CURRICULUM VITAE

SURNAME AND NAME	**Zozulya Volodymyr**
Home Address	
Phone number	
Fax number	
E-mail address	
Nationality	**Mexican**
Birth date	

Academic Position (if the candidate holds a position in a University)

Qualification/Title	**Professor-Researcher**
University	**Centro de Investigacion Cientifica de Yucatan**
Department	**Materials**
Academic Field	**Mechanics of Materials**
Academic Discipline	**Modeling and Simulation of Materials and Structures**

Working experience (please use the following table in order to briefly describe the working positions covered by the candidate)

Dates (from .. to..)	**1978-1988**
Name and address of the Employer (Public or/and private institution/body)	**Kharkov State Technical University, Ukraine**
Position held (for positions in Universities, the candidate should indicate the Faculty/College/School and the Department)	**Researcher and Senior researcher.** **Civil Engineering Faculty, Structural Mechanics Department**
Main activities/responsibilities	Full time research position. Tasks included solution of the problems related to research projects and part-time teaching activity as Associate Professor. During that period I continued to develop analytical and numerical methods for the solution of various problems in Oil and Gas industries. Also I developed a theory of thermoelastic problems for plates and shells which take into account possibility of changing thermo and mechanical contact conditions during deformation. These methods have been applied in the Nuclear and Aerospace Industries.

Dates (from .. to..)	**1988-1992**

Name and address of the Employer (Public or/and private institution/body)	**Kharkov State Technical University, Ukraine**
Position held (for positions in Universities, the candidate should indicate the Faculty/College/School and the Department)	**Associate Professor. Civil Engineering Faculty, Structural Mechanics Department**
Main activities/responsibilities	Full time Associate Professor position. I gave lectures in Strength of Materials, Structural Mechanics and Finite Element Methods for Mechanical Engineering to undergraduate students. I participated in research projects related to machinery analysis and design.
Dates (from .. to..)	**1992-1998**
Name and address of the Employer (Public or/and private institution/body)	**Kharkov State Technical University, Ukraine**
Position held (for positions in Universities, the candidate should indicate the Faculty/College/School and the Department)	**Full Professor and Head of Department** **Civil Engineering Faculty, Structural Mechanics Department**
Main activities/responsibilities	Full time Full Professor position. I gave lectures in Engineering Mechanics, Strength of Materials, Mechanics of Materials, Theory of Elasticity and Plasticity for Mechanical and Civil Engineering undergraduate students, I also gave lectures in Theory of Solids and Structures, Numerical Methods in Mechanics of Materials, Theory Plates and Shells, Application of FEM and BEM in Engineering for Mechanical and Civil Engineering graduate students. I was supervisor of several PhD students. Two of them finished their PhD thesis and obtained their PhD degrees. I also fulfilled various research projects for the National Academy of Sciences of Ukraine and various Industries. Mostly those projects were related to the Solid and Fracture Mechanics and their application in an industry. Also I fulfilled the duties of the head of the department
Dates (from .. to..)	1998-Current
Name and address of the Employer (Public or/and private institution/body)	**Centro de Investigation Cientifica de Yucatan A.C., Mexico.**
Position held (for positions in Universities, the candidate should indicate the Faculty/College/School and the Department)	**Professor-Researcher,** **Materials Department**
Main activities/responsibilities	Full time Full Professor-Researcher position. I am working on the research projects in the area of composite materials at macro, micro and nano scale. I am developing mathematical models for fiber reinforced and laminated composite materials and numerical methods for computer modeling. Recently I have also started working in the area of multi-scale analysis in fracture mechanics, micro and nanomechanics with concidering multiphicical fields (theromo and electromagnetic interactions). Another my duties in this position is coordinate MsD and PhD stutents and giving various lectures in Material

	Enginering Curriculum for postgraduate students. I am coordinating in course of Advanced Mathematics for Engineers.

Education and Training (please use the following table to describe Degrees awarded, by only indicating the information concerning Bachelor's Degree, Master of Science's Degree or/and PhD)

Date	**1975**
Institution which issued the degree	**Kharkov Technical University, Ukraine**
Type of Degree awarded (only Bachelor's Degree, Master of Science's Degree, PhD)	**Master of Science in Civil Engineering**
Date	**1983**
Institution which issued the degree	**Kharkov State University, Ukraine**
Type of Degree awarded (only Bachelor's Degree, Master of Science's Degree, PhD)	**Master of Science in Mathematics**
Date	**1984**
Institution which issued the degree	**Institute for Problems in Machinery, National Academy of Sciences of Ukraine**
Type of Degree awarded (only Bachelor's Degree, Master of Science's Degree, PhD)	**PhD in Dynamic and Strength of Machines and Apparatus**
Date	**1992**
Institution which issued the degree	**Institute of Mechanics, National Academy of Sciences of Ukraine**
Type of Degree awarded (only Bachelor's Degree, Master of Science's Degree, PhD)	**ScD in Physics and Mathematics, Solid Mechanics**

EVALUATION FIELDS

1. Scientific Activity

1.1 The three most important outcomes/results of the research activity of the candidate accompanied by the tangible and verifiable evidence that the presented results:

1. High order theory of rods, plates and shells

We apply and further develop an approach that consists in the expansion of the stress-strain field components into the Legendre's polynomials series in terms of thickness for the development of new high order theories of rods, plates and shells. Such an approach has significant advantages since Legendre's polynomials are orthogonal and as result the developed equations are simple.

In our previous publications the approach based on the use of Legendre's polynomials series expansion has been applied to the development of high order models of shells, plates and rods. First thermoelastic contact problems of plates and shells when mechanical and thermal conditions are changed during deformation have been considered. The unilateral contact problem through the heat-conducting layer for plates and shells has been formulated. The approach consists in considering a change of layer thickness in the process of the plates and shells deformation. Consequently, the heat-conducting properties of the layer are being changed too. Since the thickness of the layer, plates and shells are small, the equations of thermoelasticity and heat have been expanded into a polynomial Legendre series in terms of the thickness. The equations of N-th approximations have been obtained and the first-approximations equations have been studied in detail. Such an approach allows to consider the change of the heat transfer conditions during the deformation in the frame of simple plates models. The problem has been transformed into nonlinear and connected equations of thermoelasticity and heat conductivity for plates and shells. The non linearity and connectivity of those equations are due to the change of the heat conducting layer thickness as well as the unilateral contact conditions. The problem have been transformed into the nonlinear system of the Hammerstein integral equations in the area without close mechanical contact and into the Fredholm first-kind integral equations with unilateral restrictions and integral representations of temperature functions within the close mechanical contact area. These equations have been solved using a method of simple iteration. Numerical examples of the unilateral contact of plates through the heat-conducting layer are presented. The results obtained have been compared with the results obtained by traditional methods. It is demonstrated that in many cases the results obtained by the approach developed here distinguish not only quantitatively, but also qualitatively compared with the traditional approach.

Then, the proposed approach and methodology were further developed and extended to thermoelasticity of the laminated composite materials with the possibility of delamination along with mechanical and thermal contact in the temperature field, the pencil-thin nuclear fuel rods modeling, the functionally graded shells, modeling of MEMS and NEMS, micropolar curved elastic rods, couple stress and nonlocal theory of elastic roods in . Also analysis and comparison with the classical theory of elastic and thermoelastic plates and shells has been done.

