Available online at www.sciencedirect.com
ScienceDirect
Journal of Applied Mathematics and Mechanics 70 (2006) 161–175
Journal of APPLIED MATHEMATICS AND MECHANICS
www.elsevier.com/locate/jappmathmech

Editorial

VLADIMIR VASIL'YEVICH BOLOTIN (80th Birthday Tribute)☆

The great, high-profile scientist and applied mathematician Vladimir Vasil'yevich Bolotin has reached the age of eighty. He has made an enormous contribution to the development of the theory of vibrations and stability, the applied theory of elasticity, structural mechanics, the theory of reliability and safety of machinery and structures, fracture mechanics, and the mechanics of composite materials, and has published over 400 papers, including 15 monographs.

He was born on 29 March 1926 in Tambov. In 1948 he graduated from the Moscow Institute of Transport Engineers, specializing in bridges and tunnels. In 1950 he defended a first higher-degree dissertation, and two years later a dissertation for his doctorate. From 1953 onwards he worked in the Department of the Strength of Materials at the Moscow Power Institute. From 1958 to 1996 he headed this department, which in 1962 was renamed the Department of the Dynamics and Strength of Machinery. From 1980 onwards he was Head of the Laboratory of Reliability and

☆ *Prikl. Mat. Mekh.* Vol. 70, No. 2, pp. 179–199, 2006.

0021-8928/$ – see front matter
doi:10.1016/j.jappmathmech.2006.06.002

Operating Life of the A. A. Blagonravov Institute of Mechanical Engineering of the Russian Academy of Sciences, continuing to work at the same time at the Moscow Power Institute. In 1974 he was elected a corresponding member of the USSR Academy of Sciences, and in 1992 a full member of the Russian Academy of Sciences.

He has obtained fundamental results in the theory of stability of elastic systems under dynamic loads, in the theory of aeroelasticity, and in the development of an asymptotic method for solving problems of the vibration theory. His monographs "Dynamic Stability of Elastic Systems" (1956) and "Non-conservative Problems of the Theory of Elastic Stability" (1961) are classic works in this field.

He has had a great influence on the development of probabilistic statistical methods in mechanics, on creating a general theory of reliability of structures, based on the application of methods of the theory of random processes and fields, and on the development of the theory of seismic stability of structures. Research on this topic was generalized in his books "Statistical Methods in Structural Mechanics" (1961, 1965), "Methods of the Probability Theory and the Reliability Theory in the Analysis of Structures" (1971, 1982), and "Random Vibrations of Elastic Systems" (1979).

His work in the field of the mechanics of composite materials is widely known. He developed models of multi layered and fibrous media, methods for determining effective constants of elasticity, methods for predicting the residual stresses in structures of composite materials, and stochastic models of the build-up of damage and fracture. He proposed methods for predicting operating life at the design stage and estimating the remaining operating life of technical plant at the service stage. A cycle of work in this direction was reflected in the monographs "Mechanics of Multilayer Cells Structures" (1980, coauthor with Yu. N. Novichkov) and "Operating Life of Machinery and Structures" (1984, 1990).

In recent years he has been active in the field of fracture mechanics and mesomechanics. He has proposed a general approach to describing the behaviour of loaded bodies when their configuration changes (including the case of crack propagation in them). Using a synthesis of fracture mechanics and the mechanics of the accumulation of dispersed damage, he developed a theory of crack growth that describes all stages of fatigue failure; he appied the theory to crack growth under conditions made complicated by inherited effects, corrosion, etc. The results of this work were included in his monographs "Stability Problems in Fracture Mechanics" (1996) and "Mechanics of Fatigue" (1999).

Along with theoretical research, he is active in fields of application. In the period from 1960 to 1980 he took part in an investigation of a number of problems arising in the building industry, in aerospace engineering, in shipbuilding, and in the nuclear power industry. In the period from 1980 to 1985 he supervized the development of a new generation of State standards concerning the reliability of technical plant, issuing the principal standard of this series and a number of reference and procedural materials.

His work is well known in Russia and abroad, and the results of his research are being used in various areas of engineering. His monographs have been translated into many languages, and a large number of his papers have been published in foreign publications. He is an active participant in many international congresses and symposia, and is constantly being invited to give lectures at the leading foreign universities and scientific centres.

He devotes much effort and energy to popularizing the latest achievements in mechanics, to publishing reference, educational, procedural, and technical standard literature, and to improving the training of research engineers and teachers. The Department of the Dynamics and Strength of Machinery that he founded at the Moscow Power Institute (Technical University) has trained over 1200 mechanical engineers. Representatives of the scientific school he set up are carrying out fruitful work in many sectors of science and engineering. He has trained 20 doctors of science and over 150 graduates.

His active social-scientific and organizational activity in the Russian Academy of Sciences, the Russian Academy of Architecture and Structural Sciences, the National Committee on Theoretical and Applied Mechanics, the "Reliability of Machinery" Interindustry Scientific and Technical Complex, and the Higher Certification Commission, on the editorial boards of Russian and foreign scientific journals, and in the organization of many scientific conferences and symposia is universally known.

He is a winner of state prizes of the USSR (1985) and Russia (2000) in the field of science and engineering, the Prize of the Russian Government (1996), the Honorary Prize of the International Association of Reliability and Safety (1993), and the Humboldt Prize (2001). He is a full member of the Russian Academy of Sciences, the Russian Engineering Academy, The International Engineering Academy, the Russian Academy of Architecture and Structural Sciences, a foreign member of the US National Engineering Academy, Professor Emeritus of the Moscow Power Institute, and an honorary doctor of the Budapest Technical University. He has been awarded the orders of Lenin, the Red Badge of Labour, the October Revolution, and Friendship, and the Gold Medal of the Czechoslovak Academy of Sciences "for

services to science and humanity", as well as the Freidenthal Medal from the American Society of Civil Engineers and an honorary prize by the International Association of Reliability and Safety.

The editorial board and editorial staff of the journal *Prikladnaya Matematika i Mekhanika* and his students and colleagues send birthday greetings to him and wish him robust health and future success in his creative activity.

A LIST OF V.V. BOLDTIN'S PRINCIPAL SCIENTIFIC PUBLICATIONS

1950

On the action of a moving load on bridges. *Trudy MIIT*, 74, 269–296.

1951

The transverse vibrations of rods caused by periodic longitudinal forces. In *Transverse Vibrations and Critical Speeds*. USSR Acad. Sci., Moscow, Issue. 1, 46–77.

1952

Parametrically excited vibrations of elastic arches. *Dokl. Akad. Nauk SSSR*, **83**, 4, 537–539.

A dynamic analysis of railway bridges taking account of the mass of the moving load. *Trudy MIIT*, 76, 87–107.

The combined work of arches with a superarch structure. *Trudy MIIT*, 76, 32–41.

1953

Dynamic stability of a plane bending shape. *Inzh. Sbornik*, **14**, 109–122.

Integral equations of hindered torsion and the stability of thin-walled rods. *Prikl. Mat. Mekh.* **17**, 2, 245–248.

Parametric excitation of skew-symmetric vibrations of elastic arches. *Inzh. Sbornik*, **15**, 83–88.

The parametric excitation of transverse vibrations. In *Transverse Vibrations and Critical Speeds*. USSR Acad. Sci., Moscow, Issue 2, 5–44.

Determination of the amplitudes of transverse vibrations caused by periodic longitudinal forces. In *Transverse Vibrations and Critical Speeds*. Izd. Akad. Nauk SSSR, Moscow, Issue 2, 45–64.

1954

Flexural vibrations of shafts whose sections have dissimilar principal stiffnesses. *Inzh. Sbornik*, **19**, 37–54.

Some non-linear problems of the dynamic stability of plates. *Izv. Akad. Nauk SSSR. OTN*, 10, 47–59.

1955

The stability of a plane bending shape of beams connected by elastic links. In *Analyses of Strength, Stiffness, Stability, and Vibrations*. Mashgiz, Moscow, Issue 1, 223–230.

