paris, Besançon, Oxford, Valencia, Murcia and others).

Several research books in Banach space area have been coauthored by members of the Prague group, and an invited article for the "Handbook of Banach Space Theory" on nonseparable spaces was prepared in Prague in 2001.

Josef Kolomý influenced many other mathematicians in Prague in the area around linear and nonlinear analysis. For example, it was him who suggested Preiss and Zajíček to study differentiability of convex and Lipschitz functions in infinite dimensional spaces.

He had a crucial influence on Fučík and several other mathematicians working in partial differential equations.

Josef's office in Karlín was always an oasis providing a good, optimistic atmosphere where young people used to come for mathematical sustenance, moral support, and advice.

Josef was an exceptionally nice person with a warm heart and sterling character, modest, hard working and always ready to help other people.

He was born on October 8th, 1934 in Lukavice, a village in North Bohemia, graduated from Charles University in 1958 and worked there since then, until his early death on October 8th, 1993.

Kolomý's research interests were wide: eigenvalues of linear and nonlinear operators, nonlinear operator equations, monotone operators, and applications of the geometry of Banach spaces in those fields. Josef was an extremely good husband to his wife Štěpánka and a caring father to his daughter.

We honour the golden memory of our friend who did so much for the Czech mathematics.

Prague, February 6th, 2007

*Marián Fabian and Václav Zizler*

### List of publications of Josef Kolomý

#### A. Original scientific papers:

- [1] *Užití Galerkinovy metody v úlohách o stabilitě proudění vazké tekutiny*, Aplikace Mat. 5 (1960), 40–44.
- [2] *Přibližné řešení soustavy funkcionálních rovnic Galerkinovou metodou*, Aplikace Mat. 5 (1960), 296–304.
- [3] *O konvergenci a užití iteračních metod*, Čas. Pěst. Mat. 86 (1961), 148–177.
- [4] *On the solution of linear functional equations in Hilbert space*, Čas. Pěst. Mat. 86 (1961), 314–317.
- [5] *K metodě podobné iterace*, Čas. Pěst. Mat. 86 (1961), 308–313.
- [6] *Note on the paper of I. Fenyó: On the solution of non-linear equations in Banach space*, Comment. Math. Univ. Carolinae 1 (1960), 8–11 (preliminary communication).  
*Über die Lösung der im Banachschen Raume definierten nichtlinearen Gleichungen*, Czech. Math. J. 12 (87) (1962), 607–610.
- [7] *On the solution of homogeneous functional equations in Hilbert space*, Comment. Math. Univ. Carolinae 3 (1962), 36–47.
- [8] *On the generalization of Wiarda's method of solution of nonlinear functional equations*, Czech. Math. J. 13 (88) (1963), 159–165.
- [9] *Contribution to the solution of non-linear equations*, Comment. Math. Univ. Carolinae 4 (1963), 165–171.
- [10] *Remark to the solution of non-linear functional equations in Banach spaces*, Comment. Math. Univ. Carolinae 5 (1964), 97–116.
- [11] *On the solution of functional equations with linear bounded operators*, Comment. Math. Univ. Carolinae 6 (1965), 141–143 (preliminary communication).