The proposed models can be efficient in thin walled structures modeling and computer simulation at macro, micro and nano scales.

The results of these researches were published in the following articles[8, 9, 11, 12, 23, 24, 32, 69, 70, 75, 76, 88, 90-93, 97, 99, 100, 102-105], book chapters [2, 7, 9, 11] and Conferences Proceedings [2, 11, 14, 17, 20, 26, 28, 31, 32, 36-39, 41].

2. Dynamic contact problems of fracture mechanics

Formulation of problem. For correct formulation of elastodynamic problems for body with cracks necessary to take into account possibility of contact interaction of opposite crack sides. Such approach have been used for the first time in our papers. Arbitrary dynamic and harmonic loading of the body with cracks and a possibility of the contact interaction with friction of the opposite crack sides with formation of the contact, cohesion and sliding domains in process of deformations are taken into consideration. In such formulation we have nonlinear initial-boundary elastodynamic problem with Signorini conditions and friction on cracks sides.

Method of solution. For arbitrary dynamic loading the problem is solved using Laplace transform with respect to time. With such approach the initial-boundary elastodynamic problem is transformed into continuum sets of boundary-value problems in Laplace transform space and the unilateral restrictions with friction on the crack sides, which are not transformed due to their non- linearity. For harmonic loading the problem is solved using the Fourier series expansion. In this case the initial-boundary elastodynamic problem is transformed into the countable sets of boundary-value problems for the Fourier coefficients and the unilateral restrictions on crack sides in space-time. For the problems solution variational inequality with boundary integral equations are applied. The problem is transformed into boundary variational inequalitis and boundary functionals. Algorithm for problem solution consists in finding the saddle point of boundary functional in Sobolev's spaces of trace functions on body boundary and on crack sides. It was shown that the algorithm may be considered as compressive operator in those functional spaces. It was prove the suggested algorithm convergence and solvability and uniqueness of the nonlinear initial-boundary elastodynamic problem with Signorini conditions and friction on cracks sides. The algorithm consists of two parts. The first one is the linear initial-boundary elastodynamic problem without Signorini conditions and friction on crack sides. The second one is a projection into the set of one-sided restriction and friction of the contact forces and displacements on the crack sides. The first problem is solved using the boundary integral equations method in space of Laplace transform for arbitrary dynamic loading or in space of Fourier coefficients for harmonic loading. Hadamar's finite-partial integrals are used for the boundary integral equations solution.

Numerical examples. The problems about harmonic loading of the plane with one or two collinear cracks have been solved. The influence of the contact interaction of the crack edges on the stress intensity factor has been studied. The results obtained have been compared with the ones obtained by other authors, who had solved the problems regardless the contact interaction of the crack sides. Computation analysis have shown that in such problems bifurcations and chaotic oscillations may arise.

The results of these researches were published in a book [1], following articles[13-15, 18, 19, 22, 25-31, 33-36, 45, 50, 51, 53-67, 71-74, 77, 79, 80, 83, 86, 89], book chapters [1, 4, 5, 6, 8, 14, 17, 18] and in Conferences Proceedings [5, 6-10, 12, 13, 16, 23, 27, 30, 40].

3. Boundary integral equations and divergent integrals.

One of the difficulties found with numerical solution of the BEM, is the presence of the divergent integrals and the integral operators with kernels that contain different kind of singularities. In mathematics, singular integrals and integral operators with singular kernels have a well-established theoretical basis. For example, the weakly singular integrals are considered as improper integrals, the singular integrals are considered in the sense of Cauchy as principal values and the hypersingular integrals are considered in the sense of Hadamard as finite parts. The theory of distributions (generalized functions) let us to consider divergent integrals and integral operators with kernels containing different kind of singularities using the same approach.

The divergent integrals must be calculated when the BIE are solved numerically using the BEM. There are several methods for the calculation of the weakly singular and singular integrals. Hypersingular integrals are more complex and there are some problems with their numerical calculation. Therefore, the BIE with singular integrals (in the sense of Cauchy principal values) have been used until recently. However, there are some kind of problems where the BIE with hypersingular integrals are preferable and closer to the physical sense of the problem. Such situation takes place at the theory of elasticity and fracture mechanics when the BIE method is used to solve problems for bodies with cats and cracks.

Several approaches to solve the BIE with hypersingular integral operators are been developed. For example, the BIE with hypersingular integrals may be transformed into the BIE with weakly singular or at the most with singular integrals. Then the theoretical and applied results developed for those last two integral operators may be used. The essence of another approach is to calculate the finite part of hypersingular integrals, which consists in their regularization. There are some different regularization techniques. The standard one consists on subtracting the divergent part of the hypersingular integral, followed by its calculation and then to add the result obtained to the regular part. Such approach has some disadvantages, which have been discussed widely.

In our publications, based on the theory of distribution it has been developed an approach for the regularization and numerical calculation of the hypersingular integrals that arise in the BIE of elasticity and fracture mechanics. The mathematical methodology of this approach is well known and widely discussed in the mathematical literature but until recently, it had not been used for the numerical solution of the BIE with hypersingular integrals. The advantage of this method is that it can not only be applied for the numerical calculation of hypersingular integrals, but also for integrals with different kind of singularities, for example weakly singular and singular ones. The 1-D and multi-dimensional divergent integrals can also be calculated using this method, for example, 2-D hypersingular integrals from the BIE solution of the 3-D static and dynamic problems of fracture mechanics. For their calculation, an approach based on the application of the Gauss-Ostrogradskii and the Green theorems have been used. The expressions, which allow an easy calculation of the weakly singular, singular and hypersingular integrals for any convex polygon have been constructed. Such approach may be generalized easily and applied for the calculation of multidimensional integrals with various singularities

The results of these researches were published in following articles [17, 44, 47, 48, 51, 67, 68, 78, 81, 84, 95, 96, 98], book chapters [3, 10, 12, 13, 16] and in Conferences Proceedings [18, 19, 22, 24, 25, 29].

1.2 List of the submitted publications (with a maximum number of 20) in addition to those listed at point 1.1.

The papers are grouped according to above classification. In most of the papers I am the only author, therefore most of results are mine.

