



Professor Lidiya V. Kurpa

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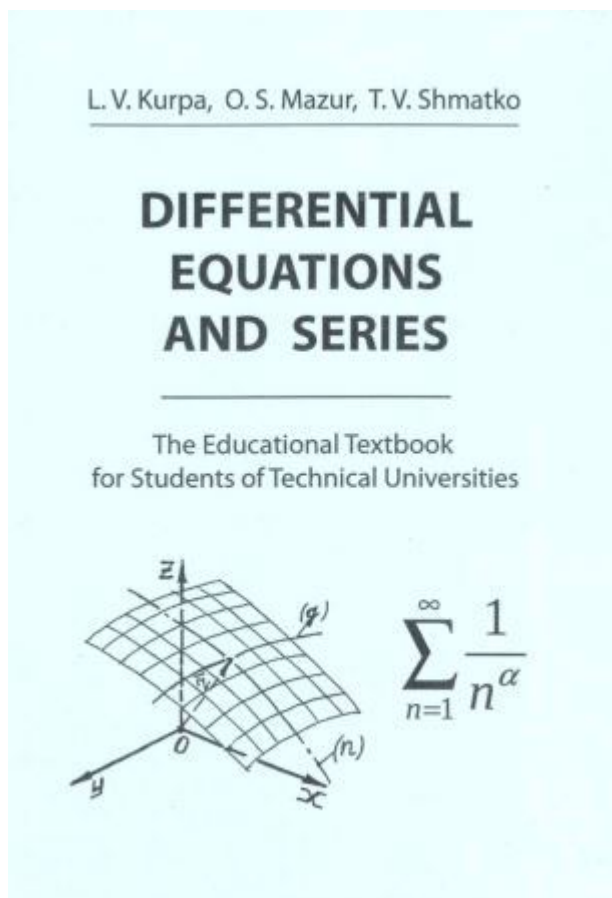
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Applied Mathematics Department
National Technical University
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Biography:

Lidiya Vasilyevna Kurpa started management of the Department of Applied Mathematics since 1995. L.V.Kurpa started her pedagogical activity in 1969 after she had obtained PhD degree. At the beginning of her career L.V.Kurpa took the position of assistant professor and later the position of associate professor of the Department of Applied Mathematics. In 1980 she gave up pedagogical activity at the Polytechnic Institute and began working at Kharkov Institute of Machine Building Problems at the Department of Applied Mathematics and Computational Methods. Under the direction of V.L. Rvachev she performed researches concerning solution of vibration problems for plates and shallow shells of arbitrary form by the R-functions method. The results of these investigations have been published in 3 monographs and more than 250 papers. In 1990 L.V. Kurpa defended Dr.Sci. thesis “Development of R-functions-based methods and software for solving problems of bending, vibration and stability of thin-walled structural elements of complex shape”. After obtaining Dr.



L.V. Kurpa, O.S. Mazur and T.V. Shmatko, “Differential Equations and Series”, 2013, 288 pages

Sci. degree she renewed her work at the Department of Applied Mathematics as a professor and later as the Head of the Department. Under the management by L.V. Kurpa the Department has gained considerable success in scientific and educational activities. During last years (2010-16) scientific workers of the Department wrote more than 70 research papers and more than 20 textbooks. The results of investigations were presented at well-known scientific conferences.

Research Interests:

The theory of R-functions;

Development of the methods for solving non-linear problems of vibrations of laminated plates and shallow shells of complex shape.