Errors in some studies on dynamic stability. *Izv. Akad. Nauk SSSR. OTN*, 11, 144–147.

Dynamic stability of plates. *Trudy MEI*, 17, 22–46.

1956

The Dynamic Stability of Elastic Systems. Gostekhizdat, Moscow.

Problems of the general theory of elastic stability. *Prikl. Mat. Mekh.*, **20**, 5, 561–577.

Vibrations and stability of an elastic cylindrical shell in a flow of compressible fluid. *Inzh. Sbornik*, **24**, 3–16.

The interaction of forced and parametrically excited vibrations. *Izv. Akad. Nauk SSSR. OTN*, 4, 3–15.

The motion of liquid in a vibrating vessel. *Prikl. Mat. Mekh.*, **20**, 2, 293–294.

1958

Investigation of the vibrations of shafts with different principal flexural stiffnesses. In *Strength Analyses*. Mashgiz, Moscow, Issue 2, 302–312.

The stability of a thin-walled spherical shell under the action of a periodic pressure. In *Strength Analyses*. Mashgiz, Moscow, Issue 2, 284–299.

Statistical methods in the non-linear theory of elastic shells. *Izv. Akad. Nauk SSSR. OTN*, 3, 33–41.

The non-linear theory of elasticity and stability "in the large". In *Strength Analyses*. Mashgiz, Moscow, Issue 3, 310–354.

The non-linear vibrations of shafts beyond critical rotation velocities. In *Strength Problems in Engineering*. USSR Acad. Sci., Moscow, Issue 1, 25–53.

1959

The development of structural mechanics. *Izv. Akad. SSSR. OTN. Mekhanika i Mashinostroyeniye*, 2, 122–133 (coauthor with V. Z. Vlasov and I. I. Gol'denblat).

The statistical theory of the seismic stability of structures. *Izv. Akad. Nauk SSR. OTN. Mekhanika i Mashinostroyeniye*, 4, 123–129.

Non-linear problems of the stability of plane panels at high supersonic speeds. *Izv. Akad. Nauk SSR. OTN. Mekhanika i Mashinostroyeniye*, 3, 59–64 (coauthor with Yu. V. Gavrilov, B. P. Makarov and Yu. Yu. Shveiko).

The three-dimensional strains of beams after loss of stability. In *Analysis of Three-dimensional Structures*. Gosstroizdat, Moscow, Issue 5, 3–18.

The problem of the stability of a plate in a compressible gas flow. In *Problems of the Strength of Materials and Structures*. Izd. Akad. Nauk SSSR, Moscow, 194–204.

Some new problems of the dynamics of shells. In *Strength Analyses*. Mashgiz, Moscow, Issue 4, 331–365.

The vibrations and stability of rods under the action of non-conservative forces. In *Vibrations in Turbomachinery*. Izd. Akad. Nauk SSSR, Moscow, 23–42.

The loss of stability of thin elastic shells under the action of a pulsed load. *Stroit. Mekh. i Raschet Sooruzh.*, 2, 9–16.

A mechanical model describing the interaction of parametric and forced vibrations. *Trudy MEI*, 32, 54–66.

The application of Galerkin's variational method to problems of the flutter of elastic panels. *Izv. VUZ. Mashinostroyeniye*, 12, 25–32.

Some generalizations of the theory of summation of fatigue damage and their applications to the analysis of durability under random forces. *Izv. VUZ. Mashinostroyeniye*, 8, 27–40.

1960

The use of statistical methods to estimate the strength of structures under seismic effects. *Inzh. Sbornik*, **27**, 58–69.

The equations of non-stationary temperature fields in thin shells in the presence of heat sources. *Prikl. Mat. Mekh.*, **24**, 2, 361–363.

End effect in the vibrations of elastic shells. *Prikl. Mat. Mekh.*, **24**, 5, 831–842.

Non-linear flutter of plates and shells. *Inzh. Sbornik*, **28**, 55–75.

The durability of structures under quasistationary stress conditions. *Inzh. Sbornik*, **29**, 30–36.

Investigation of the "snapping" of thin elastic shells under the action of dynamic loads. In *Strength Analyses*, Mashgiz, Moscow, Issue 5, 259–272 (coauthor with G. A. Boichenko).

Temperature-induced bulging of plates and shallow shells in a supersonic gas flow. In *Strength Analyses*. Mashgiz, Moscow, Issue 6, 190–216.

An asymptotic method for investigating the spectrum of natural frequencies of elastic plates. In *Strength Analyses*. Mashgiz, Moscow, Issue 6, 231–253 (coauthor with B. P. Makarov, G. V. Mishenkov, and Yu. Yu. Shveiko).

The variability of the strength limits of brittle materials and the relationship between strength and the scale effect. *Stroit. Mekh. i Raschet Sooruzh.*, 4, 1–7.

The dynamic Stability of Elastic Systems (in Chinese).

Strength analyses under random conditions of variable stresses with amplitudes obeying a Pearson distribution. *Vestnik. Mashinostroyeniya*, 11, 32–36.

1961

Non-conservative Problems of Elastic Stability Theory. Fizmatgiz, Moscow. *Statistical Methods in Structural Mechanics*. Stroiizdat, Moscow.

The natural vibrations of a rectangular elastic parallelepiped. *Prikl. Mat. Mekh.*, **25**, 1, 155–158.

The use of the "law of plane sections" to determine aerodynamic forces acting on vibrating shells. *Izv. Akad. Nauk SSSR. OTN. Mekhanika i Mashinostroyeniye*, 1, 159–162.

An asymptotic method for investigating problems of eigenvalues for rectangular regions. In *Problems of Continuum Mechanics*. Izd. Akad. Nauk SSSR, Moscow, 60–72.

An asymptotic method for the study of the eigenvalue problem for rectangular regions. In *Problems of Continuum Mechanics*. SIAM, Philadelphia, 56–68.

Kinetische Stabilität der Elastischer Systemen. Verlag der Wissenschaften, Berlin.

Some nonlinear problems of stability of elastic plates and shells in gas flow. In *Proceedings of the 10th International Congress on Applied Mechanics*. Elsevier, Amsterdam.

Strength and damage accumulation under random loads. In *Strength Analyses*. Mashgiz, Moscow, Issue 7, 23–49.

Extension of an asymptotic method to solving eigenvalue problems for rectangular regions. *Inzh. Zh.*, **1**, 3, 86–92.

The problem of the vibrations of bridges under the action of a moving load. *Izv. Akad. Nauk SSSR. OTN. Mekhanika i Mashinostroyeniye*, 4, 109–115.

Bulging and steady-state flutter of thermally compressed panels in a supersonic flow. *Inzh. Zh.*, 2, 82–96 (coauthor with Yu. N. Novichkov).

Statistical theory of the aseismic design of structures. In *Proceedings of the 2nd World Conference on Earthquake Engineering*, WCEE, Tokyo, Vol. 2, 1365–1374.

Dynamic edge effect in the elastic vibrations of plates. *Inzh. Sbornik*, **31**, 3–14.

The asymptotic method in the theory of vibrations of elastic plates and shells. In *Proceedings of the Conference on the Theory of Plates and Shells*, Kazan, 21–26.

Dynamic problems of thermoelasticity for plates and shells in the presence of radiation. In *Proceedings of the Conference on the Theory of Plates and Shells*, Kazan, 27–32.

1962

Ways of developing the theory of plates and shells. *Vestnik Akad. Nauk SSSR*, 1, 136–138.

Non-stationary flutter of plates and shallow shells in gas flow. *Izv. Akad. Nauk SSSR. OTN. Mekhanika i Mashinostroyeniye*, 3, 106–113.

The behaviour of heated plates and shallow shells in gas flow. *Inzh. Zh.*, **2**, 3, 119–125.

Some problems of brittle fracture theory. In *Strength Analyses*. Mashinostroyeniye, Moscow, Issue 8, 36–52.

The combination of random loads acting on a structure. *Stroit. Mekh. i Raschet Sooruzh.*, 2, 1–5.

