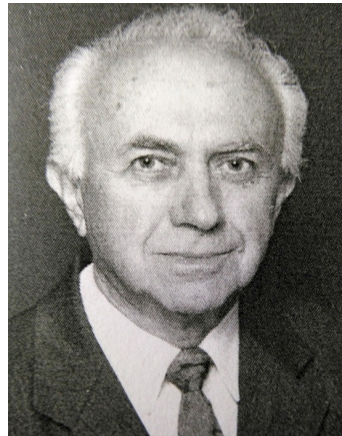# VELJKO A. VUJIČIĆ
1929–2020

Professor Veljko Vujičić, a distinguished representative of Bilimović's school of mechanics, a meritorious administrator in mathematical sciences in Serbia, and the founding Editor-in-Chief of Theoretical and Applied Mechanics, passed away on November 25, 2020, in Belgrade, Serbia.

Veljko Vujičić was born on March 29, 1929, in Nikšić, Kingdom of Serbs, Croats and Slovenes, in the family of Akim and Ljubica, born Vučinić. After finishing elementary and high school in Nikšić, he graduated from the Air Defense Artillery School of the Yugoslav People's Army. Afterwards, he taught the Anti-aircraft Shooting Class in the Yugoslav People's Army Unit in Užice.

Veljko Vujičić graduated from the Faculty of Natural Sciences and Mathematics (FNSM) of the University of Belgrade, Department of Mechanics, in 1957. Two years later he received his MSc from the same department and became an assistant there. He spent the academic year 1959/60 at the Faculty of Mechanics and Mathematics of Moscow State University, doing specialization (»stazhirovka«) under the supervision of Professor V. V. Rumyantsev. Veljko Vujičić received his doctoral degree in 1961 from the University of Belgrade after defending the thesis entitled Motion and stability of motion of dynamically variable objects. The thesis committee consisted of A. Bilimović, K. Voronjec, T. Anđelić, and D. Rašković.

The same year he was elected assistant professor at the FNSM. In 1968 he was promoted to associate professor and then to full professor in 1974. He taught several core courses in mechanics: Dynamics of Bodies of Variable Mass, Vibration Theory, Analytical Mechanics, Statics, Tensor Calculus, Theory of Fields, Theory of Stability and Control of Mechanical Systems. At the Faculty of Mechanical Engineering in Belgrade he taught a graduate course in Tensor Calculus, while at the Faculty of Engineering Sciences in Titograd (now Podgorica) he taught Statics, Resistance of Materials and Technical Dynamics. At the Faculty of Mining and Metallurgy in Kosovska Mitrovica he taught Mechanics II.

His first scientific paper was *Some integrals of the equations of motion of a particle of variable mass*, Prikl. Mat. Mekh. **24** (1960). Professor Vujičić published more than 170 bibliographic units in international and national journals, 73 of which have been indexed in the Mathematical Reviews. The primary AMS classification shows a wide scope of his scientific interest: Mechanics of particles and systems (52); Differential geometry (10); Ordinary differential equations (3); Calculus of variations and optimal control; optimization (3); History and biography (2); General applied mathematics (1); Mechanics of solids (1); Systems theory; control (1).

As an illustration, we would like to mention some of the results. In *La corrélation du principe de Pfaff–Bilimović avec les autres principes de mécanique*, Publ. Inst. Math., Nouv. Sér. (1961) "after having formulated the so-called Pfaff–Bilimović principle of mechanics, the author establishes its relationship to other mechanical principles, such as the principles of D'Alembert, Maupertuis–Lagrange and Hamilton, and shows the whole generality of this new principle", as T. Anđelić states in Math. Rev. In *A consequence of the invariance of the Gauss principle*, Prikl. Mat. Mekh. (1987) a new form of Gauss's principle which is invariant with respect to the transformations of generalized coordinates and relates the principle to the Gibbs–Appell equations is proposed. In *On the Lyapunov problem on stability with respect to given state functions*, Prikl. Mat. Mekh. (1991) (with Valery Kozlov), he further developed some ideas of the first Lyapunov method in connection with a general problem of the stability of equilibria of reversible systems. He also co-authored (with A. A. Martynyuk) the monograph *Некоторые задачи механики неавтономных систем*, Математички институт САНУ, Институ механики Киев, 1991.

