

Czechoslovak Mathematical Journal

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In memoriam of Jan Kadlec

Czechoslovak Mathematical Journal, Vol. 18 (1968), No. 1, 190–192

Persistent URL: <http://dml.cz/dmlcz/100820>

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IN MEMORIAM OF JAN KADLEC

ALOIS KUFNER, JINDŘICH NEČAS, Praha

On June 22, 1967, RNDr JAN KADLEC CSc., member of the Mathematics Institute of the Czechoslovak Academy of Sciences, died a tragic death in Italy while he was on one year's stay at the Pisa University. The Czechoslovak mathematics has lost a highly gifted young worker in the field of partial differential equations.



He was born in Prague on March 26, 1939. In Prague he also took the school-leaving examination in 1956. He early got interested in mathematics and was successful in mathematical competitions organized for pupils of senior secondary schools. This interest in mathematics brought him to the study of mathematical analysis at the Faculty of Mathematics and Physics of the Charles University, from 1956 to 1961. He ranked among the best students there. From the period of the University studies also dates his first paper [1]; the thesis directed then his attention to partial differential equations.

It dealt with the solution of the first boundary-value problem for the second-order elliptic equation with unbounded Dirichlet integral (see [2]). Kadlec extended in his thesis some results obtained by J. Nečas under whose leadership he worked at the Institute of Mathematics of the Czechoslovak Academy of Sciences after having finished his University studies. He continued there his work on elliptic and parabolic equations. In his papers [3] and [4] he proved that the second derivatives of the solution of the Poisson problem for the second-order elliptic equation are square integrable if the domain has a locally convex character. The papers [7] and [15] concern the maximum-principle for a weakly non-linear parabolic equation in self-adjoint form whose coefficients are only supposed to be bounded and measurable, and the same principle for non-linear parabolic inequalities.

Of a considerable scientific importance is his thesis (see [6] and [12]) he presented in 1965 to obtain the degree of *candidatus scientiarum*. He proved there the existence of weak solutions of the mixed problem for a certain class of parabolic equations. The scientific contribution of the thesis consists in the fact that Kadlec introduced some new functional spaces of functions with fractional derivative expressing precisely the non-negativeness of the parabolic operator and containing the sought solution. This problem is closely related to the subject of the paper [12] considering the class of domains onto which the previous results can be applied.

In the last period of his life, Kadlec gave an intense attention to the theory of functional spaces of Sobolev and Běsov type. In the papers [10], [13] and [14] he studied with other authors the properties of the weight spaces some of which were used in the paper [9]; in the paper [8] he introduced the spaces of functions whose generalized derivatives $D^\alpha u$ are defined for the multiindices α belonging to the given convex set K , and he examined the geometrical conditions for the existence of traces of elements of such spaces on hyperplanes.

The problems studied during the stay in Italy gave rise to the paper [16] written jointly with J. Nečas. In this paper the regularity of the solution of linear elliptic equations of higher order is proved by making use of Morrey spaces. The paper [17] originated as a result of the cooperation between the Czechoslovak Academy of Sciences and that of the U.S.S.R.

This brief survey of results obtained by Jan Kadlec demonstrates his outstanding ability, interest and activity. He was one of the most active members of the seminar on partial differential equations organized by the Institute of Mathematics. His interest in mathematics was not confined to the field of partial differential equations and to the theory of functions. He had a deep erudition in a number of other mathematical disciplines and was always ready to transmit it to others. The proof of it is his teaching activity at the Faculty of Mathematics and Physics where he gave some optional lectures.

Though young, Jan Kadlec did an amount of valuable and useful work and there was every reason to expect that he would become a significant personality of Czechoslovak and world mathematics. A good man and a gifted mathematician has died; nevertheless, his moral qualities, his enthusiasm for scientific work as well as the results obtained by him, will always be an example and the memory of him will for ever remain in the mind of those who knew and esteemed him.