Current trends in the field of the dynamics of plates and shells. In *Proceedings of the 2nd All-Union Conference on the Theory of Plates and Shells*. USSR Acad. Sci., Moscow, 16–32.

The influence of the momentless stress state on the spectra of natural vibrations of thin elastic shells. *Izv. Akad Nauk SSSR. OTN. Mekhanika i Mashinostroyeniye*, 4, 52–60.

1963

The frequency density of natural vibrations of thin elastic shells. *Prikl. Mat. Mekh.*, **27**, 2, 362–369.

Nonconservative Problems of the Theory of Elastic Stability. Pergamon Press, Oxford.

Current problems in the theory of vibrations of mechanical systems. *Izv. VUZ. Mashinostroyeniye*, 4, 5–13 (coauthor with G. Yu. Dzhanelidze and Ya. G. Panovko).

The theory of laminated plates. Izv. Akad. Nauk SSSR. OTN. *Mekhanika i Mashinostroyeniye*, 3, 65–72.

Estimations of the life of structures under the action of random loads. In *Strength Analyses*. Mashgiz, Moscow, Issue 9, 302–326.

Structural response on the multicomponent seismic loading considered as nonstationary random process. In *Proceedings of the 1st Chilean Sessions on Earthquake Engineering*, Santiago.

Stationary probability distributions in the statistical dynamics of elastic systems. In *Problems of Dynamics and Strength*. Latvian Acad. Sci., Riga, Issue 10, 57–67.

Vibration of layered elastic plates. *Proc. Vibrat. Probl. Warsaw: Polish Acad. Sci.*, **4**, 4, 331–346.

1964

Current Problems of Structural Mechanics. Stroiizdat, Moscow (coauthor with I. I. Gol'denblat and A. F. Smirnov).

The bending of plates consisting of a large number of layers. *Izv. Akad. Nauk SSSR. Mekhanika i Mashinostroyeniye*, 1, 61–66.

Application of methods of the probability theory in the theory of shells and plates. In *Proceedings of 4th Conference on the Theory of Shells and Plates*. Armenian Acad. Sci., Yerevan, 15–63.

Review of research on the statistical dynamics of elastic systems. In *Strength Analyses*. Mashinostroyeniye, Moscow, Issue 10, 211–260.

Bending of two-layer plates with elastic constraints. *Inzh. Zh.*, **4**, 3, 516–524 (coauthor with V. N. Moskalenko).

Vibrations of multilayered curved rods. *Inzh. Zh.*, **4**, 4, 705–712.

The Dynamic Stability of Elastic Systems. Holden-Day Inc., San Francisco.

1965

Statistical Methods in Structural Mechanics, 2nd edn. Stroiizdat, Moscow.

The theory of reinforced bodies. *Izv. Akad. Nauk SSSR. Mekhanika*, 1, 74–80.

Principal equations of the theory of reinforced media. *Mekh. Polimerov*, 2, 27–37.

The concept of stability in structural mechanics. In *Stability Problems in Structural Mechanics*. Stroiizdat, Moscow, 6–27.

The reduction of three-dimensional problems of elastic stability to one-dimensional and two-dimensional problems. In *Stability Problems in Structural Mechanics*. Stroiizdat, Moscow, 166–179.

The elastic strains of underground pipelines laid in statistically inhomogeneous ground. *Stroit. Mekh. i Raschet Sooruzh.*, 1, 4–8.

The density of eigenvalues in vibration problems of elastic plates and shells. *Proc. Vibrat. Probl. Warsaw: Polish Acad. Sci.*, **6**, 4, 341–351.

The approximate solution of some problems of statistical dynamics. *Izv. Akad. Nauk SSSR. Mekhanika*, 3, 77–83 (coauthor with B. P. Makarov).

Strength, stability, and vibrations of multilayered plates. In *Strength Analyses*. Mashinostroyeniye, Moscow, Issue 11, 31–63.

1966

The theory of a reinforced laminated medium with random initial irregularities. *Mekh. Polimerov*, 2, 11–19.

Broadband random vibrations of elastic systems. *Int. J. Solids and Structures*, **2**, 1, 105–124.

Mechanics of Solids and reliability theory. In *Proceedings of the 2nd All-Union Congress on Theoretical and Applied Mechanics*. Nauka, Moscow, Issue 3, 68–82.

Plane problem of the theory of elasticity for components of reinforced materials. In *Strength Analyses*. Mashinostroyeniye, Moscow, Issue 12, 3–31.

On the broadband random vibration of elastic systems. In *Proceedings of the 11th International Congress of Applied Mechanics*. Springer, Berlin, 233–238.

Laminated elastic and viscoelastic media with small initial irregularities. *Inzh. Zh. MTT*, 3, 59–65.

The influence of random irregularities on the creep of reinforced laminated plastics. *Mekh. Polimerov*, 5, 755–762 (coauthor with Ye. N. Sinitsyn).

1967

Statistical aspects in the theory of structural stability. In *Dynamic Stability of Structures*. Pergamon Press, Oxford, 67–81.

The equations of the theory of the stability of thin elastic shells. *Inzh. Zh. MTT*, 4, 117–123.

Macroscopic thermal conductivity and diffusion coefficients in microinhomogeneous solids. *Zh. Prikl. Mekh. Tekh. Fiz.*, 6, 7–13 (coauthor with V. N. Moskalenko).

1968

Pressure field in shells performing random vibrations. *Inzh. Zh. MTT*, 1, 74–81.

Macroscopic characteristics of microinhomogeneous solids. *Dokl. Akad. Nauk SSSR*, **178**, 3, 563–565 (coauthor with V. N. Moskalenko).

Stresses in a laminated medium under the action of a concentrated force. *Inzh. Zh. MTT*, 2, 52–57 (coauthor with V. V. Partsevskii).

Random vibrations in elastoacoustic systems. In *Strength Analyses*. Mashinostroyeniye, Moscow, Issue 13, 213–230.

The problem of determining the elasticity constants of a microinhomogeneous medium. *Zh. Prikl. Mekh. Tekh. Fiz.*, 1, 66–72 (coauthor with V. N. Moskalenko).

Thermoelastic constants of polycrystals. *Zh. Prikl. Mekh. Tekh. Fiz.*, 2, 44–47 (coauthor with V. N. Moskalenko).

Correlation theory of the subcritical strains of thin elastic shells. *Prikl. Mat. Mekh.*, **32**, 3, 428–434 (coauthor with B. P. Makarov).

The stability of the combustion process in elastic combustion chambers. *Zh. Prikl. Mekh. Tekh. Fiz.*, 6, 86–93 (coauthor with V. N. Moskalenko and Yu. N. Novichkov).

Local bulging of compressed elements from laminated viscoelastic material. *Mekh. Polimerov*, 5, 816–821 (coauthor with Ye. N. Sinitsyn).

Strength, Stability, and Vibrations. Handbook in three volumes. Mashinostroyeniye, Moscow, Vol. 3, Chs 6–10. (coauthor with M. F. Dimentberg, V. N. Moskalenko, Yu. N. Novichkov, and Yu. Yu. Shveiko).

Metody Statystyczne w Mechanice Budowli. Wydawnictwo Arkady, Warsaw.

1969

Effects of damping on stability of elastic systems subjected to nonconservative forces. *Int. J. Solids and Structures*, **5**, 9, 965–989 (coauthor with N. I. Zhinzher).

Statistical Methods in Structural Mechanics. Holden-Day Inc., San Francisco.

The calculation of the macroscopic constants of highly isotropic composite materials. *Izv. Akad. Nauk SSSR. MTT*, 3, 106–111 (coauthor with V. N. Moskalenko).

The application of probability methods in structural mechanics. In *Structural Mechanics in the USSS. 1917–1967*. Stroiizdat, Moscow, 329–342.

Reliability theory of mechanical systems with a finite number of degrees of freedom. *Izv. Akad. Nauk SSSR. MTT*, 5, 73–81.

Reliability theory of distributed mechanical systems. *Izv. Akad. Nauk SSSR. MTT*, 6, 72–79.

