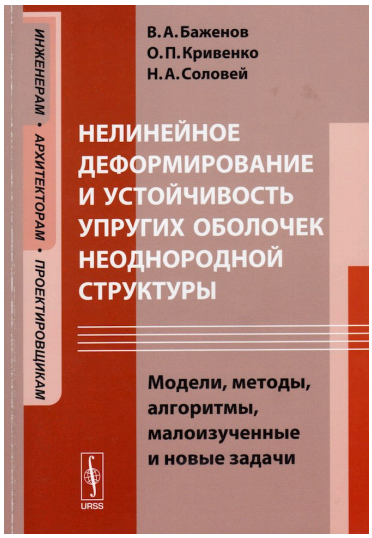
Dr. Olga P. Krivenko (Kryvenko)



Bazhenov, V. A., Krivenko O.P., & Solovei, N. A. (2010). Nonlinear deformation and stability of elastic shells of inhomogenous structure. Kyiv: CJSC "VIPOL", 316 p. [in Ukrainian]. (Left)

Bazhenov, V. A., Krivenko O.P., & Solovei, N. A. (2013). Nonlinear deformation and stability of elastic shells of inhomogeneous structure: Models, methods, algorithms, poorly studied and new problems. Moscow: Publishing house "LIBROKOM", 336 p. [in Russian]. (Right)

BIOGRAPHY AND CAREER:

Dr. Olga Petrovna Krivenko (Kryvenko) was born on February 22, 1947 in St.-Petersburg (Russia) (at that time Leningrad - USSR). In 1951 the family has moved to Kyiv (Ukraine).

EDUCATION:

Graduated from **Taras Shevchenko National University of Kyiv**, **faculty** of Mechanics and Mathematics, **department** of Mathematical Physics; Ukraine, 1971.
PhD (Structural Mechanics), Kyiv National University of Construction and Architecture, 2005.
Thesis: "Stability of flexible shells with geometric singularities by a thickness under thermomechanical loads";
Scientific supervisor prof. Victor A. Bazhenov.
Scientific title – Senior Research Fellow, 2006.

POSITIONS.

at Bogolyubov Institute for Theoretical Physics of the National Academy of Sciences of Ukraine, Kyiv (1971-1973)
at Taras Shevchenko National University of Kyiv (1973-1990)
at Scientific Research Institute of Structural Mechanics of the Kyiv National University of Construction and Architecture, Kyiv (1990 till this time).

PAPERS:

More than 100 publications, including 2 monographs.

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MAIN PAPERS:

Bazhenov V. A., Krivenko O. P., Solovei N. A. Nonlinear deformation and stability of elastic shells with inhomogenous structure. Kyiv: CJSC “VIPOL”, 316 p. (2010) [in Ukrainian].

Supplemented and revised edition:

Bazhenov V.A., Krivenko O.P., Solovei N.A. Nonlinear deformation and stability of elastic shells of inhomogeneous structure: Models, methods, algorithms, poorly-studied and new problems. – Moscow: publishing house "LIBROKOM", 336 p. (2013) [in Russian].

Abstract. The monograph deals with the development of the finite element method for geometrically nonlinear deformation, buckling, and postbuckling behavior of a wide class of thin elastic inhomogeneous shells with complex form and structure under combined thermomechanical loading. The approach is based on the uniform methodological positions of three-dimensional thermo-elasticity with using of the geometrically nonlinear equations and the moment finite-element scheme. A universal spatial finite element with the additional variable parameters has been developed. On the basis of this element it has been constructed a design model that describes the multilayer structure of a material and geometric features of structural elements of inhomogeneous shells: casing of varying thickness, ribs, cover plates, cavities, channels, holes and the midsurface with the sharp bends. The reliability of linear and nonlinear solutions for a wide class of inhomogeneous shells subjected to thermal and mechanical loads has been numerically justified by analyzing their convergence and comparing with those obtained by other authors. By solving poorly studied problems, we have been obtained results, which allowed us to better understand the nonlinear deformation, buckling, and postbuckling behavior of inhomogeneous shells under change of the modes of thermomechanical loading.

Bazhenov V.A., Solovei M.O. and Krivenko O.P. Stability of shallow shells of revolution with linearly varying thickness / Aerospace engineering and technology. - 2004. - N 2 (10). - P. 18-25.

Bazhenov V.A., Krivenko O.P., and Solovei N.A. Assessment of the curvature effect on the stability and postbuckling behavior of ribbed panels / *Strength of Materials*, **39**, No. 6, 658–662 (2007). https://link.springer.com/article/10.1007/s11223-007-0075-4

Abstract. The article discusses the effect of curvature on the buckling of square-in-plane spherical panels stiffened of two pairs of cross ribbs. The efficiency of two variants of ribbing has been studed.

Bazhenov V.A., Solovei N.A., Krivenko O.P. Modeling of Nonlinear Deformation and Buckling of Elastic Inhomogeneous Shells // Strenght of matherials and theory of structures – □.: □NUSA, 2014. – No. 92. – pp. 121-147. http://opir.knuba.edu.ua/files/zbirnyk-92/12.pdf.

Abstract. The paper outlines the fundamentals of the method of solving static problems of geometrically nonlinear deformation, buckling, and postbuckling behavior of thin thermoelastic inhomogeneous shells with complex-shaped mid-surface, geometrical features throughout the thickness, and multilayer structure under complex thermomechanical loading. The method is based on the geometrically nonlinear equations of three-dimensional thermoelasticity and the moment finite-element scheme. The method is justified numerically. Comparing solutions with those obtained by other authors and by software LIRA and SCAD is conducted.