THE LIST OF SCIENTIFIC PUBLICATIONS OF JAN KADLEC

- [1] Elementární důkaz zobecnění Kakeyovy věty na mocninou řadu (An elementary proof of a generalization of the Kakeya theorem on power series). Časopis pěst. mat. 88 (1963), 371—375.
- [2] О некоторых свойствах решений эллиптических дифференциальных уравнений в частных

- производных второго порядка с неограниченным интегралом Дирихле, *Čas. pěst. mat.* 88 (1963), 142—155.
- [3] О регулярности решения задачи Пуассона на области с границей подобной границе куба, *Чех. мат. ж.* 13 (88), (1963), 599—611.
- [4] О регулярности решения задачи Пуассона на области, локально подобной границе выпуклой области, *Чех. мат. ж.* 14 (89), (1964), 386—393.
- [5] О принципе максимума для эллиптических уравнений второго порядка и методе Винера, *Чех. мат. ж.* 14 (89), (1964), 154—155.
- [6] Об одном обобщении уравнения теплопроводности, *Comment. Math. Univ. Carolinae* 6 (1965), 13—18.
- [7] Strongly maximum principle for weakly nonlinear parabolic equations, *Comment. Math. Univ. Carolinae* 6 (1965), 19—20 (with R. Výborný).
- [8] On the existence of traces of distributions belonging to $B_{p,\theta}^{(K)}$, *Comment. Math. Univ. Carolinae* 6 (1965), 403—408.
- [9] On the solution of the mixed problem, *Comment. Math. Univ. Carolinae* 7 (1966), 75—84 (with A. Kufner).
- [10] О некоторых свойствах весовых классов, Доклады АН СССР, 171 (1966), 514—516 (with O. V. Běsov and A. Kufner).
- [11] О решении первой краевой задачи для некоторого обобщения уравнения теплопроводности в классах функций с дробной производной по времени, *Чех. мат. ж.* 16 (91), (1966), 91—113.
- [12] On a domain of the type Ψ , *Czech. Math. J.* 16 (91), (1966), 247—259.
- [13], [14] Characterization of functions with zero traces by integrals with weight functions, I: *Čas. pěst. mat.* 91 (1966), 463—471; II: *Čas. pěst. mat.* 92 (1967), 16—28 (with A. Kufner).
- [15] Strong maximum principle for weak solutions of nonlinear parabolic differential inequalities, *Čas. pěst. mat.* 92 (1967), 373—391.
- [16] Sulla regolarità delle soluzioni di equazioni ellittiche negli spazi $H^{k,\lambda}$, *Ann. Scuola Norm. Sup. Pisa* 3, 21 (1967), 527—545 (with J. Nečas).
- [17] Об оценках S -чисел операторов вложения и операторов, повышающих гладкость, *Чех. мат. ж.* (with V. B. Korotkov; to appear).
- [18] Fourier Series, *Academia Praha* (with A. Kufner; to appear).

PROFESSOR MIROSLAV KATĚTOV'S FIFTIETH BIRTHDAY

MIROSLAV KATĚTOV, member of the Czechoslovak Academy of Sciences, doctor of physical and mathematical sciences, professor of Charles University, director of the Mathematical Institute of Charles University and leading research worker of the Mathematical Institute of the Czechoslovak Academy of Sciences, will celebrate his fiftieth birthday on March 17, 1968.

Professor Katětov's field of work is general topology in which he ranks among the world's experts. However, his friends and collaborators know of his wide outlook in a number of other mathematical disciplines such as the theory of sets, mathematical logic and functional analysis, as well as of his interest in the philosophical questions of mathematics. The range of his interests fact very wide; let us only mention here his capabilities as chess-player (he holds the International Master title) and the attention he devotes to the problems of the history of science.

M. Katětov was born on March 17, 1918 in Čembar (since 1947 Bělinskij), U.S.S.R, and has lived in Czechoslovakia since 1923. From 1935 to 1939 he studied at the Faculty of Science at the Charles University, but though he submitted his thesis in Autumn 1939, he could not graduate till 1945 on account of the closure of all Czech Universities. During the war he worked as mathe-