- Novyje metody rešenija linejnych funkcionalnych uravnenij*, Konference num. mat., Liblice 1964, *Apl. Mat.* 10 (1965), 246–248.
- New methods for solving linear functional equations with bounded operators in Hilbert spaces*, *Czech. Math. J.* 16 (1966), 238–246.
- [12] *Open mapping theorem and solution of non-linear equations in linear spaces*, *Comment. Math. Univ. Carolinae* 6 (1965), 363–366 (preliminary communication).  
*Solution of non-linear functional equations in linear normed spaces*, *Čas. Pěst. Mat.* 92 (1967), 125–132.
- [13] *Necessary and sufficient conditions for some convergence methods*, *Czech. Math. J.* 16 (91) (1966), 446–453.
- [14] *Some existence theorems for non-linear problems*, *Comment. Math. Univ. Carolinae* 7 (1966), 201–217.
- [15] *Application of some existence theorems for the solutions of Hammerstein integral equations*, *Comment. Math. Univ. Carolinae* 7 (1966), 461–478.
- [16] *A note on determination of eigenvalues and eigenfunctions of bounded self-adjoint operators*, *Comment. Math. Univ. Carolinae* 7 (1966), 521–526.
- [17] *The solvability of nonlinear integral equations*, *Comment. Math. Univ. Carolinae* 8 (1967), 273–289.
- [18] *On the differentiability of mappings in functional spaces*, *Comment. Math. Univ. Carolinae* 8 (1967), 315–329.
- [19] *A note on the continuity properties of nonlinear operators*, *Comment. Math. Univ. Carolinae* 8 (1967), 503–514.
- [20] *Remarks on the differentiability of mappings in linear normed spaces*, *Comment. Math. Univ. Carolinae* 8 (1967), 691–704 (jointly with V. Zizler).
- [21] *On the differentiability of mappings and convex functionals*, *Comment. Math. Univ. Carolinae* 8 (1967), 735–752.
- [22] *Remarks on nonlinear functionals*, *Comment. Math. Univ. Carolinae* 9 (1968), 145–155.
- [23] *On the continuity and differentiability properties of convex functionals*, *Comment. Math. Univ. Carolinae* 9 (1968), 329–350 (jointly with J. Daneš).
- [24] *On the differentiability of operators and convex functionals*, *Comment. Math. Univ. Carolinae* 9 (1968), 441–454.
- [25] *Gradient maps and boundedness of Gateaux differentials*, *Comment. Math. Univ. Carolinae* 9 (1968), 613–625.
- [26] *Differentiability of convex functionals and boundedness of nonlinear operators and functionals*, *Comment. Math. Univ. Carolinae* 10 (1969), 91–114.
- [27] *A note on uniform boundedness principle for nonlinear operators*, *Comment. Math. Univ. Carolinae* 10 (1969), 207–216.
- [28] *The continuity properties of nonlinear operators and functionals*, *Comment. Math. Univ. Carolinae* 10 (1969), 241–260.
- [29] *Remarks on nonlinear operators and functionals*, *Comment. Math. Univ. Carolinae* 10 (1969), 391–404.
- [30] *Some remarks on nonlinear functionals*, *Comment. Math. Univ. Carolinae* 11 (1970), 693–704.
- [31] *Some mapping theorems and solvability of nonlinear equations in Banach space*, *Comment. Math. Univ. Carolinae* 12 (1971), 413–418 (preliminary communication).  
*Some mapping and fixed point theorems*, in: *General Topology and its Relation to Modern Analysis and Algebra III*, Prague Topol. Symp. 1971, Academia, Prague, 1972, 245–247.

- [32] *Continuity and differentiability properties of nonlinear operators*, Čas. Pěst. Mat. 97 (1972), 190–197.
- [33] *Uniform boundedness and strong continuity of derivatives of convex functionals*, Bull. Acad. Pol. Sci. 21 (1973), 41–45.
- [34] *Invariance of domain theorem for weakly continuous mappings*, Math. Nachr. 58 (1973), 137–144.
- [35] *Normal solvability, solvability and fixed point theorems*, Colloq. Math. 29 (1974), 253–266.
- [36] *Normal solvability and solvability of nonlinear equations*, in: Theory of Nonlinear Operators, Proc. Int. Summer School, 1972, Akademie-Verlag, Berlin, 1974, 155–167.
- [37] *Some properties of monotone (potential) operators*, Beiträge zur Anal. 8 (1976), 77–84.
- [38] *Fixed point, surjectivity and invariance of domain theorems for weakly continuous mappings*, Boll. U.M.I. (5) 13–B (1976), 369–394 (jointly with J. Daneš).
- [39] *On duality mappings and metric gradient*, Boll. U.M.I. (5) 16-A (1979), 92–99 (jointly with H. D. Viet).
- [40] *Determination of eigenvalues and eigenfunctions of bounded self-adjoint operators*, Comment. Math. Univ. Carolinae 6 (1965), 387–392 (preliminary communication).  
*Approximate determination of eigenvalues and eigenvectors of self-adjoint operators*, Ann. Pol. Math. 38 (1980), 153–158.
- [41] *Determination of eigenvalues and eigenvectors of self-adjoint operators*, Mathematica 22 (1980), 53–58.
- [42] *On determination of eigenvalues and eigenvectors of self-adjoint operators*, Aplikace Mat. 26 (1981), 161–170.
- [43] *An approximate method for determination of eigenvalues and eigenvectors of self-adjoint operators*, Čas. Pěst. Mat. 106 (1981), 243–255.
- [44] *Duality mapping and characterization of reflexive Banach spaces*, Boll. U.M.I. 6 (1982), 275–283.
- [45] *On the Kellogg method and its variants for finding of eigenvalues and eigenvectors of self-adjoint operators*, Zeitschr. Anal. Anw. 2 (1983), 291–297.
- [46] *On the Kellogg method and its variants*, Math. Nachr. 118 (1984), 187–200 (jointly with Le Van Hot).
- [47] *Remarks on the duality mapping and the Lax-Milgram property*, Zeitschrift Anal. Anw. 3 (1984), 569–576.
- [48] *Normal solvability and invariance of domain theorem*, Bull. Math. Soc. Sci. Math. Roumanie 29 (1985), 307–314.
- [49] *On duality mapping and its application*, Bull. Math. Soc. Sci. Math. Roumanie 30 (1986), 231–237.
- [50] *On compactness and weak compactness of gradient maps*, Suppl. Rend. Circolo Mat. di Palermo 10 (1985), 75–78.
- [51] *Maximal monotone and accretive multivalued mappings in Banach spaces*, in: Proc. Int. Conference “Function Spaces” (Poznań, 1986), Teubner Texte zur Math. 103, 1988, 170–177.
- [52] *On mapping and invariance of domain theorem and accretive operators*, Boll. U.M.I. (7) 1-B (1987), 235–246.
- [53] *On accretive multivalued mappings in Banach spaces*, Comment. Math. Univ. Carolinae 31 (1990), 701–710.
- [54] *Resolvents and selections of accretive mappings in Banach spaces*, in: Proc. 18th Winter School (Srní, 1989), Acta Univ. Carolinae 31 (1990), no. 2, 51–58.

