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In memoriam Professor Josef Korous

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NEWS and NOTICES

IN MEMORIAM PROFESSOR JOSEF KOROUS

JOZEF MORAVČÍK, FRANTIŠEK PÚCHOVSKÝ, Žilina

On August 23, 1981, a modest man, talented mathematician and devoted teacher, Professor RNDr. Josef Korous, DrSc., passed away.

Professor Korous was born in Prague on February 7, 1906. His father was a civil engineer. After the final examination at a grammar school in Prague in 1924 he entered Charles University, Prague, to study Mathematics and Physics. He was most strongly



attracted by the lectures and seminars of Professor K. Petr, who himself considered him one of his best students. Already in June 1928 Korous received his degree of Doctor of Natural Science (RNDr.) on the basis of his dissertation [1]. He graduated from the University in December 1928 and was granted scholarship of the Ministry of Education to study in Göttingen with the famous mathematicians Hilbert and Landau (1929–30).

In the years 1930–34 he was Assistant Professor of Mathematics at the Czech Technical University in Prague; then he worked as teacher at several grammar schools till 1953.

In September 1953 he became Associated Professor (Dozent) and Head of Department of Mathematics and Descriptive Geometry at the then founded School of Railway Engineering in Prague. In 1959 he was appointed Full Professor and a year later he moved with the school (re-named School of Transport Engineering) to Žilina in Slovakia. In 1962 he defended the thesis and obtained the degree of Doctor of Science (DrSc.). During the years 1953–66 he considerably contributed to the successful development of the Department and of the School as a whole.

In 1966–69, Professor Korous was Head of Department of Mathematical Analysis at the Faculty of Science, P. J. Šafárik University at Košice, then for about three terms Head of Department of Mathematics of the Faculty of Mechanical Engineering, Czech Technical University in Prague. In October 1970 he resumed his post and office at the School of Transport Engineering in Žilina. Even after his retirement in 1977 he did not give up his work and continued his teaching activity as Visiting Professor at the Faculty of Education at Nitra. Death reached him unexpectedly in the middle of work and creative plans.

In addition to his outstanding teaching and organizing activities, Professor Korous pursued intensively and successfully mathematical research. He was author of 13 original papers, 12 lecture notes, some of which have a character of monographs, and more than 60 other papers and reports. He was project leader in one of the National Programs of Basic Research.

The research of Professor Korous was centered on the theory of orthogonal polynomials and related problems. In his works he dealt with various properties of orthogonal polynomials, in particular the location of roots, asymptotic properties for  $n \rightarrow \infty$  ( $n$  being the degree of the polynomial) and developements of functions of a real variable in series of such polynomials. His works in this direction can be divided into two groups, one of them including the papers [1], [2], [4], [5], [10], [11] and the other [6], [8], [9], [13].

Already the first two papers presented a significant contribution to the theory of orthogonal polynomials. In [1] Korous first established estimates for the least and greatest positive roots of the Hermite polynomial, as well as for the difference of two subsequent roots. These results were then used to prove the equiconvergence of the development of a function  $f$  in a series of Hermite polynomials and in a Fourier series under the condition that the integral  $\int_{-\infty}^{\infty} |f(t)| \exp(-t^2/2) dt$  converges. In [2] he proved analogous results for the Laguerre polynomials. Among other, he generalized Szegő's criterion for convergence of the series of Laguerre polynomials and proved an analogue of Fejér's theorem for summation by arithmetic means. The results of the first two papers were further generalized in the other papers of the first group to orthogonal polynomials with various weights of rather general types.

The papers of the second group mostly dealt with the development of functions

into series of polynomials orthonormal in  $(-1, 1)$  and with asymptotic properties of such polynomials.

In the remaining papers Professor Korous studied some generalizations of Fourier series, among other in connection with the second order linear differential equation.

The results of Professor Korous represent a significant contribution to mathematical analysis and they have been frequently quoted in works of both Czechoslovak and foreign mathematicians. Let us only mention the monograph by G. Szegő "Orthogonal Polynomials", Natanson's "Konstruktivnaya teorie funkcii", "Konvergenzprobleme der Orthogonalreihen" by Alexits and others. It is to be regretted that his untimely death did not allow Professor Korous to carry out his idea of writing a monograph on orthogonal polynomials.

Professor Korous devoted all his life to education and Mathematics. During more than thirty years of his work at several universities he provided mathematical training to thousands of future engineers and teachers, who keep him in mind as an excellent teacher and a kind and honest man.

#### LIST OF PUBLICATIONS OF PROFESSOR JOSEF KOROUS

- [1] On development of functions of real variable into a series of Hermite polynomials. (Czech.) Rozpravy II. třídy České akademie věd v Praze, No. 11, 1928, 1–34.
- [2] On series of Laguerre polynomials. (Czech.) Rozpravy II. třídy České akademie věd v Praze, No. 40, 1928, 1–23.
- [3] Remarque à propos de l'article de M. Pólya concernant la déduction de la lois des erreurs de Gauss. Aktuárské vědy I (1930), 37–41.
- [4] Über Reihenentwicklungen nach verallgemeinerten Laguerrschen Polynomen mit drei Parametern. Věstník Král. české společnosti nauk, třída matematicko-přírodovědecká, XIV (1937), 1–26.
- [5] Über Entwicklungen der Funktion einer reellen Veränderlichen in Reihen einer gewissen Klasse orthogonaler Polynome im unendlichen Intervalle. Věstník Král. české společnosti nauk, třída matematicko-přírodovědecká, XV (1937), 1–19.
- [6] On development of functions of one real variable into a series of certain orthogonal polynomials. (Czech.) Rozpravy II. třídy České akademie věd v Praze, No. 1, 1938, 1–11.
- [7] On a generalization of Fourier series. Časopis pro pěst. mat. a fys. 71 (1946), 1–15.
- [8] On development of functions of one real variable into a series of certain orthogonal polynomials. (Czech.) Strojnický sborník technicko-vědecké práce pracovníků Vysoké školy železniční v Praze, 17 (1957), 45–52.
- [9] On asymptotic formulas for orthogonal polynomials in a finite interval. (Czech.) Sborník Vysoké školy železniční, stavební fakulty, Praha, 1957, 61–109.
- [10] On a generalization of Hermite polynomials. (Czech.) Sborník Vysoké školy dopravní, fakulty provozu a ekonomiky dopravy, Praha, 1960, 49–117.
- [11] On a certain class of orthogonal polynomials. (Czech.) Dissertation. Žilina, 1961.
- [12] Dispersion of characteristic values of operators. (Czech.) Sborník Vysoké školy dopravní, fakulty provozu a ekonomiky dopravy, Praha 1965, 4--15.
- [13] On convergence of series of orthogonal polynomials. (Czech.) Zborník IV. ved. konferencie VŠD v Žiline, sekcia matematika-fyzika-kybernetika, Žilina, 1973, 25–35.