1. Zozulya V.V. The combines problem of thermoelastic contact between two plates though a heat conducting layer, *Journal of Applied Mathematics and Mechanics*, 1989, V.53, N 5, P.622-627.
2. Zozulya V.V. Laminated shells with debonding between laminas in temperature field. *International Applied Mechanics*, Vol. 42, No. 7, (2006) pp. 842-848.
3. Zozulya V.V., Zhang Ch. A high order theory for functionally graded axisymmetric cylindrical shells, *International Journal of Mechanical Sciences,* **60(**1), 2012. pp. 12-22.
4. Zozulya V.V. A high-order theory for functionally graded axially symmetric cylindrical shells, *Archive of Applied Mechanics*, 2012, 13 pages, DOI 10.1007/s00419-012-0644-2.
5. Zozulya V.V. A High Order Theory for Linear Thermoelastic Shells: Comparison with Classical Theories, *Journal of Engineering*, *Volume* 2013, Article ID 590480, 19 pages
6. Zozulya V.V., Saez A. High-order theory for arched structures and its application for the study of the electrostatically actuated MEMS devices**,** *Archive of Applied Mechanics*, 2014, **84**(7), pp. 1037-1055.
7. Zozulya V.V., A higher order theory for shells, plates and rods, *International Journal of Mechanical Sciences,* 2015. **103(**1), pp. 40-54.
8. Zozulya V.V., Saez A. A high order theory of a thermo elastic beams and its application to the MEMS/NEMS analysis and simulations. *Archive of Applied Mechanics,* **86**, 2016, 1255–1272.
9. Zozulya V.V. Nonlocal theory of curved rods. 2-D, high order, Timoshenko’s and Euler-Bernoulli models. *Curved and Layered Structures,* 2017, 4, 221–236.

10. Guz A.N. and Zozulya V.V. Elastodynamic unilateral contact problems with friction for bodies with cracks, *International Applied Mechanics,* 2002, **38**(8), 895-932.
11. Guz A.N. and Zozulya V.V. Fracture dynamics with allowance for a crack edges contact interaction, *International Journal of Nonlinear Sciences and Numerical Simulation,* 2001, **2**(3), pp. 173-233.
12. Zozulya V.V. Variational formulation and Nonsmooth Optimization Algorithms in Elastostatic Contact Problems for Cracked Body. *CMES Computer Modeling in Engineering & Science,* Vol. 42, No. 3, (2009) pp. 187-215.
13. Zozulya V.V. Variational formulation and Nonsmooth Optimization Algorithms in Elastodynamic Contact Problems for Cracked Body, *Computer Methods in Applied Mechanics and Engineering*, Vol. **200**, issues 5-8, 2011. pp. 525-539.
14. Guz A.N., Zozulya V.V. Contact problem for the mode III crack under two normally incident shear HS-waves with wave mode-shifting, *Theoretical and Applied Fracture Mechanics*,, 35(1), 2012. pp. 34-41

15. Zozulya V.V. Comparative study of time and frequency domain BEM approaches in frictional contact problem for antiplane crack under harmonic loading, *Engineering Analysis with Boundary Elements*, **37**, 2013. pp. 1499-1513.

16. Zozulya V.V. The Regularization of the Divergent Integrals in 2-D Elastostatics**.** *Electronic Journal of Boundary Elements*, Vol. 7, No. 2, 2009, pp.50-88.
17. Zozulya V.V. Regularization of hypersingular integrals in 3-D fracture mechanics: Triangular BE, and piecewise-constant and piecewise-linear approximations, *Engineering Analysis with Boundary Elements*, **34**(2), 2010. 105-113.
18. Zozulya V.V. Divergent Integrals in Elastostatics: Regularization in 3-D Case. Computer Modeling in Engineering & Science, CMES, **70**(3), *2010*, pp. 253-349.
19. Zozulya V.V. An Approach Based on Generalized Functions to Regularize Divergent Integrals, *Engineering Analysis with Boundary Elements,* **40**, 2014. pp. 162-180
20. Zozulya V. V. Regularization of divergent integrals: A comparison of the classical and generalized-functions approaches, *Advances in Computational Mathematics*, 2015, 41, pp. 727-780.

2. Coordination of research and technology transfer groups and projects.

Research Projects

1978-1979

Study of well strength in horizons of high-plasticity rocks location. (N 47-78, Ministry of oil and gas industry, USSR)

1980-1981

Study of rock mechanical characteristics and stability of wells. (N 45-03-80, Ministry of oil and gas industry, USSR)

1982-1984

Study of rock stress state near wells using elastic model of rock. (N 45-07-82, Ministry of oil and gas industry, USSR)

1984-1985

Study of physical and mechanical characteristics of rocks and state of wells in unstable horizons under high pressure and temperature. (N 45-10-84, Ministry of oil and gas industry, USSR)

1986-1987

Calculation and development of outer pipe catcher construction which has high loading. (N 45-09-86, Ministry of oil and gas industry, USSR)

1987-1988

Study of rocks stress state near wells using elastic elasto-plastic and visco-elastic model of rock. (N 45-11-87, Ministry of oil and gas industry, USSR)

1988-1989

Study and development of instruments for catch heavy drilling pipes. (N 45-03-88, Ministry of oil and gas industry, USSR)

1989-1991

Study of rock crack resistance in order to determinate stability and hermetic of rock near wells. (N 45-07-89, Ministry of oil and gas industry, USSR)

1990-1992

Study of stress state and development of methods for strength stiffness and stability calculation. (№ 8645, Ministry of education of the USSR)

1993-1994

Development of calculation methods for composite materials. (№ 25-53-93, Ministry of education of Ukraine)

1995-1996

Development and application of boundary integral equation methods for calculation of plates with complicate contour. (№ 05-53-95, Ministry of education of Ukraine)

1997-1998

Study of influence of crack edge contact interaction on fracture mechanics parameters. (№ 04-53-97, Ministry of education of Ukraine)

1999-2004

Application of boundary integral equation methods in material science. (M-03, Centro de Investigación Científica de Yucatán)

1999-2004

New theory of plates and shells and its application in material science. (M-04, Centro de Investigación Científica de Yucatán)

2000-2002

Development of mathematical models and analysis of the stress-strain state and fracture of composites reinforced by continuous fibers. (31913-U. Comity in Science and Technology of Mexico (CONACyT))

2001-2006

Nonlinear dynamic problems for elastic materials with account material microstructure (P 05-56-01, National Academy of Sciences of Ukraine)

2005-2007

Development of boundary integral equation methods for anisotropic and composite materials (M-03, Centro de Investigación Científica de Yucatán)

2005-2007

Models of rods, plates and shells and their application to laminated composite materials. (M-04, Centro de Investigación Científica de Yucatán)

2006-2011

Modelos de las vigas, placas y corazas y su aplicación para los materiales compuestos laminados. (M-03, Centro de Investigación Científica de Yucatán)

2006-2011

Desarrollo del método de ecuaciones integrales de frontera para los materiales anisitropicos y compuestos. (M-12, Centro de Investigación Científica de Yucatán)

2007-2008

Materiales Compuestos Laminados, Modelos Matemáticos y Análisis de los Efectos Mecánicos (P52158364, CONACyT)

2007-2009

Análisis de Materiales Compuestos Laminados Bajo Efectos Mecánicos e Higrotérmicos (P058215, CONACyT).

2010-2013

Materiales compuestos laminados bajo efectos mecánicos e higrotérmicos. Modelos, simulación y análisis. (P101415, CONACyT)

2010-2011

New theory of shells and it application in Thermoelasticity of Laminate and Functionally GradedComposites (DFG Project ZH 15/21-1, Deutsche Forschungsgemeinschaft, Germany)

2011-2012

Modelos matemáticos y métodos numéricos para desarrollo micro- electro- mecánicos (MEMS) y nano- electro-mecánicos (NEMS) sistemas, dispositivos y estructuras, (P0166226, CONACYT).

