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IN MEMORIAM Nikolai Karapetyants



1942 - 2005

The outstanding Russian mathematician **Nikolai Karapetovich Karapetyants, Professor of the Rostov State University**, suddenly passed away, on **January 14, 2005** [†], just nine days before his 63rd birthday.

We lost a friend and colleague and coauthor and a very nice person, with whom we were happy to collaborate and communicate.

[†] For some technical reasons, the present “FCAA” number was considerably delayed in schedule, so the sad news came before journal’s publication

Nikolai Karapetyants was born on January 22, 1942 in Rostov-on-Don. In 1959, Nikolai Karapetovich entered the Rostov State University, and all his career was related to this University. He graduated from Rostov University, took post-graduate course and got his PhD degree. After he defended the USSR 2nd Doctor Degree at the Mathematical Institute of Georgian Academy of Sciences, Tbilisi in 1989, he became a Full Professor. From 1998 he headed the Chair of Differential and Integral Equations at the Department of Mathematics and Mechanics of Rostov University. For many years he was Vice-Chairman of the Permanent Council awarding PhD Degrees in Mathematics at the Rostov State University. Nikolai Karapetyants was devoted to teaching, he liked to give his knowledge to students. He taught, in particular, *Mathematical Analysis*, *Probability Theory*, *Differential equations*, *Equations of Mathematical Physics* and various *Special courses for advanced students*.

He had a considerable number of PhD students who defended their dissertations at the Rostov State University and some of them continue to work at the chair he headed before his death. He also was always open to give support to mathematicians who contacted him, from Russia, Armenia, Belarus, Georgia and other former Soviet Republics, either as a supervisor or collaborator or just a friendly helper.

The name of Professor Karapetyants is known to many researchers in the operator theory, in particular, in the theory of singular operators. He was one of the first researchers who started, in the 60s of the last century, to develop the normalization method for non-normally solvable operators. For example, his paper: N.K. Karapetyants, "*Normalization of discrete convolution type equations*" (in Russian). *Izv. VUZOV, Matematika*, 1968, 12 (79), 45-52, is referred to by experts as one of the "pioneer" classical papers on normalization.

The main scientific interests of Nikolai Karapetyants, besides singular operators and convolution type operators, were in such topics as integral operators with homogeneous kernels, one-dimensional and multi-dimensional ones, integral equations with shift and involutive operators and fractional calculus and others. He published more than 120 scientific papers including two books. His results were published in various Russian and international mathematical journals and highly estimated by experts. He was invited to present lectures to many international conferences in Russia, Armenia, Belarus, Germany, Georgia, Mexico and Portugal.

He was always keen for new ideas. His paper: A.I. Ginzburg, N.K. Karapetyants, *Fractional integrals and singular integrals in the Holder classes of variable order*. Integr. Transf. and Spec. Funct., 1994, No 2, 91-106, was one of the pioneer papers in the field which was later called "variable exponent analysis".

We were happy to collaborate with him. Nikolai was always an excellent partner in discussing new ideas and new methods, always willing to share your point of view but insisting on his way of vision when felt that his point of view is leading to the solution of a problem.

The book: N.K. Karapetyants and S.G. Samko, *Equations with Involution Operators*. Birkhauser: Boston (2001), which was an enlarged English edition of the previous Russian version of this book, was written in collaboration with one of us, based on a longstanding collaboration starting from the early 70s. This fruitful collaboration was a happy period. The gentle manner of Nikolai to do things always attracted people and make people happy indeed to work with him, to enjoy his personality and his humor. The authors of this note were happy to communicate and collaborate with Nikolai Karapetyants for many years. Some of us knew him from his student's life then football-player, very keen chess-player and preference gambler, later beginning researcher, careful husband and father. His son Alexey Karapetyants is also a mathematician, a winner of the Grant for Young Mathematicians at the 3rd Congress of ISAAC in 2001 in Berlin.

Always being in mathematics, Nikolai kept a permanent interest to various mathematical problems and ideas. Not long before his premature death, Nikolai had an interest in obtaining exact characterization of fractional integrals and derivatives of continuous functions with a prescribed continuity modulus, in terms of the Boyd-type indices of those continuity moduli. The paper on this subject (in collaboration with N. Samko) was submitted to "*Fract. Calc. Appl. Anal.*" less than two months before he so untimely died¹.

Nikolai Karapetyants will be always remembered for his contribution to mathematics, his genuine personality, kindness and willingness to be helpful to others. He is survived by his wife Tatiana and son Alexey, Professor of Rostov State University, and grandsons Michael and George.

¹This paper appears now published in this same issue, see pp. 437 - 458

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The EDITORIAL BOARD OF "FCAA" join their condolences to the colleagues, relatives and friends of Prof. Nikolai Karapetyants. We honorably appreciate his support to our journal, since its very beginning, as an author, friendly adviser and careful reviewer of many "FCAA" articles.

Here is a list of his publications in "FCAA":

– N. Karapetiants, S. Samko, *Mmulti-dimensional integral operators with homogeneous kernels*, FCAA, 2, No 1 (1999), pp. 67-96; – N.K. Karapetiants, L.D. Shankishvili, *A short proof of Hardy-Littlewood-type theorem for fractional integrals in weighted Hölder spaces*, FCAA, 2, No 2 (1999), pp. 177-192; – B.G. Vakulov, N.K. Karapetiants, L.D. Shankishvili, *Spherical hypersingular operators of imaginary order and their multipliers*, FCAA, 4, No 1 (2001), pp. 101-112; – N. K. Karapetiants, *On behaviour of the norms of fractional integrals of large orders*, FCAA, 5, No 3 (2002), pp. 295-302.

More details about his life and mathematical contributions, can be seen also in: S. G. Samko (Letter to Editor): *Prof. N. Karapetiants's 60th*, FCAA, 5, No 1 (2002), pp. 123-126.

Virginia Kiryakova, MANAGING EDITOR OF "FCAA" JOURNAL