Selected Publications:

Rvachev, V.L., Kurpa, L.V.: The R-Functions in Problems of Plate Theory. Nauk, Dumka, Eiev (1987). (in Russian)

Awrejcewicz, J., Kurpa, L., Osetrov, A.: Investigation of the stress-strain state of the laminated shallow shells by R-functions method combined with spline-approximation. ZAMM J Appl. Math. Mech. **96**, 458–467 (2001)

Kurpa L.V., Rvachev V.L., Ventsel E.: The R-function method for the free vibration analysis of thin orthotropic plates of arbitrary shape. J. Sound Vib. 261, 109–122 (2003)

Kurpa, L.V., Pilgun, G., Ventsel, E.: Application of the R-function method to nonlinear vibrations of thin plates of arbitrary shape. J. Sound Vib. **284**, 379–392 (2005)

Kurpa, L.V., Lyubitska, K.I., Shmatko, A.V.: Solution of vibration problems for shallow shells of arbitrary form by the R-function method. J. Sound Vib. **279**, 1071–1084 (2005)

Kurpa, L.V., Osetrov, A.A.: Study of natural vibrations of shallow shells using R-functions method and spline-approximation. Mat. metodi ta fiz.-meh. Polya **50**(4), 83–93 (2007)

L. Kurpa, G. Pilgun, M. Amabili, Nonlinear vibrations of shallow shells with complex boundary: R-functions method and experiments, Journal of Sound and Vibration 306 (2007) 580–600.

L.V. Kurpa, Nonlinear free vibrations of multilayer shallow shells with a symmetric structure and with a complicated form of the plan, Journal of Mathematical Sciences 162 (2009) 85–98.

Kurpa, L.V.: R-Functions Method for Solving Linear Problems of Bending and Vibration of Shallow Shells. NTU”KhPI, Kharkov (2009). (in Russian)

J. Awrejcewicz, L. Kurpa, and O. Mazur, ”Research of stability and nonlinear vibrations by R-functions method,” in: Modeling, Simulation, and Control of Nonlinear Engineering Dynamical Systems, Springer, Netherlands (2009), pp. 179–189

Kurpa, L.V., Shmatko, T.V., Timchenko, G.N.: Free vibration analysis of laminated shallow shells with complex shape using the R-functions method. Compos. Struct. **93**, 225–233 (2010)

L.V. Kurpa, E.I. Lyubitskaya, I.O. Morachkovskaya, The R-function method used to solve nonlinear bending problems for orthotropic shallow shells on an elastic foundation, Int Appl Mech, 46 (2010), pp. 660–668

J. Awrejcewicz, L. Kurpa, T. Shmatko, Large amplitude free vibration of orthotropic shallow shells of complex shapes with variable thickness, Latin American Journal of Solids and Structures 10 (2013) 149–162.

L.V. Kurpa, O.S. Mazur and T.V. Shmatko, “Differential Equations and Series”, 2013, 288 pages

Kurpa, L.V.: Nonlinear vibrations of laminated shells with layers of variable thickness. In: Pietraszkiewicz, W., Witkowski, W. (eds.) Shell Structures: Theory and Applications, vol. 3, pp. 305–308. Taylor & Francis Group, London (2014)

Jan Awrejcewicz, Lidiya Kurpa and Tatiana Shmatko, “Investigating geometrically nonlinear vibrations of laminated shallow shells with layers of variable thickness via the R-functions theory”, Composite Structures, Vol. 125, pp 575-585, July 2015

Kurpa, L.V., Mazur, O.S., Shmatko, T.V.: Application of R-Functions Theory for Solving Nonlinear Dynamic Problems of Laminated Plates. OOO In Delo, Kharkov (2016). (in Russian)

Kurpa, L., Timchenko, G., Osetrov, A.: Application of R-functions theory to nonlinear vibration problems of laminated shallow shells with cutouts. In: Proceedings of the 5th International Conference on Nonlinear Dynamics ND-KhPI2016 September 27–30, pp. 451 – 455. Kharkov, Ukraine (2016)

Jan Awrejcewicz, Lidiya Kurpa and Tatijana Shmatko, “Analysis of geometrically nonlinear vibrations of functionally graded shallow shells of a complex shape”, Latin American Journal of Solids and Structures, Vol. 14, No. 9, pp 1648-1668, 2017

Lidiya Kurpa, Galina Timchenko, Andrey Osetrov and Tetyana Shmatko, “Nonlinear vibration analysis of laminated shallow shells with clamped cutouts by the R-functions method”, Nonlinear Dynamics, Vol. 93, No. 1, pp 133-147, July 2018