



VLADIMIR NIKOLAYEVICH RUBANOVSKII (7 FEBRUARY 1941–22 MARCH 2002)†



Vladimir Nikolayevich Rubanovskii, the eminent Russian scientist, Doctor of Sciences in Physics and Mathematics, Professor, and winner of the Russian Federation State Prize, passed away on 22 March 2002.

V. N. Rubanovskii was born on 7 February 1941 in Moscow into a working class family. After graduating from the Mechanics and Mathematics Faculty of the M. V. Lomonosov Moscow State University in 1964, he took a post-graduate course in the Department of Mechanics of Moscow State University, where he was supervised by V. V. Rumyantsev. In 1968 he brilliantly defended his Master's thesis on the dynamics of a rigid body in a fluid, and in 1977 his Doctoral thesis on the development of the theory of stability and bifurcation of steady motions. From 1968 to 1991 he worked at the Computing Centre of the USSR Academy of Sciences (now the A. A. Dorodnitsyn Computing Centre of the Russian Academy of Sciences), where he rose from Junior Research Assistant to Head Research Fellow of the Department of Mechanics. From 1991 up to his untimely death, he was Professor in the Department of Theoretical Mechanics at the I. M. Gubkin Russian State University of Oil and Gas, and for a number of years he was Head of this department.

He made a significant contribution to the development of analytical mechanics and the theory of the stability of motion. When still a post-graduate student, he discovered new cases of integrability of the equations of motion of a multiply connected rigid body in a fluid, which extend the Lyapunov and Steklov cases to a simply connected body. He was widely known for his work on the theory of the stability of the steady motions of systems with known first integrals. He extended (together with A. V. Karapetyan) the Kelvin–Chetayev theorem to systems of general form, and the Routh–Lyapunov–Salvadori theorem to dissipative systems, and he demonstrated (together with S. Ya. Stepanov) the equivalence of the adequate conditions of stability obtained from Routh's theorem and by Chetayev's method for plotting the Lyapunov function in the form of a pencil of integrals (a linear combination of first integrals and their squares), provided that the same integrals are taken and the entire pencil is examined. On the basis of these general methods, he obtained a series of new fundamental results in classical problems

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of dynamics (a heavy rigid body with a stationary point, a gyrostat satellite, a heavy rigid body suspended on a string, a heavy rigid body on a horizontal plane, etc.), and in problems of the dynamics of systems of rigid bodies with elastic and fluid elements. In 1996, in a cycle of studies on the dynamics of a rigid body suspended on a string, he (together with Academicians A. Yu. Ishlinskii and V. V. Rumyantsev, and also Professors V. A. Sarychev and S. A. Mirer and others) was awarded the Russian Federation State Prize.

He devoted much time and effort to his teaching activity. Working at the Computing Centre of the USSR Academy of Sciences, he held a teaching seminar on the theory of the stability of motion in the Theoretical Mechanics Department of the Mechanics and Mathematics Faculty of Moscow State University. On the basis of papers given at this seminar, he wrote (together with V. A. Samsonov) the monograph “The Stability of Steady Motions in Examples and Problems” (Nauka, Moscow, 1988), which is a reference book for specialists on the theory of the stability of motion. As with all of his creative output, this monograph is noted for the clarity with which the problems are formulated, the rigour with which they are solved and the clear mechanical interpretation of the results obtained. During his active scientific life (unfortunately very short – he was seriously ill in his final years and hardly published anything), he published over 75 papers, trained several students for their Master’s degree, translated into Russian monographs by Chandrasekhar and by Iooss and Joseph, and also was one of a team of translators of Routh’s classical treatise and of monographs by Wittenburg and by Rouche, Habets and Laloy. On numerous occasions he presented brilliant papers at the most impressive congresses and conferences, both in Russia and abroad.

Vladimir Nikolayevich Rubanovskii, a talented scientist and a remarkable man selflessly devoted to science, will always be remembered with great affection.

Translated by P.S.C.