2011-2012

Modelos matemáticos y métodos numéricos para el desarrollo de dispositivos y estructuras microelectro- mecánicos (MEMS) y nano- electro- mecánicos (NEMS), Ministry of Education of Spain Research Grants (Reference No SAB 2011-0008)

2013-2013

Higher-order theory of plates and shells with application to MEMS and NEMS, (Brazilian state foundation FAPERJ, Project E-26/110.011/2013)

2014-2015

Development of the high order theories of beams, rods, plates and shells in macro, micro and nano scale. Application to the MEMS/NEMS analysis and simulations. (Open Research project, Dalian University of Technology, China).

2016-2019

Development of new models of continuum mechanics with application in material and structures design at micro and nano scale. (P0166226, CONACYT).

Patents

External pipe catcher. Patent USSR, N 1263805. Authors: Iszczenko I.M., Zozulya V.V

Equipment for elimination of pipe grip accidents in wells. Patent USSR. N 1503380. Authors: Iszczenko I.M., Zozulya V.V and Ilyn A.G.

I have coordinated several research groups in Ukraine and Mexico, participate in International projects and supervised several Phd students. Four of them finishe their thesis and two in process.

2. National and international reputation and professional activity for the scientific community

International Journal Editor Board

2003- Currently *International Applied Mechanics.*
2009- Currently *ISRN Mechanical Engineering*.

Visits of the Universities and Research centers

Stuttgart University – (1995, 1996, 2001, 2004)
Universidad Autonoma de Yucatan, Mexico – (1997)
University of Mississippi – (2001)

McMaster University – (2001)
University of British Colombia – (2001)
Delaware University – (2002)
Colombia University, (New-York – (2002)
University of Toronto – (2004, 2005, 2008, 2009, 2012, 2014)
University of Minessota – (2008)
Brighton University, UK – (2010)
Taiwan Ocean University – (2011)
University of Nanjing, China – (2011)
Siegen University, Germany – (2011)
University of Seville, Spain – (2012, 2017)
Pontificia Universidad Católica de Rio de Janeiro, Brasil – (2013)
McGill University, Canada – (2014)
Ryerson University, Canada – (2015)
York University, Canada – (2017)

Professional Honors and Awards

1994 International Science Foundation, USA
1996 Member of the National Committee on Theoretical and Applied Mechanics, Ukraine
1996 Germany Academy of Science (DAAD)
1998 Comity for Science and Technology (CONACYT), Mexico
1999 Member of the National Researcher System (SNI), Mexico
2005 Prize of National Academy of Sciences of Ukraine in Field of Theoretical and Applied Mechanics
2009 State Prize of Ukraine in Field of Science and Engineering
2014 Member of Mexican Academy of Science

3. Teaching activity

I taught following courses at Kharkov Technical University, Ukraine and Centro de Investigation Cientifica de Yucatan A.C., Mexico**.**

Undergraduate courses:

- Engineering Mechanics
- Strength of Materials
- Mechanic of Materials
- Finite Element Method
- Theory of Elasticity and Plasticity

Graduate courses:

- Theory of Solids and Structures
- Numerical Methods in Mechanic of Materials
- Theory Plates and Shells
- Application of FEM and BEM in Engineering
- Advanced Mathematics and its Applications in Engineering

As full Professor and head of Department at Kharkov Technical University, Ukraine I was responsable for undegraduate, graduate and PhD couses. In Centro de Investigation Cientifica de Yucatan, Mexico I am responsible and coordinator of Advanced Mathematics course for MsD and PhD students.

During my long visits Toronto University, Canada (2004), Siegen University: Germany (2011), University of Seville, Spain (2012) and Pontificia Universidad Católica di Rio de Janeiro, Brasil – (2013) I thought several courses for PhD students.

4. Institutional offices and roles in Italian and foreign Universities and/or public and private institutions with scientific and/or technology transfer aims

Was head of Head of Structural Mechanics Department, Civil Engineering Faculty, Kharkov Technical University, Ukraine (1993-1998).

List of main publications

Books

1. Guz A.N. and Zozulya V.V. Brittle fracture of materials under the dynamical loading. Kuev:Nauk.Dymka, 1993.-240 p. (in Russian).

2. Zozulya V.V., Martynenko A.V. and Lukin A.N. Mechanics of Materials. Kharkov: Kharkov University Press, 2001.-404 p. (in Russian).

3. Zozulya V.V., Martynenko A.V. and Lukin A.N. Mechanics of Continuum Media. Kharkov: Kharkov University Press, 2003.-600 p. (in Russian).

4. Zozulya V.V., Martynenko A.V. and Lukin A.N. Theoretical Mechanics. Kharkov: Kharkov University Press, 2004. (in Russian).

Reviewed Journals Publications

1. Iszczenko I.M., Zozulya V.V. Research of influence geometrical parameters wedge an tube to the distributions of contact pressure in the external the wedge holder, *Izvestiy vuzov. Oil and Gas*, 1979, N 11, P.79-84. (in Russian).

2. Iszczenko I.M., Zozulya V.V. To the question of choose of rational outline of work surface of the pipe wedge holder, *Izvestiy vuzov. Engineering*, 1981, N 4, P.37-41. (in Russian).

3. Iszczenko I.M., Zozulya V.V., Selvacshuk A.P. Research of influence of frictional force to the distributions of contact pressure in external pipe wedge holder, *Izvestiy vuzov. Constructions and Architecture*, 1982, N 4, P.35-38. (in Russian).

4. Zozulya V.V. To the question of choose of profile straight incision of working surface of pipe wedge holder, *Izvestiy vuzov. Oil and Gas*, 1983, N 4, P.73-77. (in Russian).

5. Iszczenko I.M., Zozulya V.V., Zubkov E.F. Selvacshuk A.P. Definition of resistance of thin-walled caring pipes to fracture of an regular pressure viscous rocks, *Drilling gas and sea oil drill hole*, 1983, V.1, P.19-21. (in Russian).

6. Zozulya V.V., Iszczenko I.M., Samoulenko Yu.L. To the question of definition elastic property of rocks by testing their with axial and overall pressure, *Izvestiy vuzov. Oil and Gas*, 1988, N 5, P.25-29. (in Russian).

7. Zozulya V.V., Iszczenko I.M. Definition principal parameters outer multistage pipe catcher the tape TNOM, *Izvestiy vuzov. Oil and Gas*, 1988, N 6, P.85-87. (in Russian).

8. Kantor B.Ya., Zozulya V.V. Connected problem on contact plate with rigid body through the heat-conducting layer, *Docl. Akad. Nauk Ukr.SSR*, 1988, N 4, P.31-33. (in Russian).

9. Zozulya V.V. Contact cylindrical shell with a rigid body through the heat-conducting layer, *Docl. Akad. Nauk Ukr.SSR*, 1989, N 10, P.48-51. (in Russian).

10. Zozulya V.V., Kantor B.Ya. Axisymmetric contact problems for shell theory, *Soviet Applied Mechanics*, 1989, V.25, N 10, P. 1013-1017.

11. Zozulya V.V. The combines problem of thermoelastic contact between two plates though a heat conducting layer, *Journal of Applied Mathematics and Mechanics*, 1989, V.53, N 5, P.622-627.