1970

Planning of vibration measurements on structures undergoing random vibrations. *Izv. Akad. Nauk SSSR. MTT*, 1, 19–27.

Variational principles in the theory of elastic stability. *Problems of the Mechanics of Deformable Solids. On the 60th Birthday of V. V. Novozhilov*. Sudpromgiz, Leningrad, 83–88.

Stochastic edge effects in subcritical strains of elastic shells. *Izv. Akad. Nauk SSSR. MTT*, 2, 94–99.

A stochastic model of the main crack propagation in composite materials. *Trudy MEI*, 74, 99–115.

Statistical Methods in Structural Mechanics (in Hungarian). Müszaki Könyvkiadó, Budapest.

1971

The use of the Methods of the Probability Theory and the Reliability Theory to Analyse Structures. Stroiizdat, Moscow.

Theory of stochastically reinforced materials. In *Strength and Plasticity*. Nauka, Moscow, 261–266.

Stability of viscoelastic systems subjected to nonconservative forces. In *Instability of Continuous Systems. Proceedings of the IUTAM Symposium*. Springer, Berlin.

Random vibrations of elastic shells containing an acoustic medium. *Izv. Akad. Nauk SSSR. MTT*, 5, 122–130 (coauthor with I. B. Yelishakov).

Bilateral and improved estimates for the reliability function. In *Problems of Reliability in Structural Mechanics*. Abstracts of Papers of the 3rd All-Union Conference, Vilnius. Moscow.

Some mathematical and experimental models of fracture processes. *Problemy Prochnosti*, 2, 13–20.

1972

A theory of the distribution of the natural frequencies of elastic bodies and its application to problems of random vibrations. *Prikl. Mekhanika*, **8**, 4, 3–29.

Problems of reliability theory in the mechanics of deformable solids. In *Continuum Mechanics and Related Problems of Analysis*. Nauka, Moscow, 63–77.

Reliability theory and stochastic stability. In *Study on Stability*. University of Waterloo Press, No. 6, 385–422.

The effect of process factors on the mechanical reliability of structures manufactured from composites. *Mekh. Polimerov*, 3, 529–540.

Parametric resonances in stochastic systems. *Izv. Akad. Nauk SSSR. MTT*, 4, 88–94 (coauthor with V. G. Moskvin).

Structural Mechanics. The State of the Art and the Prospects of Further Development. Stroiizdat, Moscow. (coauthor with I. I. Gol'denblat and A. F. Smirnov).

The Dynamic Stability of Elastic Systems (in Japanese). Corona Publishing Co., Tokyo.

The strain of an elastic spherical shell with random initial irregularities. *Izv. Akad. Nauk SSSR. MTT*, 5, 166–172 (coauthor with V. Yu. Volokhovskii).

Statistische Methoden in der Baumechanik. Deutsche Bauakademie, Berlin.

The stability of elastic and inelastic systems. In *Mechanics in the USSR During the last 50 Years*. Nauka, Moscow, Vol. 3, 325–363 (coauthor with E. I. Grigolyuk).

1973

The excitation of parametric vibrations in stochastic systems with two degrees of freedom. *Izv. Akad. Nauk SSSR. MTT*, 3, 38–43 (coauthor with V. G. Moskvin).

Experimental investigation of the parametric resonances in stochastic systems. *Izv. Akad. Nauk SSSR. MTT*, 4, pp. 51–57 (coauthor with Yu. A. Okopnyi).

The stability of parametric systems (in Polish). In *Stochastic Mechanics of Structures*. Polish Academy of Sciences, Warsaw, 50–83.

1974

Numerical analysis of the stability of linear differential equations with periodic coefficients. In *Selected Problems of Applied Mechanics (On the 60th Birthday of Academician V. N. Chelomei)*. Nauka, Moscow, 155–166.

The stability of parametrically excited systems. *Izv. Akad. Nauk SSSR. MTT*, 5, 83–88.

Application of the Methods of the Theory of Probability and the Theory of Reliability to Analysis of Structures. Wright-Patterson Air Force Base, Ohio.

1975

Some problems of the mechanics of polymer composites. *Mekh. Polimerov*, 1, 126–131.

Vibrations of an elastic half-space under the action of random dynamic loads. *Izv. Akad. Nauk SSSR. MTT*, 3, 72–77 (coauthor with V. Yu. Volokhovskii and V. P. Chirkov).

The optimum placement of gauges for measuring random fields. In *Mechanics of Deformable Solids and Structures (On the 60th Birthday of Academician Yu. N. Rabotnov)*. Mashinostroyeniye, Moscow, 77–83.

Application of the Methods of the Probability Theory and the Reliability Theory to the Analysis of Structures (in Portuguese). Civil Engng (National Civil Engineering Laboratory Press), Lisbon.

1976

Statistical theory of damage accumulation in composite materials and the scale effect of reliability. *Mekh. Polimerov*, 2, 247–255.

Rigid body micromechanics. In *Teoria Osrodków Wielofazowych*. Ossolineum, Warsaw, Part 2, 5–56.

The formation of residual stresses in articles manufactured from laminated and fibrous composites during curing. *Mekh. Polimerov*, 5, 790–795 (coauthor with A. N. Vorontsov).

Stochastic models of cumulative damage in composite materials. *Engng Fract. Mech.*, **8**, 1, 103–113.

1977

The prediction of the reliability and durability of machinery. *Mashinovedeniye*, 5, 86–93.

Non-conservative Problems of the Theory of Elastic Stability (in Japanese). Baifukan, Tokyo.

Stabilization and destabilization effects in mechanics of deformable systems. In *Proceedings of the 6th Canadian Congress of Applied Mechanics*. University of British Columbia, Vancouver, Vol. 1, 1–10.

The statistical interpretation of standards for analysing building constructions. *Stroit. Mekh. i Raschet Sooruzh.*, 1, 8–11.

1978

Vol. 1. *Vibrations in Engineering* (Ed. V. V. Bolotin). In *Vibrations of Linear Systems*. (Handbook in six volumes.) Mashinostroyeniye, Moscow.

The theory of vibration-damping polymer coatings. *Mekh. Polimerov*, 2, 269–276 (coauthor with A. N. Litvinov).

The stability of panels with added elements in gas flow. *Izv. Akad. Nauk SSSR. MTT*, 2, 129–135 (coauthor with B. P. Simonov).

The application of the method of moment functions in the statistical dynamics of non-linear systems. In *Strength Analyses*. Mashinostroyeniye, Moscow, Issue 19, 215–227.

Application of the Methods of the Theory of Probability and the Theory of Reliability to the Analysis of Structures (in Czech). SNTL (Nakladatelstvi Technické Literaturu, N.P.), Prague.

1979

Random Vibrations of Elastic Systems. Nauka, Moscow.

Effects of stabilization and destabilization in problems of the stability of elastic systems. In *Problems of the Stability of Motion, Analytical Mechanics, and the Control of Motion*. Nauka, Novosibirsk, 7–17.

The distribution of durability under random cyclic loads. *Mashinovedeniye*, 3, 48–52 (coauthor with A. F. Yermolenko and M. N. Sinyashchek).

The parametric stabilization of unstable forms of equilibrium of mechanical systems. *Izv. Akad. Nauk SSSR. MTT*, 1, 36–44 (coauthor with V. I. Vorob'yev, V. A. Semenov, and V. K. Chernov).

Stochastic models of fracture: checking of hypotheses and estimation of parameters. *Mekh. Kompozit. Materialov*, 2, 240–247.

Investigation of models of accumulated fatigue damage. In *Strength Analyses*. Mashinostroyeniye, Moscow, Issue 20, 3–29 (coauthor with A. F. Yermolenko).

Summation of fatigue damage and the statistical spread of strength. *Mashinovedeniye*, 1, 53–60 (coauthor with A. F. Yermolenko).

The principles of assigning design loads to structures. *Stroit. Mekh. i Raschet Sooruzh.*, 5, 3–5 (coauthor with V. A. Otstavnov).

Verification and estimation of stochastic models of fracture. In *Fracture of Composite Materials*. Sijthoff and Noordhoff, Alphen aan den Rijn, 45–54.