Bazhenov V.A., Solovei N.A., Krivenko O.P., Mishchenko O.A. Modeling of nonlinear deformation and buckling of elastic inhomogeneities shells // Structural mechanics of engineering constructions and buildings, (2014), No. 5, pp. 14-33 [in Russian].
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Solovei N.A., Krivenko O.P., Malygina O.A. Finite element models for the analysis of nonlinear deformation of shells stepwise-variable thickness with holes, channels and cavities // Magazine of Civil Engineering, No.1, 2015. – P. 56-69 [in Russian].
http://engstroy.spbstu.ru/eng/index_2015_01/06.html

Abstract. The method of solving static problems of nonlinear deformation, buckling, and postbuckling behavior of thin elastic inhomogeneous shells is based on the geometrically nonlinear equations of the 3D thermoelasticity theory and it uses of the moment finite-element scheme. A unified model has been created based on the universal spatial finite element with additional variable parameters. The model describes the multilayer structure of a material and geometrical features of structural elements of an inhomogeneous shell: casing of varying thickness, ribs, cover plates, cavities, channels, holes and sharp bends of the mid-surface. In a number of the authors' works the reliability of linear and nonlinear solutions for a wide class of inhomogeneous shells has been numerically justified by analyzing their convergence and comparing them with those obtained by other authors. This paper is devoted to the comparative analysis of finite-element models and results of calculation of thin elastic shells using the moment finite-element scheme, and LIRA and SCAD program complexes. The effect of different types of weakening on nonlinear deformation and buckling of shells was studied on the example of isotropic panels under uniform pressure.

Bazhenov V.A., Krivenko O.P. Finite element modelling of processes of nonlinear deformation and buckling of elastic inhomogeneities thin-walled structures at action of thermomechanical loadings / Proceedings of the International Youth scientific conference "Strength, Creep and Destruction of Building and Engineering Materials and Structures" dedicated to the 55th anniversary of the RUDN (Master Classes of Famous Specialists) Moscow, November 18-21, 2014 - P. 55-64.

Bazhenov V.A., Krivenko O.P., Legostaev □.D. Stability and natural vibrations of inhomogeneous shells taking into account the stress state / Strength of Materials and Theory of Structures: Scientific-and-technical collected articles – Kyiv: KNUBS. Issue 95, pp. 96-113 (2015) [in Ukrainian].

Krivenko O.P. Effect of Heating on the Stability and Natural Vibrations of a Spherical Panel with the Changing Combined Fixation of the Boundary / Strength of Materials and Theory of Structures: Scientific-and-technical collected articles – Kyiv: KNUBS, 2015. – Issue 96, pp. 48-65 (2015) [in Ukrainian]
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Krivenko O.P. Effect of preliminary heating and combined fixation of the boundary on the stability and natural vibrations of panels under action of pressure / Strength of Materials and Theory of Structures: Scientific-and-technical collected articles – Kyiv: KNUBS, 2016. – Issue 97. – P. 107-120 [in Ukrainian].

Krivenko O.P. Effect of combined boundary conditions on the stability of shallow shells of revolution / Strength of materials and theory of structures. Issue **81**, 84– 90 (2007) [in Ukrainian].

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Abstract. The effect to buckling of a spherical squared panel of conditions of a combined boundary fixing is studied. Two modes of a partial replacement on the panel's contour of the clamped boundary to the hinged boundary are compared.

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Bazhenov V.A., Krivenko O.P., and Solovei N.A. Analyzing solutions of buckling problems for shells with temperature-dependent material properties / Strength of materials and theory of structures. Issue 79, pp. 73-81 (2006) [in Ukrainian].

Bazhenov V.A., Solovei N.A., and Krivenko O.P. Nonlinear equations of deformation of ribbed thin multilayer shells under thermomechanical loading / Strength of materials and theory of structures, vol. 64, p. 116–127 (1998) [in Ukrainian].

Bazhenov V. A., Solovei N.A., Krivenko O. P., and Ayat N. Stability of flexible shells under combined thermomechanical loading / Strength of materials and theory of structures, vol. 65, p. 75-90 (1999) [in Ukrainian].

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Bazhenov V.A., Solovei M.O., and Krivenko O.P. Stability of smooth, ribbed and weakened flexible shallow panels / Strength of materials and theory of structures, vol. 67, p. 92–103 (2000) [in Ukrainian].

Bazhenov V.A., Solovei M.O. and Krivenko O.P. Stability of flexible shallow panels with stepwise-varying thickness / In: System Technologies: Mathematical Problems of Engineering Mechanics [in Ukrainian], Issue 2, Dnepropetrovsk (2001), pp. 7–11.

Bazhenov V.A., Solovei M.O. and Krivenko O.P. Effect of the parameters of ribs on the stability of flexible panels / Strength of materials and theory of structures. Issue **69**, 18–24 (2001) [in Ukrainian].

Solovei N.A. and Krivenko O.P. Comparative analysis of solutions to problems of buckling flexible shells subjected to different laws of nonuniform heating / Strength of materials and theory of structures. Issue **70**, 104–109 (2002) [in Ukrainian].

Bazhenov V.A., Solovei N.A. and Krivenko O.P. Effect of variable thickness on the stability of shallow panels under uniform pressure / In: System Technologies: Mathematical Problems of Engineering Mechanics [in Ukrainian], Issue 4, Dnepropetrovsk (2003), pp. 15–20.

Solovei N.A., and Krivenko O.P. Stability analysis of smooth (with linearly varying thickness) and faceted (with stepwise varying thickness) shallow spherical shells / Strength of materials and theory of structures. Issue **72**, 83–96 (2003) [in Ukrainian].

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Solovei N.A., Krivenko O.P., M□shchenko □.□. Determination of the effective physics-mechanical characteristics of unidirectional fiber composite material / Strength of materials and theory of structures. Issue 92, pp. 30-49 (2013) [in Ukrainian].