12. Zozulya V.V. Bending of a plate in temperature field under restrictions, *Izvestiy vuzov. Engineering*, 1990, N 1, P.24-27. (in Russian).

13. Zozulya V.V. On dynamic problems on theory of cracks with contact, friction and sliding domains, *Docl. Akad. Nauk Ukr.SSR*, 1990, N 1, P.47-50. (in Russian).

14. Zozulya V.V. On solvability of the dynamic problems on theory of cracks with contact, friction and sliding domains, *Docl. Akad. Nauk Ukr.SSR*, 1990, N 3, P.53-55. (in Russian).

15. Zozulya V.V. On action of the harmonic loading on the crack in infinite body with allowance for the interaction of its edges, *Docl. Akad. Nauk Ukr.SSR*, 1990, N 4, P.46-49. (in Russian).

16. Grushko I.M., Ilyn A.G., Zozulya V.V., Aryal Mochan., Chugunko A.N. About strength of the concrete road coatings under the conditions of irregular moistness, *Automobile Roads*, 1990, N 8. (in Russian).

17. Zozulya V.V. Integrals of the Hadamar type in the dynamic problems of a cracks theory, *Docl. Akad. Nauk Ukr.SSR*, 1991, N 2, P.19-22. (in Russian).

18. Guz A.N., Zozulya V.V. Dynamic problem for the plane with a crack. Allowance for the contact of edges, *Docl. Akad. Nauk USSR*, 1991, V.318, N 2, P.304-307. (in Russian).

19. Guz A.N., Zozulya V.V. Dynamic contact problem for the plane with two cracks, *Docl. Akad. Nauk USSR*, 1991, V.321, N 2, P.278-280.

20. Zozulya V.V. Contact cylindrical shell with a rigid body through the heat-conducting layer in transitional temperature field, *Mechanics of Solids*, 1991, N 2, P.160-165.

21. Zozulya V.V. Bending of a plate slackened by a crack with contacting edges under dynamic loading, *Docl. Akad. Nauk Ukr.SSR*, 1991, N 4, P.55-60. (in Russian).

22. Guz A.N., Zozulya V.V. Dynamic problems of elasticity theory with restrictions as inequalities, *Docl. Akad. Nauk Ukr.SSR*, 1991, N 5, P.47-50. (in Russian).

23. Zozulya V.V., Borodenko Yu.N. Thermoplastic contact of rigidly fixed shell with a rigid body through the heat-conducting layer, *Docl. Akad. Nauk Ukr.SSR*.- 1991.-N 7.-P.47-53. (in Russian).

24. Zozulya V.V., Borodenko Yu.N. Thermoelastic condition of cylindrical shell, which interaction with a rigid body through the heat-conducting layer, *Izvestiy vuzov. Engineering*, 1990, N 8, P.47-52. (in Russian).

25. Zozulya V.V. Dynamic problem for the plane with two cracks. Allowance for the contact of edges, *Docl. Akad. Nauk Ukr.SSR*, 1991, N 8, P.75-80. (in Russian).

26. Zozulya V.V. Investigation of the contact of edges of cracks interacting with a plane, longitudinal, harmonic wave, *Soviet Applied Mechanics*, 1991, V.27, N 12, P.1191-1195.

27. Zozulya V.V. Contact interaction between the edges of a crack and an infinite plane under a harmonic loading, *International Applied Mechanics*, 1992, V.28, N 1, P.61-65.

28. Zozulya V.V. Investigation of the effect of crack edge contact for loading by a harmonic wave, *International Applied Mechanics*, 1992, V.28, N 2, P.95-100.

29. Zozulya V.V. The method of boundary functionals in contact problems on dynamics of bodies with cracks, *Docl. Akad. Nauk Ukraine*, 1992, N 2, P.38-44. (in Russian).

30. Zozulya V.V. Harmonic loading of the edges of two collinear cracks in a plane. *International Applied Mechanics*, 1992, V.28, N 3, P.170-173.

31. Zozulya V.V. Solution of the problems on dynamics of bodies with cracks by the method of boundary integral equations, Docl. Akad. Nauk Ukraine, 1992, N 3, P. 38-43. (in Russian).

32. Zozulya V.V., Borodenko Yu.N. Connecting problem on contact of cylindrical shells with a rigid body in temperature through the heat-conducting layer, *Docl. Akad. Nauk Ukraine*, 1992, N 4, P.35-41. (in Russian).

33. Guz A.N., Zozulya V.V. Contact interaction between crack edges under a dynamic load, *International Applied Mechanics*, 1992, V.28, N 7, P.407-414.

34. Zozulya V.V., Men`shikov V.A. Contact interaction between the edges of a crack in a plane under harmonic loading, *International Applied Mechanics*, 1994, V.30, N 12, P.986-989.

35. Guz A.N. and Zozulya V.V. Dynamic problems of fracture mechanic without account of the contact interaction of the crack edges, *International Applied Mechanics*, 1994, **30**(10), pp.735-759.

36. Guz A.N. and Zozulya V.V. Dynamic problems of fracture mechanic with account of the contact interaction of the crack edges, *International Applied Mechanics*, 1995, **31**(1), pp.1-31.

37. Zozulya V.V., Lukin A.N. Calculation of plates by the method of boundary integral equations, *Docl. Akad. Nauk Ukraine*, 1996, N 4, P. 39- 45. (in Russian).

38. Zozulya V.V., Lukin A.N. Calculation of plates by the method of boundary element, *Docl. Akad. Nauk Ukraine*, 1996, N 12, P. 60-67. (in Russian).

39. Guz A.N., Zozulya V.V. About taking into account of cracks edges contact under dynamic loads, *Materials Science*, 1996, V.32, N 1, P. 38-52.

40. Zozulya V.V., Lukin A.N. Design of plates by the boundary element method, *International Applied Mechanics*, 1997, V.33, N 3, P. 241-244.

41. Zozulya V.V., Lukin A.N. Calculation of plates by the method of boundary integral equations under the dynamic loading, *Docl. Akad. Nauk Ukraine*, 1997, N 8, P.64-70. (in Russian).

42. Zozulya V.V. Somigliana identity and fundamental solutions for arbitrary geometry shells, *Docl. Akad. Nauk Ukraine*, 1997, N 6, P. 60-65. (in Russian).

43. Zozulya V.V. Integral boundary equations for shells of arbitrary geometry, *International Applied Mechanics*, 1998, V.34, N 5, P. 454-463.

44. Zozulya V.V., Lukin A.N. Solution of three-dimensional problems of fracture mechanics by the method of integral boundary equations, *International Applied Mechanics*, 1998, V.34, N 6, P.544-551.

45. Zozulya V.V , Fenchenko N.V. Influence of the crack edges contact interaction on characteristic of fracture mechanics under action of p- and sh-waves, *International Applied Mechanics*, 1999, V.35, N 2, P.70- 76.

46. Romanenko L.G., Zozulya V.V. Stability of non-ideal thermoelastic contact of plates, *Docl. Akad. Nauk Ukraine*, 1999, N 5, P. 73-77. (in Russian).