Reliability of structures. In *Trends in Solid Mechanics (W. T. Koiter Anniversary Volume)*. Delft University Press, Delft, 57–72.

1980

Seismic risk analysis: up-to-date state and trends. In *Proceedings of the 7th World Conference on Earthquake Engineering*, Istanbul (coauthor with G. Grandori, V. Karnic, *et al.*).

A reliability theory for a seismic design and for prediction of the safe life of individual structures. In *Proceedings of the 7th World Conference on Earthquake Engineering*, Istanbul.

Mechanics of Multilayered Structures. Mashinostroyeniye, Moscow (coauthor with Yu. N. Novichkov).

Reliability analyses of machinery containing a large number of components of the same type. In *Strength Analyses*. Mashinostroyeniye, Moscow, Issue 21, 78–96 (coauthor with V. K. Chernov).

The safe size of cracks under random loading. *Izv. Akad. Nauk SSSR. MTT*, 1, 124–130.

The prediction of remaining operating life. *Mashinovedeniye*, 5, 58–64.

The stability of compressed elements with ply separation defects. *Probl. Prochnosti*, 7, 3–8 (coauthor with Z. Kh. Zebel'yan and A. A. Kurzin).

The seismic stability analysis of building structures. *Stroit. Mekh. i Raschet Sooruzh.*, 1, 9–14.

Time-to-failure distribution under random loads. *Zh. Prikl. Mekh. Tekh. Fiz.*, 5, 149–158.

Analysis of processing stresses in wound articles made from composites during the entire manufacturing process. *Mekh. Kompozit. Materialov*, 3, 500–508 (coauthor with A. N. Vorontsov and R. Kh. Murzakhanov).

A combined load analysis of the structures of deep-sea oil field installations. *Stroit. Mekh. i Raschet Sooruzh.*, 5, 6–10 (coauthor with V. P. Chirkov and A. N. Shcherbakov).

The density of parametric resonances. *Prikl. Mat. Mekh.*, **44**, 6, 1087–1094.

1981

Application of the Methods of the Probability Theory and the Reliability Theory to the Analysis of Structures (in Japanese). Baifukan, Tokyo.

Statistical modelling in seismic stability analysis. *Stroit. Mekh. i Raschet Sooruzh.*, 1, 60–64.

A unified model of the fracture of composite materials under prolonged loads. *Mekh. Kompozit. Materialov*, 3, 405–420.

The mechanics of the fracture of composite materials. *Probl. Prochnosti*, 7, 3–8.

The stability of elastic spherical shells with ply separations. In *Strength Analyses*. Mashinostroyeniye, Moscow, Issue 22, 150–165 (coauthor with Z. Kh. Zebel'yan).

Stochastic models of fracture with applications to the reliability theory. In *Structural Safety and Reliability. Proc of ICOSSAR'81* (Eds T. Moan and M. Shinozuka). Elsevier, Amsterdam, 31–56.

Wahrscheinlichkeitsmethoden zur Berechnung von Konstruktionen. VEB Verlag für Bauwesen, Berlin.

The theory of delayed failure. *Izv. Akad. Nauk SSSR. MTT*, 1, 137–146.

1982

Methods of the Probability Theory and the Reliability Theory in the Analysis of Structures, 2nd edn. Stroiizdat, Moscow.

Stochastic models of fracture of unidirectional fiber composites. In *Fracture of Composite Materials. Proceedings of the 2nd USA–USSR Symposium*. Nijhoff, The Hague, 3–16.

Fracture of composites. In *Mechanics of Composites: Advances in Science and Technology in the USSR*. Mir, Moscow, 20–49.

Damage and loss of integrity of unidirectional composites under compression. *Mekh. Kompozit. Materialov*, 4, 608–617.

Theory of compression moulding of articles from composite materials. *Mekh. Kompozit. Materialov*, 6, 1034–1046 (coauthor with A. N. Vorontsov and V. B. Antokhonov).

The distribution of the lengths of ruptured fibres in unidirectional composites. *Mekh. Kompozit. Materialov*, 6, 1107–1110 (coauthor with V. P. Tamuzh).

Unified models of fracture and their application to life prediction. *Fiz.-Khim. Mekhanika Materialov*, **18**, 3, 3–12.

Life prediction of randomly loaded structures. *Nuclear Engng and Design*, **69**, 3, 399–402.

Numerical methods for calculating the stability of parametrically excited systems. In *Strength Analyses*. Mashinostroyeniye, Moscow, Issue 23, 194–207 (coauthor with O. A. Babin, A. V. Golubkov, A. I. Smirnov, and A. G. Tyapin).

1983

Equations of the fatigue crack growth. *Izv. Akad. Nauk SSSR. MTT*, 4, 153–160.

The problem of predicting individual operating life. In *Problems of Mechanics and Avionics (On the 60th Birthday of I. F. Obraztsov)*. Mashinostroyeniye, Moscow, Vol. 2.

The theory of damage gauges and life counters. In *Strength Analyses*. Mashinostroyeniye, Moscow, Issue 24, 79–94 (coauthor with S. M. Naboishchikov).

Influence of elastically suspended masses on the stability of elastic panels in supersonic flow. *Izv. Akad. Nauk SSSR. MTT.*, 3, 149–156 (coauthor with B. P. Simonov).

Stochastic models of the fracture of unidirectional fibrous composites. In *Strength and Fracture of Composite Materials*. Zinatne, Riga, 9–19.

Life prediction of engineering systems. In *Application of Statistics and Probability in Soil and Structural Engineering. Proceedings of ICASP-4*. Pitagora, Bologna, Vol. 2, 851–866.

Acoustic emission and damage accumulation in solids. *Nonlinear Deformation Waves: Proceedings of the IUTAM Symposium*. Springer, Berlin, 349–354.

1984

Prediction of the Operating Life of Machinery and Structures. Mashinostroyeniye, Moscow.

Unified models in fracture mechanics. *Izv. Akad. Nauk SSSR. MTT*, 3, 127–137.

Parametric resonances in self-excited vibrating systems. *Izv. Akad. Nauk. MTT*, 5, 3–10.

Reliability of finding cracks and crack-like defects. *Mashinovedeniye*, 2, 65–70.

Mathematical models of the formation of machine inventories. *Mashinovedeniye*, 3, 54–60.

The vibrations of the components of structures in eddy flow. *Stroit. Mekh. i Raschet Sooruzh.*, 3, 28–31.

Random Vibrations of Elastic Systems. Martinus Nijhoff Publishers, The Hague.

Multiparametric fracture mechanics. In *Strength Analyses*. Mashinostroyeniye, Moscow, 25, 12–33.

Ply separation type defects in structures of composite materials. *Mekh. Kompozit. Materialov*, 2, 239–255.

Influence of initial stresses in fibres on the strength of unidirectional composites. In *Mechanics of Structures of Composite Materials*. Nauka, Novosibirsk, 23–28 (coauthor with M. N. Omel'chenko, V. L. Polyakov, V. D. Protasov, and V. A. Tsykalo).

Stochastic models of crack nucleation and development. In *Non-linear Models and Problems of the Mechanics of Deformable Solids*. Nauka, Moscow, 166–179.

1985

Reliability of mechanical systems. In *Reliability of Technical Systems. Handbook*. Radio i Svyaz', Moscow, 438–457 (coauthor with V. P. Chirkov).

The growth of low-cycle fatigue cracks. In *Problems of Shipbuilding. The Design of Ships (On the 75th Birthday of V. V. Novozhilov)*. Rumb, Leningrad, No. 42, 19–25.

Parametrically excited vibrations in systems with delay. *Izv. Akad. Nauk SSSR. MTT*, 5, 14–21.

A Griffith's crack in a damaged viscoelastic medium. In *Strength Analyses*. Mashinostroyeniye, Moscow, Issue 26, 19–32.

An energy approach to describing the fatigue crack growth in a non-uniaxial stress state. *Zh. Prikl. Mekh. Tekh. Fiz.*, 2, 136–143.