A comprehensive analysis of the scientific results of Dr. Vujičić and their place in the wider framework of the scientific school of Suslov, Voronec and Bilimović is presented in the monograph by A. T. Grigoryan and B. N. Fradlin, *Scientific Legacy of the G. K. Suslov School and its Development in the Work of Yugoslav Scientists*, T. Anđelić ed., *History of mathematical and mechanical sciences* **1**, Mathematical Institute, 1977, pp. 65 [in Russian]. A more recent account of Professor Vujičić's accomplishments is given in the paper by Zoran Drašković, *The Life and Work of Veljko A. Vujičić, on the Occasion of his 70th Anniversary*, Recent Advances in Analytical Dynamics – Control, Stability and Differential Geometry: Proceedings / [editor Vladan Đorđević], Beograd: Matematički institut SANU, 2002, 150 pp.

Along with teaching and research, Professor Vujičić dedicated his enthusiasm and energy to the organization of scientific research and was engaged in many important scientific administrative duties. He was the founding Editor-in-Chief, from volume 1 (1975) to volume 21 (1995), of Теоријска и примењена механика (Theoretical and Applied Mechanics), a scientific journal issued at that time by the Yugoslav Society of Mechanics and the Mathematical Institute SASA. During this period the journal became the leading Yugoslav journal in the field of mechanics. It published the contributions of many well-known researchers and gained a very high international reputation.

Professor Veljko Vujičić was appointed dean of the Faculty of Mathematics and Natural Sciences at the University of Belgrade in 1973. Furthermore, during the 1960's and 1970's he was the deputy director of the Mathematical Institute of the Serbian Academy of Sciences and Arts. He served as the acting director of the Mathematical Institute in 1969, and from March 1, 1992 to March 1, 1993. The period 1992–1993 was exceptionally challenging in Serbian society and Professor Vujičić fully demonstrated his managerial skills and responsibility by leading the Institute in these unprecedented times.

He was a chairman of the Department of Mechanics of the Mathematical Institute (1984–2000). Professor Vujčić initiated the Primary Board for Mathematics and Mechanics within the Scientific Foundation in Serbia in the 1980's and served as its inaugural chair. Besides, he was the first president of the Society of Mechanics in Serbia within the Yugoslav Society of Mechanics (founded in 1968) and the first president of the Yugoslav Academy of Nonlinear Sciences (now Serbian Academy of Nonlinear Sciences) from 1998 to 2014. He led seminars on Motion Stability, Theory of Motion Control, and Analytical Mechanics. He authored two university textbooks (Statics and Vibration Theory), and translated from Russian into Serbian a well know textbook by F.R. Gantmaher, Лекции по аналитической механике. Professor Vujičić contributed greatly to the development of future generations of scientists and was the adviser of eight doctoral dissertations, including six defended at the FNSM by: Aleksandar Bakša, Dušan Mikičić, Ranislav Bulatović, Josif Vuković, Velibor Branković, and Mila Kažić.

Professor Veljko Vujičić was an honorary member of the Yugoslav Society of Mechanics (followed by the Serbian Society of Mechanics) and the Serbian Academy of Nonlinear Sciences (from 2018). He was also a member of several international scientific associations (GAMM, Tensor Society, AMS), a corresponding member of the American Academy of Mechanics (from 1994), a member of the International Academy of Nonlinear Sciences with the main office in Moscow (from 1996) and a corresponding member of the European Academy of Sciences and Arts with the main office in Paris (from 1998).

On April 26, 2016, the Managing Board honored Prof. Dr Veljko Vujičić with the MISANU Award in recognition of his outstanding contributions to the development of the Mathematical Institute and mathematics in Serbia. On May 8, 2019, the Mathematical Institute, its Department of Mechanics and the Theoretical and Applied Mechanics journal organized the Symposium on Analytic Mechanics and Differential Geometry devoted to the 140th anniversary of Professor Anton Bilimović and the 90th anniversary of Professor Veljko Vujičić. The Theoretical and Applied Mechanics journal has dedicated its current, December 2020 issue (Vol. 47, No. 2), to these jubilees.

For his fruitful and tireless scientific work, Professor Veljko Vujičić was awarded two high state decorations of honor (the Order of Labor with a Golden Wreath and the Order of Labor with a Red Flag) and two plaques of the City of Belgrade. Professor Veljko Vujičić had a long and fruitful life devoted to science. His energy and enthusiasm will be remembered and missed by many.

Vladimir Dragović
Borislav Gajić
Božidar Jovanović