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60th anniversary of birthday of Professor Karel Rektorys

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60TH ANNIVERSARY OF BIRTHDAY OF PROFESSOR  
KAREL REKTORYS

IVO MAREK, JINDŘICH NEČAS, Praha

On February 4, 1983, a prominent Czechoslovak mathematician RNDr. Karel Rektorys, DrSc., Professor of Mathematics and Descriptive Geometry of the Faculty of Civil Engineering, Czech Technical University, has reached sixty years of age. He is well known to the wide mathematical community as the author of numerous original papers published in foreign as well as Czechoslovak journals and, above all, as the author of several comprehensive monographs. The high repute Prof. Rektorys has gained by his books goes far beyond the limits of our country and considerably contributes to the prestige of Czechoslovak mathematics in particular and science in general.

Karel Rektorys was born in the town of Písek (South Bohemia) on February 4, 1923, in a family of an official. He finished the secondary school there in 1941 and worked as a clerk at the post office till 1945, the Czech universities having been closed by the Nazis. After the liberation he entered Faculty of Science of Charles University, studying Mathematics and Physics. He graduated in 1948 and for a short period took a job as a mathematician in the research department of Škoda Works in Plzeň. After two years of military service, Prof. František Vyčichlo recommended him to the Central Institute of Mathematics (now Mathematical Institute of the Czechoslovak Academy of Sciences). In 1954 he came to the Department of Mathematics and Descriptive Geometry, Faculty of Civil Engineering, Czech Technical University in Prague, whose Head then was Prof. Vyčichlo, and has been member of its staff until now.

K. Rektorys obtained his RNDr. degree on the basis of a thesis dealing with the uniqueness of solution of the heat equation under non-continuous boundary conditions. The CSc. (candidate of science) dissertation concerned the problem of hydration heat in dams (1956), while the topics of the dissertation for the DrSc. degree was the nonlinear problem of heat conduction in concrete massifs (1961). He was appointed Associated Professor in 1957 and Full Professor in 1964.

Prof. Rektorys has held a number of important offices: let us only mention his membership in Chancellor's Advisory Board for Mathematics, in the Scientific Board for Mathematics of the Czechoslovak Academy of Sciences, and in several other committees, editorial boards etc. He is leader and coordinator of important project

in applied mathematics of the National Basic Research Plan. For his outstanding scientific results, which are of great importance for the society, he was awarded several medals, prizes and honours, most recently the National Prize of the Czech Socialist Republic in 1979.

The first papers of K. Rektorys [1], [2] are devoted to problems concerning partial differential equations with noncontinuous boundary conditions. The direction of Rektorys's further research was influenced by his participation in computations



concerning the construction of Orlik Dam. Papers [3]–[7] deal with problems of hydration heat from the theoretical view-point as well as from that of numerical methods. Particularly successful was the paper [5] where Rektorys proved global existence of solution for nonlinear parabolic equations, using the finite differences method. Paper [8] turned out to be particularly fruitful, initiating a number of research papers and dissertations and forming the starting point for the recent seminar of Professor Rektorys. It has grown and ripened into a remarkable monograph [16] which will be mentioned in more detail later on. In papers [9], [10] Rektorys in

a sense resumed the research of the topics of his work from his very beginnings, studying the very weak solutions. Paper [12] is devoted to a generalization of Collatz's estimate of eigenvalues.

Besides the papers mentioned, Rektorys contributed to numerous volumes, proceedings of conferences etc. Many essential results of his are contained in his research reports as well.

The highlight of Rektorys's scientific activity is in his book publications. He was editor and main author of a book well known to our technical and mathematical public: *Survey of Applicable Mathematics* [21]. It appeared in Czech [20] in four editions. Its English version has become an official handbook in the MIT. The reviews in both mathematical and engineering journals spoke very highly of the book: "It is a unique survey" (Eng. Society Library, 1969); "Der Band kann nicht genug gelobt werden" (Archimedes, 1969); "A monumental work" (J. Opt. Amer. Soc., 1969).

Another extensive monograph [13] (English translation [14]) was an equal success. It was awarded several prizes and its reviews were extremely favourable: "Der Verfasser hat es glänzend verstanden wir solche Bücher geschrieben sein sollen" (Jahresbericht der Deutschen Math. Vereinigung, Vol. 84). Its translation into German [15] will appear in 1983, a Russian version is being prepared. Almost all papers dealing with variational method include the monograph in their lists of references.