A unified approach to damage accumulation and fatigue and crack growth. *Engng Fracture Mech.*, **22**, 3, 387–398.

Sets of multiple cracks in solids with application to the fatigue life and reliability prediction. In *Probabilistic Methods in the Mechanics of Solids and Structures*. Springer, Heidelberg, 177–197.

1986

Evaluation of the reliability of non-destructive testing systems. In *Methods and Means of Diagnosing the Bearing Capacity of Articles Made from Composites*. Zinatne, Riga, 5–18.

Failure of composite materials by delamination. In *Strength Analyses*. Mashinostroyeniye, Moscow, Issue 27, 8–20.

Mechanics of nucleation and the initial development of fatigue cracks. *Fiz.-khim. Mekhanika Materialov*, **22**, 1, 18–23.

Fracture and fatigue of composite plates and shells. In *Inelastic Behaviour of Plates and Shells*. Springer, Heidelberg, 131–161.

Damage accumulation and fatigue crack growth. *Res. Mechanica*, **18**, 2, 117–124.

A unified model of fatigue and fracture with applications to structural reliability. In *Random Vibration. Status and Recent Developments*. Elsevier, Amsterdam, 47–58.

1987

A mechanical model of corrosion cracking. *Mashinovedeniye*, 4, 20–26.

Crack growth and final failure under cyclic loading. *Probl. Prochnosti*, 11, 3–8.

Damage and failure of composites by ply separation. *Mekh. Kompozit. Materialov*, 3, 424–432.

A model of a fatigue crack with a tip zone. *Prikl. Mekhanika*, **23**, 12, 61–67.

Stability and crack growth under non-potential loading. *Izv. Akad. Nauk SSSR. MTT*, 5, 148–157.

Theory of extremes and its applications to mechanics. In *Proceedings of the 1st World Congress of the Bernoulli Society. Vol. 2. Mathematical Statistics and Applications*. VNU Sci. Press, Utrecht, 443–459.

1988

Structural integrity under stochastic loading in the area of small probabilities. In *Non-linear Stochastic Dynamic Engineering Systems* (Eds F. Ziegler and G. Schueller). Springer, Heidelberg–Berlin, 269–281.

Interlayer fracture of composites under combined loading. *Mekh. Kompozit. Materialov*, 3, 410–418.

Stability and growth of fatigue cracks. *Izv. Akad. Nauk SSSR. MTT*, 4, 133–140.

Mechanics of fatigue failure. *Mashinovedeniye*, 5, 21–27.

Crack resistance of composite materials on polymer binders at elevated temperatures. *Mekh. Kompozit. Materialov*, 5, 839–844 (coauthor with A. Ye. Yefimov, N. S. Mezentsev, I. V. Shebunin, and V. N. Shchugorev).

The theory of statistical ensembles of fatigue cracks. In *Mechanics and Progress in Science and Technology*. Nauka, Moscow, Vol. 3, 23–34.

New trends in seismic stability analysis. In *Scientific Problems of Mechanical Engineering. On the 50th Anniversary of the Institute of Mechanical Engineering*. Nauka, Moscow, 30–38.

1989

Prediction of Service Life for Machines and Structures. ASME, New York.

Analytical mechanics of fracture and fatigue. *Recent Advances in Engineering Science*. Springer, Berlin.

Reliability of composite structures. In *Handbook of Composites*. *Vol. 2. Structures and Design*. Elsevier, Amsterdam, 263–349.

The resistance of composite materials to interlayer failure. In *Strength Analyses*. Mashinostroyeniye, Moscow, No. 30, 47–66 (coauthor with S. V. Nefedov and V. N. Shchugorev).

The prediction of corrosion fatigue crack growth. *Mashinovedeniye*, 2, 16–23 (coauthor with A. S. Ryabtsev and A. S. Shubin).

1990

The Life of Machines and Structures. Mashinostroyeniye, Moscow.

Composite Materials. Handbook. Mashinostroyeniye, Moscow. (coauthor with V. V. Vasil'yev, V. D. Protasov, *et al.*).

The stability of reversible cracks. *Izv. Akad. Nauk SSSR. MTT*, 3, 102–109.

Optimization of the seismic protection of atomic power stations based on the criterion of seismic risk. *Problemy Mashinostroyeniya i Nadezhnosti Mashin*, 2, 14–22 (coauthor with A. A. Zakharov).

The importance of the mechanics of materials and structures for ensuring the reliability and safety of mechanical systems. *Problemy Mashinostroyeniya i Nadezhnosti Mashin*, 5, 3–8.

The fracture of laminated composites on surface impact. *Mekh. Kompozit. Materialov*, 2, 225–230 (coauthor with A. A. Grishko and V. N. Shchugorev).

Mechanics of fatigue fracture. In *Nonlinear Fracture Mechanics*. Springer, Vienna–New York, 1–60.

Experimental investigation of the effect of local impact loading on the interlayer strength of composites. *Mekh. Kompozit. Materialov*, 1, 48–51 (coauthor with A. Ye. Yefimov, N. S. Mezentsev, and V. N. Shchugorev).

The effect of elevated temperatures on the specific work of interlayer failure of composite materials with a polymer matrix. *Mekh. Kompozit. Materialov*, 6, 1033–1037 (coauthor with G. Kh. Murzakhanov and V. N. Shchugorev).

State Standard GOST 27.002–89 from 15.11.1989, N27. Reliability in Engineering. Principal Concepts. Terms and Definitions. Izd. Standartov, Moscow (coauthor with P. P. Parkhomenko, A. F. Selikhov, *et al.*).

A new standard of reliability in engineering. *Standarty i Kachestvo*, 5, 42–43.

1991

Static fatigue crack growth in viscoelastic media. *Izv. Akad. Nauk SSSR. MTT*, 1, 128–138 (coauthor with S. G. Minokin).

1992

Estimation of structural reliability of nonlinear systems under seismic action. In *Nonlinear Stochastic Mechanics. IUTAM Symposium, Turin, 1991*. Springer, Berlin, 103–114.

On Dynamic crack propagation. *Prikl. Mat. Mekh.*, **56**, 1, 150–162.

Allowance for the incompleteness of information when predicting structural seismic risk. *Stroit. Mekh. i Raschet Sooruzh.*, 2, 61–69 (coauthor with A. A. Grishko and V. L. Chernobrov).

Crack growth and fracture under creep conditions. *Izv. Ross. Akad. Nauk. MTT*, 3, 147–156 (coauthor with B. V. Minakov).

Asymptotic estimates for the probability of failure-free operation according to models of the load–resistance type. *Problemy Mashinostroyeniya i Nadezhnosti Mashin*, 6, 3–10 (coauthor with V. P. Chirkov).

Generalized forces in analytical fracture mechanics. In *Novozhilov Collection.* Sudostroyeniye, St Petersburg, 161–170.

The safety of technical plant and structural risk. In *Non-linear Problems of the Dynamics of Machinery*. Mashinostroyeniye, Moscow, 117–132 (coauthor with M. K. Uskov).

Crack resistance and cyclic strength of composites of laminated structure under combined effects. *Mekh. Konstruktsii iz Kompozits. Mater.*, 1, 61–101.

1993

Simulation of fatigue crack growth in a medium with microdamage. *Izv. Ross. Akad. Nauk. MTT*, 2, 132–142 (coauthor with V. M. Kovekh).

Effect of low-velocity impacts on the residual strength of composites. *Mekh. Kompozit. Materialov*, **29**, 4, 478–487 (coauthor with V. N. Shchugorev).

Initial flaws distribution and size effect of fatigue failure. In *Length Effect on Fatigue of Wires and Strands. IABSE Workshop, El Planar, Madrid, 1992*. IABSE Reports, Vol. 86. IABSE, Zurich, 75–88.

Numerical modelling of the fracture of laminated composites under impact effects. *Izv. Ross. Akad. Nauk. MTT*, 3, 151–160 (coauthor with A. A. Grishko).

Fatigue crack propagation as a random process. *Izv. Ross. Akad. Nauk. MTT*, 4, 174–183.