- [55] *Maximal monotone mappings in Banach spaces*, Acta Univ. Carolin. Math. Phys. 33 (1992), no. 1, 63–67.
- [56] *A note on Banach spaces and subdifferentials of convex functions*, Acta Univ. Carolin. Math. Phys. 33 (1992), no. 2, 73–83.
- [57] *Some properties of monotone type multivalued operators in Banach spaces*, Math. Bohem. 118 (1993), 325–336.
- [58] *On subdifferentials of convex functions*, in: Selected Papers from the 21st Winter School on Abstract Analysis (Poděbrady, 1993), Acta Univ. Carolin. Math. Phys. 34 (1993), no. 2, 67–70.

B. Survey articles:

- [1] *On the convergence of the iterative methods*, Comment. Math. Univ. Carolinae 1 (1960), 18–24.
- [2] *Some properties of nonlinear operators II*, in: Theory of Nonlinear Operators, Proc. Int. Summer School (Berlin, 1975), Abhandlungen Akad. Wiss. DDR, 1977, no. 1, 165–169.
- [3] *Some methods for finding of eigenvalues and eigenvectors of linear and nonlinear operators*, in: Theory of Nonlinear Operators, Abhandlungen Akad. Wiss. DDR, 1978, no. 6, 1978, 159–166.
- [4] *O některých výsledcích z lineární a nelineární funkcionální analýzy (dosažených v rámci úkolu 1–5–1/15)*. Matematika (uspořádal B. Novák), Ved. Konference MFF UK, Praha 1978, Univerzita Karlova, Praha, 1979, 133–138.
- [5] *Duality mapping and geometry of Banach spaces*, in: Proc. 5th Prague Topol. Symp. 1981, Heldermann Verlag, Berlin, 1982, 435–441.
- [6] *Geometry of Banach spaces and solvability of nonlinear operator equations*, in: Proc. 9th Winter School (Srní, 1981), Praha, 1984, 95–100.
- [7] *Set-valued mappings and structure of Banach spaces*, Suppl. Rend. Circolo Mat. di Palermo, Sér. II, No. 14 (1987), 345–351.
- [8] *Resolvents and selections of multivalued mappings and geometry of Banach spaces*, in: Proc. Int. Conf. “Function Spaces” (Poznań, 1989), J. Musielak (ed.), Teubner Texte zur Math. 120, 1991, 98–104.

C. Other works:

- [1] *Lineární a nelineární zobrazení a geometrie Banachových prostora*, Doctoral thesis, 119 pages, Charles University, Prague, 1989.