47. Zozulya V. V., Gonzalez-Chi P.I. Weakly singular, singular and hypersingular integrals in elasticity and fracture mechanics, *Journal of the Chinese Institute of Engineers*,1999, V. 22, No 6, pp. 763-775.

48. Zozulya V. V., Men'shikov V.A. Hypersingular integrals in the tree dimensional elastodynamic problems for bodies with cracks, *International Applied Mechanics* 2000, V.36, N 1, P. 88-94.

49. Zozulya V.V., Rivera P. Boundary integral equations and problem of existence in contact problems with friction, *Journal of the Chinese Institute of Engineers*, 2000, V. 23, N 3, pp. 313-320.

50. Zozulya V. V. Gonzalez-Chi P.I. Dynamic fracture mechanics with crack edges contact interaction, *Engineering Analysis with Boundary Elements*,2000, V24, N 9, p. 643-659.

51. Zozulya V. V., Menshykov A. W. and Menshykova M. W Application of boundary hypersingular integral equations in fracture mechanics, *Theoretical and Applied Mechanics*, 2001, **33**, pp. 57-63 (in Russian)

52. Zozulya V. V., Lukin A.N. Development of boundary integral equation methods for arbitrary geometry shells, *Theoretical and Applied Mechanics*, 2001, **33**, pp. 130-135 (in Russian)

53. Guz A.N. and Zozulya V.V. Fracture dynamics with allowance for a crack edges contact interaction, *International Journal of Nonlinear Sciences and Numerical Simulation*, 2001, **2**(3), pp. 173-233.

54. Zozulya V.V. and Menshykov A.V. Contact interaction of the faces of a rectangular crack under normally incident tension-compression waves, *International Applied Mechanics*, **38**(3), 2002, 302-307.

55. Zozulya V.V., Menshykov A.V. and Gonzalez-Chi P.I. Fracture dynamics with crack edges contact interaction, *WSEAS Transactions on Systems*, **2**(1), 2002, 171-176.

56. Zozulya V.V. and Menshykov A.V. On one contact problem in fracture mechanics for a normaly incident tension-compression wave, *International Applied Mechanics*, **38**(7), 2002. 824-828.

57. Zozulya V.V. and Menshykov A.V. Contact interaction of the faces of a penny shaped crack under normally incident shear wave, *International Applied Mechanics,* **38**(9), 2002, 1114-1118.

58. Zozulya V.V. and Menshykova M.V. Study of iterative algorithms for solution of dynamic contact problems for elastic cracked bodies, *International Applied Mechanics*, **38**(5), 2002, 573-577.

59. Zozulya V.V. and Menshykova M.V. Dynamic contact problem for plane with crack of finite length, *International Applied Mechanics*, **38**(12), 2002, 55-60.

60. Guz A.N. and Zozulya V.V. Elastodynamic unilateral contact problems with friction for bodies with cracks, *International Applied Mechanics,* 2002, **38**(8), 895-932.

61. Zozulya V.V. and Menshykov O.V., Contact of flat elliptical crack edges under action of harmonic normal tension-compression incident waves, *Theoretical and Applied Mechanics,* 37, 2003, 168-172. (in Russian).

62. Zozulya V.V. and Menshykov O.V., Use of the Constrained Optimization Algorithms in Some Problems of Fracture Mechanics, *Optimization and Engineering*, 4, 2003, 365-384.

63. Zozulya V.V. Mathematical investigation of nonsmooth optimization algorithm in elastodynamic contact problems with friction for bodies with cracks, *International Journal of Nonlinear Sciences and Numerical Simulation,* **4**(4), 2003, 405-422.

64. Guz A.N., Menshykov O.V. and Zozulya V.V., Three-dimensional contact problem for the elliptical crack under normally incident tension-compression wave, *Theoretical and Applied Fracture Mechanics*, **40**(3), 2003, 285-291.

65. Guz A. N., Zozulya V. V., Men'shikov A. V., Three-Dimensional Dynamic Contact Problem for an Elliptic Crack Interacting with a Normally Incident Harmonic Compression–Expansion Wave, *International Applied Mechanics,* **39**(12), 2003, 1425-1428.

66. Guz A. N., Zozulya V. V., Men'shikov A. V., General Spatial Dynamic Problem for an Elliptic Crack under the Action of a Normal Shear Wave, with Consideration for the Contact Interaction of the Crack Faces, *International Applied Mechanics*, **40**(2), 2004, 156-159.

67. Zozulya V.V. Regularization of the divergent integrals. I. General consideration. *Electronic Journal of Boundary Elements* **4**,(2), 2006, 49-57.

68. Zozulya V.V. Regularization of the divergent integrals. II. Application in fracture mechanics. *Electronic Journal of Boundary Elements* **4**,(2), 2006, 58-66.

69. Zozulya V.V. Nonperfect contact of laminated shells with considering debonding between laminas in temperature field. *Theoretical and Applied mechanics,* No. 42 (2006) pp.92-97.

70. Zozulya V.V. Laminated shells with debonding between laminas in temperature field. *International Applied Mechanics,* Vol. 42, No. 7, (2006) pp. 842-848.

71. Zozulya V.V. Contact problem for the flat crack under normally incident antiplane shear wave, *International Applied Mechanics,* Vol. 43, No. 5, (2007) pp. 532-537.

72. Guz A.N., Menshykov O.V., Zozulya V.V. and Guz I.A. Contact Problem for the Flat Elliptical Crack under Normally Incident Shear Wave Computer. *Modeling in Engineering & Science*, Vol. 17, No. 3, (2007) pp. 205-214.

73. Zozulya V.V. Stress intensity factor in contact problem for the flat crack under antiplane shear wave. *International Applied Mechanics*, Vol. 43, No. 9, (2007) pp. 1043-1047.

74. Guz A.N., Zozulya V.V. Investigation of the Effect of Frictional Contact in III-Mode Crack under Action of the SH-Wave Harmonic Load. *CMES Modeling in Engineering & Science,* Vol. 22, No. 2, (2007) pp. 119-128.

75. Zozulya V.V. Contact of a shell and rigid body through the heat-conducting layer temperature field. *International Journal of Mathematics and Computers in Simulation, Iss.2*, Vol. 1, (2007) pp. 138-145.

76. Zozulya V.V. Contact of the thin-walled structures and rigid body through the heatconducting layer. *Theoretical and Experimental Aspects of Heat and Mass Transfer,* 2008, pp. 145-150.

77. Zozulya V.V. Variational formulation and Nonsmooth Optimization Algorithms in Elastostatic Contact Problems for Cracked Body. *CMES Computer Modeling in Engineering & Science,* Vol. 42, No. 3, (2009) pp. 187-215.

78. Zozulya V.V. The Regularization of the Divergent Integrals in 2-D Elastostatics**.** *Electronic Journal of Boundary Elements,* Vol. 7, No. 2, 2009, pp.50-88.

79. Guz A.N., Zozulya V.V. On dynamical fracture mechanics in the case of polyharmonic loading by P–waves, *International Applied Mechanics,* Vol. 45, No. 9, 2009, pp. 1033-1039.

80. Guz A.N., Zozulya V.V. On dynamical fracture mechanics in the case of polyharmonic loading by H–waves, *International Applied Mechanics,* Vol. 46, No.1, 2010, pp. 138-144.