Random initial defects and fatigue life prediction. In *Stochastic Approach to Fatigue* (Ed. K. Sobzcyk). Springer, Vienna–New York, 121–164.

Seismic risk assessment for structures with the Monte Carlo simulation. *Probabil. Engng Mechanics*, **8**, 3/4, 169–177.

Structural mechanics and reliability analysis of structures. *Stroit. v Rossii: Progress Nauki i Tekhniki*, 1, 8–11.

1994

Residual post-impact bearing capacity of laminated fabric composites with initial interlayer cracks. *Mekh. Kompozit. Materialov*, **30**, 5, 600–608 (coauthor with A. A. Grishko and V. N. Shchugorev).

Influence of the initial conditions on the displacement and propagation of fatigue cracks. *Izv. Ross. Akad. Nauk. MTT*, 1, 73–79 (coauthor with B. V. Minakov and V. P. Chirkov).

Introduction to the theory and practice of reliability. In *Design of Machinery. Procedural Handbook*. Mashinostroyeniye, Moscow, Vol. 2, 526–550.

Fracture from standpoint of non-linear stability. *Intern. J. Non-linear Mechanics*, **29**, 4, 569–585.

On random fatigue crack propagation. In *Structural Safety and Reliability* (Eds G. I. Schueller *et al.*). Balkema, Rotterdam, 1053–1060.

Fatigue life prediction of structures. In *Probabilistic Structural Mechanics: Advances in Structural Reliability* (Eds P. Spanos and Y.-T. Wu). Springer, Berlin, 11–41.

Mechanics of fatigue crack growth as a synthesis of micro- and macromechanics of fracture. In *Handbook of Fatigue Crack Propagation in Metallic Structures* (Ed. A. Carpinteri). Elsevier, Rotterdam, Vol. 1, 883–911.

Crack growth and fracture as instability phenomena. In *Advances in Fracture Resistance and Structural Integrity* (Eds V. V. Panasyuk *et al.*). Pergamon Press, Oxford, 83–98.

On the low-cycle fatigue crack growth. In *Collection of Papers Dedicated to Professor P. S. Theocaris. Theocaris University* (Ed. A. N. Kounadis). Technical University of Athens, Athens, 26–36 (coauthor with B. V. Minakov).

1995

The effect of damping forces on the post-critical behaviour of substantially non-potential systems. *Izv. Ross. Akad. Nauk. MTT*, 2, 158–167 (coauthor with A. A. Grishko and A. V. Petrovskii).

Mechanics of fatigue crack growth in a medium with microdamage. *Prikl. Mat. Mekh.*, **59**, 2, 307–317 (coauthor with V. L. Lebedev).

Prediction of internal fatigue crack growth. *Problemy Mashinostroyeniya i Nadezhnosti Mashin*, 3, 40–46 (coauthor with B. V. Minakov, G. Kh. Murzakhanov, and S. V. Nefedov).

Dynamic stability of structures. In *Non-linear Stability of Structures. Theory and Computational Techniques* (Eds A. Kounadis and W. Kratzig). Springer, Vienna–New York, 3–72.

Mechanics of fatigue and safe life prediction for structures. In *Proceedings of the 1st European Conference on Steel Structures. Eurosteel'95*. Balkema, Rotterdam, 461–467.

Fatigue crack propagation in random media. In *Non-linear Dynamics and Stochastic Mechanics* (Eds W. Kliemann and N. Sri Namachchivaya). CRC Press, Boca Raton, 361–381.

Crack propagation in studies with randomly distributed properties. In *International Conference of Stochastic Structural Dynamics* (Keynote Lecture). Univ. Puerto Rico, San Juan, Puerto Rico, 9.

1996

Effect of microdamage on fatigue crack growth. *Prikl. Mat. Mekh.*, **60**, 6, 1029–1038 (coauthor with V. M. Kovekh).

A model of the growth of a disc-shaped low-cycle fatigue crack. *Izv. Ross. Akad. Nauk. MTT*, 3, 54–61 (coauthor with V. L. Lebedev, G. Kh. Murzakhanov, and S. V. Nefedov).

Growth of thin delaminations in laminate composite beams under cyclic bending. *Mech. Compos. Mater. Struct.*, **3**, 4, 275–295 (coauthor with S. V. Nefedov).

Delaminations in composite structures: its origin, buckling, growth and stability. *Composites*, **27B**, 2, 129–145.

Postcritical dynamics of non-conservative systems. In *Structural Dynamics. Eurodin'96* (Eds G. Augùsti *et al.*). Balkema, Rotterdam, 357–362.

Secondary bifurcations and global instability of an aeroelastic non-linear system in the divergence domain. *J. Sound and Vibration*, **191**, 3, 431–451 (coauthor with A. A. Grishko and A. V. Petrovskii).

Reliability against fatigue fracture in the presence of sets of cracks. *Engng Fracture Mechanics*, **53**, 5, 753–759.

Meandering propagation of fatigue cracks through solids with randomly distributed properties. In *Advances in Nonlinear Stochastic Mechanics. IUTAM Symposium, Trondheim* (Eds A. Naessand and S. Krenk). Kluwer, Dordrecht, 47–57.

Analytical model of fatigue crack growth retardation due to overloading. *Int. J. Solids and Structures*, **33**, 9, 1229–1242 (coauthor with V. L. Lebedev).

Stability Problems in Fracture Mechanics. Wiley, New York.

1997

Theory of the reliability of machinery. In *Encyclopaedia. Mechanical Engineering* (Ed. K. V. Frolov). Vol. 4-3. *Reliability of Machinery* (Ed. V. V. Klyuyev). Mashinostroyeniye, Moscow, 11–67.

The stability of multilayer delaminations in composites under compression. *Mekh. Kompozit. Materialov*, **33**, 3, 312–320 (coauthor with S. V. Nefedov, O. V. Pudov, and O. V. Trifonov).

Growth of delaminations in the components of structures made of composites under cyclic compression. *Mekh. Kompozitsionnykh Materialov i Konstruktsii*, **3**, 1, 3–22 (coauthor with S. V. Nefedov and A. A. Mitrichev).

Application of the method of statistical modelling for assessing the seismic risk of structures. *Izv. Ross. Akad. Nauk. MTT*, 6, 168–175 (coauthor with V. P. Radin and V. P. Chirkov).

1998

Probabilistic model of early fatigue crack growth. *Probab. Engng Mechanics*, **13**, 3, 227–232 (coauthor with A. A. Babkin and I. L. Belousov).

Non-linear panel flutter in remote post-critical domains. *Int. J. Non-linear Mech.*, **33**, 5, 753–764 (coauthor with A. A. Grishko, A. N. Kounadis, Ch. Gantes, and J. B. Roberts).

Influence of initial conditions on the postcritical behaviour of a nonlinear aeroelastic system. *Nonlinear Dynamics*, **15**, 1, 63–81 (coauthor with A. A. Grishko, A. N. Kounadis, Ch. Gantes, and J. B. Roberts).

The fatigue crack growth in linear viscoelastic media. *Izv. Ross. Akad. Nauk. MTT*, 4, 117–127.

A model of fatigue crack growth taking environmental factors into account. *Prikl. Mat. Mekh.*, **62**, 2, 313–322 (coauthor with A. A. Shipkov).

Environmentally assisted low-cycle fatigue crack initiation and growth. In *4th International Conference on Low-Cycle Fatigue and Elasto-Plastic Behavior of Materials, Garmisch-Patenkirchen, Germany*. 7–11 (coauthor with V. M. Kovech and A. A. Shipkov).

Modelling of corrosion fatigue crack growth. *Problemy Mashinostroyeniya i Nadezhnosti Mashin*, 5, 67–71 (coauthor with V. M. Kovekh and A. A. Shipkov).

Mechanics of Fatigue. CRC Press, Boca Raton.

1999

Vibrations in Engineering. Handbook in six volumes. Vol. 1. *Vibrations of Linear Systems* (Ed. V. V. Bolotin), 2nd edn. Mashinostroyeniye, Moscow.