The lifework of Prof. Rektorys, however, is his monograph [16], whose Czech version [17] will appear in 1983. This book is equivalent to a number of original research papers. It is above all thanks to this and the above monographs that the name of K. Rektorys has been one of the best known Czechoslovak mathematicians throughout the world.

In addition to these extremely useful works, Prof. Rektorys is author or co-author of a number of textbooks and lecture notes, which demonstrate, together with his activity at the Technical University, that he is an excellent and devoted teacher, always ready and willing to offer advice and help. His friends have known him as an amiable companion, a man with good taste and knowledge of art, and an active sportsman. Taking into account Rektorys's rich scientific and educational activity, his devotion, tact and personal charm, we get a picture of a prominent personality of Czechoslovak mathematics.

On behalf of the Czechoslovak mathematical community, we wish Prof. Karel Rektorys good health, personal happiness and many further successes in scientific research and educational activities.

#### LIST OF PUBLICATIONS OF PROFESSOR KAREL REKTORYS

##### I Original papers

- [1] Problem of uniqueness of solution of partial differential equations for heat conduction with noncontinuous boundary conditions (Czech). Thesis, Charles University 1951.

- [2] Two theorems on the solution of the equation  $\partial u/\partial t = \Delta u$  (Czech). Čas. pěst. mat. 79 (1954), 333–366.
- [3] Solution of the problem of hydration heat in a dam (Czech). Dissertation, Czechoslovak Ac. Sci. 1955.
- [4] Determination of temperature in a dam under the action of inner sources of heat (Czech). Rozpravy ČSAV 66 (1956), řada mat. a příř. věd 14, 1–74.
- [5] Nonlinear problem of heat conduction in concrete massifs (Czech). Dissertation, Czechoslovak Ac. Sci. 1960.
- [6] Die Lösung des ersten Randwertproblems im Ganzen für nichtlineare parabolische Gleichungen mit der Netzmethode. Czechoslovak Math. J. 12 (87), (1962), 69–103.
- [7] Die Lösung der gemischten Randwertaufgabe und des Problems mit einer Integralbedingung für nichtlineare parabolische Differentialgleichungen. Czechoslovak Math. J. 13 (88), (1963), 189–208.
- [8] On Application of Direct Variational Methods to the Solution of Parabolic Boundary Value Problems of Arbitrary Order in the Space Variables. Czechoslovak Math. J. 21 (96), (1971), 318–339.
- [9] Solution of the First Biharmonic Problem by the Method of Least Squares on the Boundary. Aplikace matematiky 19 (1974), 101–131 (with V. Zahradník).
- [10] Solution of the First Problem of Plane Elasticity for Multiply Connected Regions by the Method of Least Squares on the Boundary. Part I, Aplikace matematiky 22 (1977), 349–394, Part II, Aplikace matematiky 22 (1977), 425–454 (with J. Danešová, J. Matyska, Č. Vitner).
- [11] A note on Nonhomogeneous Initial and Boundary Conditions in Parabolic Problems Solved by the Rothe Method. Aplikace matematiky 25 (1980), 56–72 (with M. Ludvíková).
- [12] On a Method of Twosided Eigenvalue Estimates for Elliptic Equations of the Form  $Au - \lambda Bu = 0$ . Aplikace matematiky 26 (1981), 211–240.

## II Books

- [13] Variační metody v inženýrských problémech a v problémech matematické fyziky. Praha, SNTL 1974.
- [14] Variational Methods in Mathematics, Science and Engineering. Dordrecht—London—Boston, Reidel Publ. Co, 1st ed. 1977, 2nd ed. 1979.
- [15] Variationsmethoden in Ingenierproblem und in Problemen der mathematischen Physik. In print.
- [16] The Method of Discretization in Time and Partial Differential Equations. Dordrecht—London—Boston, Reidel Publ. Co 1982.
- [17] Metoda časové diskretizace a parciální diferenciální rovnice. In print.
- [18] Matematická teorie rovinné pružnosti. Praha, NČSAV 1955 (with I. Babuška and F. Vyčichlo).
- [19] Mathematische Elastizitätstheorie der ebenen Probleme. Berlin, Akademie-Verlag 1960 (with I. Babuška and F. Vyčichlo).
- [20] Přehled užití matematiky. (Editor and Main Author.) Praha, SNTL, 1st ed 1963, 2nd ed. 1967, 3rd ed. 1973, 4th ed. 1981.
- [21] Survey of Applicable Mathematics. London, Iliffe Books — Massachusetts Institut of Technology Press 1968.

A more complete list of publications, including textbooks, lecture notes, proceedings, research reports etc. is to be found in Časopis pěst. mat. 108 (1983), 104–109.