81. Zozulya V.V. Regularization of hypersingular integrals in 3-D fracture mechanics: Triangular BE, and piecewise-constant and piecewise-linear approximations, *Engineering Analysis with Boundary Elements,* **34**(2), 2010. 105-113.

82. Zozulya V.V. Nonsmooth Optimization Algorithms in Some problems of Fracture Dynamics, *Intelligent Information Management*, **2**, 2010, pp. 637-646.

83. Guz A.N., Zozulya V.V. Contact problem for the flat crack under two normally incident shear H-waves with wave mode-shifting, *Theoretical and Applied Fracture Mechanics,* **54**(3), 2010. pp. 189-195.

84. Zozulya V.V. Divergent Integrals in Elastostatics: Regularization in 3-D Case. Computer Modeling in Engineering & Science, CMES, **70**(3), *2010*, pp. 253-349.

85. Guz A.N., Zozulya V.V. Contact problem for the flat crack under two normally incident tension-compression waves with wave mode-shifting, *Engineering Analysis with Boundary Elements,* **35**(1), 2011. pp. 34-41.

86. Zozulya V.V. Variational formulation and Nonsmooth Optimization Algorithms in Elastodynamic Contact Problems for Cracked Body, *Computer Methods in Applied Mechanics and Engineering*, Vol. **200**, issues 5-8, 2011. pp. 525-539.

87. Zozulya V.V. Numerical solution of the Kirchhoff plate bending problem with BEM. *ISRN Mechanical Engineering*, Volume 2011 (2011), Article ID 295904, 14 pages.

88. Zozulya, V. V. A high order Theory for Functionally Graded Shell, *World Academy of Science, Engineering and Technology*, Volume 59, 2011. pp. 779-784.

89. Guz A.N., Zozulya V.V. Contact problem for the mode III crack under two normally incident shear HS-waves with wave mode-shifting, *Theoretical and Applied Fracture Mechanics,*, 35(1), 2012. pp. 34-41.

90. Zozulya V.V., Zhang Ch. A high order theory for functionally graded axisymmetric cylindrical shells, *International Journal of Mechanical Sciences,* **60(**1), 2012. pp. 12-22.

91. Zozulya V.V. A high-order theory for functionally graded axially symmetric cylindrical shells, *Archive of Applied Mechanics*, 2012, 13 pages, DOI 10.1007/s00419-012-0644-2.

92. Zozulya V.V. New high order theory for functionally graded shells, *Theoretical and Applied Mechanics*, 2012, 4(50), pp. 175-183.

93. Zozulya V.V. A High Order Theory for Linear Thermoelastic Shells: Comparison with Classical Theories, *Journal of Engineering*, *Volume* 2013, Article ID 590480, 19 pages.

94. Zozulya V.V. Comparative study of time and frequency domain BEM approaches in frictional contact problem for antiplane crack under harmonic loading, *Engineering Analysis with Boundary Elements,* **37**, 2013. pp. 1499-1513.

95. Zozulya V.V. Regularization of the divergent integrals. Generalized functions approach. *Advances in Computational Mathemati*cs, 2013, DOI 10.1007/s10444-013-9321-4, pp. 1-39.

96. Zozulya V.V. An Approach Based on Generalized Functions to Regularize Divergent Integrals, *Engineering Analysis with Boundary Elements,* **40**, 2014. pp. 162-180.

97. Zozulya V.V., Saez A. High-order theory for arched structures and its application for the study of the electrostatically actuated MEMS devices**,** *Archive of Applied Mechanics*, 2014, **84**(7), pp. 1037-1055.

98. Zozulya V. V. Regularization of divergent integrals: A comparison of the classical and generalized-functions approaches, *Advances in Computational Mathematics*, 2015, 41, pp. 727-780.

99. Zozulya V.V., A higher order theory for shells, plates and rods, *International Journal of Mechanical Sciences*, 2015. **103(**1), pp. 40-54.

100. Zozulya V.V., Saez A. A high order theory of a thermo elastic beams and its application to the MEMS/NEMS analysis and simulations. *Archive of Applied Mechanics*, **86**, 2016, 1255–1272.

101. Oliva-Avilés A.I., Zozulya V.V., Gamboa F., Avilés F. Dynamic evolution of interacting carbon nano tubes suspended in a fluid using a dielectrophoretic framework**.** *Physica E: Low-dimensional Systems and Nanostructures*, **83**, 2016, 7-21.

102. Zozulya V.V. A higher order theory for functionally graded beams based on Legendre’s polynomial expansion. *Mechanics of Advanced Materials and Structures,* 2017, **24**(9), 745-460.

103. Zozulya V.V. Micropolar curved rods. 2-D, high order, Timoshenko’s and Euler-Bernoulli models**.** *Curved and Layered Structures*, 2017, **4**, 104–118.

104. Zozulya V.V. Couple stress theory of curved rods. 2-D, high order, Timoshenko’s and Euler-Bernoulli models. *Curved and Layered Structures*, 2017, **4**, 119–132.

105. Zozulya V.V. Nonlocal theory of curved rods. 2-D, high order, Timoshenko’s and Euler-Bernoulli models. *Curved and Layered Structures*, 2017, 4, 221–236.

106. Zozulya V.V. Green’s matrices for the BVP for the system of ODE of the first order. Applications to the beam theories**.** *Archive of Applied Mechanics*, 2017, pp. 1-25. DOI 10.1007/s00419-017-1275-4.

Books Chapters

1. Zozulya V.V., Rivera P. Dynamic fracture mechanics with crack edges contact interaction, in: *Boundary Elements XX*, Eds. Kassab A., Chopra M., Brebbia C.A. 1998, Computational Mechanics Publications, Southampton, UK and Boston, USA, 23-32.

2. Zozulya V.V., Aguilar M. Thermo-elastic contact and heat transfer between plates through the heat-conducting layer, in: *Heat transfer 2000*, Eds. Sunden B., Brebbia C.A. 2000, Computational Mechanics Publications, Southampton, UK and Boston, USA, 123-132.

3. Zozulya V.V., Gonzalez-Chi P.I. Application of the BIE with hypersingular integrals in fracture mechanics, in: *Boundary Elements XXII*, Ed. Brebbia C.A. 2000, Computational Mechanics Publications, Southampton, UK and Boston, USA, 233-242.

4. Zozulya V.V. Variational principles ad algorithms in contact problem with friction, in: *Advances in Scientific Computing, Computational Intelligence and Applications*. Eds . N. Mastorakis, V. Mladenov, B. Suter, L.J. Wang, 2001, WSES Press, Danvers. P. 181-186.

5. Zozulya V.V. Fracture dynamics with allowance for crack edge contact interaction, In: *Integral Methods in Science and Engineering*,(Eds. C. Constanda, P. Schiavone and A. Mioduchowski), Birkhauser, Boston, 2002. pp. 257-262.

6. Guz A.N., Zozulya V.V., Menshukov A.V. Contact interaction of the elliptic crack edges under action of a normally harmonic wave. *Problems of Solid and Rock Mechanics. Collected papers dedicated to 75-years of E.I. Shemyakin. (Eds. Ivlev D.D. and Morozov N.F.) , Moscow, Fizmatgiz, 2006. 864p*. (p. 204-220).