Non-linear models in the seismic stability analysis of structures. *Vestnik RAASN. Otd. Stroit. Nauk*, 88–92.

Mechanics of fatigue crack nucleation and growth. *Izv. Ross. Akad. Nauk. MTT*, 5, 4–16.

The stability of a thin panel with attached components in a supersonic gas flow. *Prikl. Mekhanika*, **35**, 12, 3–10 (coauthor with A. A. Grishko and A. A. Mitrichev).

Mechanics of internal fatigue crack growth. *Izv. Ross. Akad. Nauk. MTT*, 2, 139–147 (coauthor with M. Yu. Panov and O. V. Trifonov).

The influence of the spectral composition of a seismic action on the dynamic reaction of structures. *Izv. Ross. Akad. Nauk. MTT*, 3, 150–158 (coauthor with V. P. Radin, O. V. Trifonov, and V. P. Chirkov).

Analytical modelling of fatigue crack propagation. *Fatigue and Fracture of Engineering Materials and Structures*, **20**, 965–973.

Dynamic buckling loads of autonomous potential system based on the geometry of the energy surface. *Int. J. Mech. Sci.*, **37**, 1611–1628 (coauthor with A. N. Kounadis and Ch. Gantes).

Dynamic instabilities in dynamics of structures. *Appl. Mech. Reviews*, **52**, 1, R1–R9.

Influence of seismic load spectrum on the dynamic response of structures. *Mechanics of Solids*, **34**, 3, 128–135 (coauthor with V. P. Radin, O. V. Trifonov, and V. P. Chirkov).

2000

Assessment of the seismic stability of damaged buildings and structures in relation to aftershocks. *Vestnik RAASN. Otd. Stroit. Nauk*, 3, 18–23.

Synthesis of damage and fracture mechanics as a basis for mechanics of fatigue. *Europ. J. of Mechanics. A. Solids*, **19**, Special Issue, 3–22.

Mechanical aspects of fatigue crack growth during hydrogen embrittlement. *Dokl. Ross. Akad. Nauk*, **372**, 6, 759–761.

Dynamic instabilities in postcritical vibrations of structures. *7th International Congress on Sound and Vibration*, Garmisch-Partenkirchen, 75–88.

Flutter instabilities of flexible components interacting with the main structures. In *Recent Advances in Applied Mechanics. Honorary Volume for Professor A. N. Kounadis*. NTUA, Athens, 176–185.

Dynamics of structures under multicomponent seismic effects. *Izv. Ross. Akad. Nauk. MTT*, 3, 149–157 (coauthor with V. P. Radin and V. P. Chirkov).

Threshold and related effects in the mechanics of fatigue crack growth. *Izv. Ross. Akad. Nauk. MTT*, 1, 158–171 (coauthor with O. V. Trifonov).

Flexural-torsional vibrations of a multistage building under seismic effects. *Izv. VUZ. Stroitel'stvo*, 2/3, 12–17 (coauthor with V. P. Radin and V. P. Chirkov).

2001

Limiting analysis of structures under transient dynamic effects. *Izv. Ross. Akad. Nauk. MTT*, 1, 134–142 (coauthor with O. V. Trifonov).

Prediction of fatigue crack growth taking environmental factors into account. *Prikl. Mat. Mekh.*, **65**, 6, 1033–1044 (coauthor with A. A. Shipkov).

Crack resistance of materials and continuum mechanics of damage. *Dokl. Ross. Akad. Nauk*, **376**, 6, 760–762.

Mechanics of ply separations in structures of complex composites. *Mekhanika Kompozit. Materialov*, **37**, 5/6, 585–602.

Investigation of the elastoplastic deformation of a multistorey skeleton-type building under intense seismic effects. *Izv. VUZ. Stroitel'stvo*, 5, 11–17 (coauthor with V. P. Chirkov, V. P. Radin, and O. V. Trifonov).

A dynamic buckling geometric approach of 2-DOF autonomous potential lumped-mass system under impact loading. *Int. J. Solids and Structures*, **38**, 22/23, 4071–4089 (coauthor with A. N. Kounadis, Ch. Gantes, and J. Raftoyiannis).

Mechanical aspects of corrosion fatigue and stress corrosion cracking. *Int. J. Solids and Structures*, **38**, 40/41, 7297–7318 (coauthor with A. A. Shipkov).

An improved energy criterion for dynamic buckling of imperfection sensitive nonconservative systems. *Int. J. Solids and Structures*, **38**, 42/43, 7487–7500 (coauthor with A. N. Kounadis and Ch. Gantes).

Fluttering panel as a continuous system. *J. of Vibration and Control*, **7**, 2, 233–248 (coauthor with A. A. Grishko, A. N. Kounadis, Ch. Gantes, and J. B. Roberts).

Early fatigue crack growth as the damage accumulation process. *Probabil. Engng Mechanics*, **16**, 4, 279–287 (coauthor with I. L. Belousov).

2002

Elastoplastic analysis of the bearing elements of buildings and structures under intense seismic effects. *Izv. VUZ. Stroitel'stvo*, 6, 4–9 (coauthor with V. P. Radin and V. P. Chirkov).

The impacts of structures in the case of strong earthquakes. *Izv. Ross. Akad. Nauk. MTT*, 4, 152–162 (coauthor with O. V. Trifonov).

Prediction of the growth of fatigue cracks taking environmental factors into account. *J. Appl. Maths Mechs*, **65**, 6, 1001–1010 (coauthor with A. A. Shipkov).

Effect of damping on the postcritical behaviour of autonomous nonconservative systems. *Int. J. Non-linear Mechanics*, **37**, 7, 1163–1179 (coauthor with A. A. Grishko and M. Yu. Panov).

2003

Stability and post-critical behaviour of aeroelastic systems taking additional damping into account. *Izv. Ross. Akad. Nauk. MTT*, 5, 164–174 (coauthor with A. A. Grishko).

Assessment of safety and failure modes for structures under strong seismic and related actions. In *Computational Stochastic Mechanics. Proceedings of 4th International Conference on Computational Stochastic Mechanics, Cordu, Greece*. Millpress, Rotterdam, 67–71 (coauthor with O. V. Trifonov).

Reliability, diagnostic and fault correction. UNESCO-EOLSS, E6-35-04-00, 1–19 (coauthor with V. V. Klyuyev).

Investigation of the behaviour of buildings and structures with a reduction in stiffness under seismic effects. *Izv. VUZ. Stroitel'stvo*, 7, 6–10 (coauthor with V. P. Radin and V. P. Chirkov).

2004

Modelling of scenarios of the collapse of tall buildings under intense seismic effects. *Izv. VUZ. Stroitel'stvo*, 2, 4–10 (coauthor with V. P. Radin, V. P. Chirkov, and O. V. Trifonov).

Modelling of the three-dimensional behaviour and safety assessment of industrial structures under random dynamic loads. *Problemy Mashinostroyeniya i Nadezhnosti Mashin*, 5, 92–98 (coauthor with O. V. Trifonov).

2005

Stability and post-critical behaviour of a multistep system of rigid bodies under non-potential loading. *Izv. Ross. Akad. Nauk. MTT*, 1, 174–187 (coauthor with A. V. Petrovskii and V. P. Radin).

The development of non-linear models for analysing the dynamic reaction, damage, and collapse of sructures under extreme effects. *Izv. VUZ. Stroitel'stvo*, 3, 4–11 (coauthor with V. P. Chirkov, V. P. Radin, and O. V. Trifonov).

Methods for the non-linear analysis and assessment of the failure modes of structures under extreme dynamic effects. *Vestnik RAASN. Otd. Stroit. Nauk*, 9, 113–118 (coauthor with O. V. Trifonov and V. P. Chirkov).

Parametric vibrations in non-conservative systems. *Problems of Applied Mechanics, Dynamics, and Strength of Machinery*. Izd. MGTU im. N.E. Baumana, Moscow, 22–31 (coauthor with V. P. Chirkov, V. P. Radin, and V. N. Vasina).

Translated by P.C.