7. Zozulya V.V. Mathematical Modeling of Pencil-Thin Nuclear Fuel Rods. In: *Structural Mechanics in Reactor Technology* (Ed. A.Gupta), SMIRT, Toronto, 2007, pp. C04-C12.

8. Guz A.N., Zozulya V.V. Elastodynamic unilateral contact problems with friction for bodies with cracks. In: Advances of Mechanics. Vol. 3. (Ed. Guz A.N.), A.C.K. Kiev, 2007, pp. 421-462.

9. Zozulya V.V. Contact of the thin-walled structures and rigid body through the heatconducting layer. In: *Theoretical and Experimental Aspects of Heat and Mass Transfer.(Eds. Krope J., Sohrab S.H., Benra F.-K.) WSEAS Press.2008, pp. 145-150.*

10. Zozulya V.V. Regularization of the hypersingular integrals in 3-D problems of fracture mechanics. In: *Boundary Elements and Other Mesh Reduction Methods XXX.* (Eds. P.Skerget and C.A. Brebbia), WIT Press, Southampton, Boston, 2008, pp. 219-228.

11. Zozulya V.V. Heat transfer between shell and rigid body through the thin heat-conducting layer taking into account mechanical contact. In: *Heat transfer X.* (Eds. B.Sunden and C.A. Brebbia), WIT Press, Southampton, Boston, 2008, pp. 81-90.

12. Zozulya V.V. Regularization of the Divergent Integrals in Boundary Integral Equations for Elastostatics. In: *Integral Methods in Science and Engineering. Vol. 1. Analytic Methods.* (Eds. C.Constanda and M.E.Perez), Birkhäuser, 2010, pp. 333-347.

13. Zozulya V.V. Regularization of the Divergent Integrals in Boundary Integral Equations. In: *Advances in Boundary Element Techniques.* (Eds. Ch. Zhang, M.H. Aliabadi and M. Schanz), Published by EC, Ltd, UK, 2010, pp. 561-568.

14. Stavroulakis G.E., Zozulya V.V., Muradova A.D. Unilateral cracks: classical, multi-region and dual BEM formulation, In: *Recent Development in Boundary Element Methods. A volume to honor John T. Katsikadelis.* (Ed. E. J. Sapountzakis), WIT Press, Southampton, UK, 2010, pp. 243-254.

15. Zozulya V.V. Boundary Integral Equations for Arbitrary Geometry Shells. In: *Integral Methods in Science and Engineering. Computational and Analytic Aspects.* (Eds. C.Constanda and P.J. Harris), Birkhäuser, 2011, pp. 430-441.

16. Zozulya V.V. Regularization of the divergent integrals using generalized function based approach. In: Advances in Boundary Element & Meshless Techniques XIII. (Eds. P. Prochazca and M.H..Aliabadi), EC Ltd, UK, 2012, pp. 163-170.

17. Zozulya V.V. *Variational Formulation and Nonsmooth Optimization Algorithms in Elastostatic Contact Problems for Cracked Body*. In Hetnarski R.B. (Ed.) *Encyclopedia of Thermal Stresses*, DOI 10.1007/978-94-007-2739-7, 2014, pp 6327 – 6341. Springer Dordrecht, Heidelberg, New York, London.

18. Zozulya V.V. Solution of the Elastodynamic Contact Problem for CrackeBody Using Boundary Integral Equation Method**,** In: *Advances in Boundary Element Techniques XVIII.* (Eds. L. Marin and M.H. Aliabadi), Published by EC, Ltd, UK, 2017, pp. 170-177.

Conferences Proceedings

1. Zozulya V.V., Boundary integral equations for arbitrary geometry shells. *Proceedings of the 13th ASCE Engineering Methanics Division Conference*, The Johns Hopkins University, Baltimore, MD, USA, 1999. June 13-16, 1999. CD-ROM Proceedings (N.P. Jones and R.G. Ghanem, eds.)

2. Zozulya V.V. and Herrera-Franco P.J. New model of laminated composites with considering unilateral contact and friction between laminas. *Proceedings of the 14th ASCE Engineering Methanics Division*

Conference, The University of Texas at Austin, Austin, Texas, USA, May 21-24, 2000. CD-ROM Proceedings (J.L. Tassoulas, ed.)

3. Zozulya V.V The earthquake prediction as a result of the earth surface deformations monitoring. *Proceedings of the 8th ASCE Joint Specialty Conference on Probabilistic Mechanics and Structural Reliability,* University of Notre Dame, Notre Dame, Indiana, July 24-26, 2000. CD-ROM Proceedings (Kareem, Haldar, Spencer, and Johnson, eds.)

4. Zozulya V.V. Application of the BIE in fracture mechanics, *Conferencia International de Ingeneria Mecanica, COMEC 2000*, Universidad Central "Marta Abreu" de Las Villas. Cuba y Universidad Otto-von-Guericke de Megdeburg. Alemania. 8-10 de noviembre del 2000. CD-ROM Proceedings.

5. Zozulya**,** V. V. Variational principles and algorithms in elastodynamic contact problem with friction, In: *Proceedings of the ICES'01, Advances in Computational and Engineering Sciences, Puerto Vallarta, Mexico, 19-25 August 2001,* CD-ROM Proceedings (S.N. Atluri, T. Nishioka, M. Kikuchi, eds.)

6. Zozulya V.V., Menshykov A.V. and Gonzalez-Chi P.I. Fracture dynamics with crack edges contact interaction, In: *Proceedings of the 4th WSEAS International Mechanical Engineering Multiconference (MEM 2002) May 12-16, 2002, Cancun, Mexico,* CD-ROM Proceedings (eds.A. Zemliak and N. E. Mastorakis).

7. Zozulya V.V. and Menshykov A.V. 3-D Fracture dynamics with allowance for crack edge contact interaction, In: *Proceedings of the EM 2003, 15th ASCE Engineering Mechanics Conference, June 2-5, 2002, Columbia University, New York, NY,* CD-ROM Proceedings (ed. A. Smyth).

8. Zozulya V.V., Menshykov O.V., Gonzalez-Chi P.I. BEM in Fracture Dynamics with Allowance for Crack Edges Contact Interaction, In: *Proceedings of the ICES'02, Advances in Computational and Engineering Sciences, Reno, Nevada, USA, 31 July-2 August 2002,* CD-ROM Proceedings (S.N. Atluri, D.W. Pepper, eds.)

9. Zozulya V.V. and Menshykov A.V. Influence of the crack edge contact interaction on fracture mechanics criterions, In: *Proceedings of the EM 2003, 16th ASCE Engineering Mechanics Conference, June 2-5, 2002, Univessity of Washington, Seattle, Washington, USA,* CD-ROM Proceedings (ed. George Turkiyyah).

10. Guz A., Menshukov O., Wendland W.L. and Zozulya V.V. The 3D elastodynamic contact problem for plane cracks. *IUTAM Symposium,* Stuttgart, Germany. February, 20-23, 2006.

11. Zozulya V.V. Theory of laminated shells with considering debonding between laminas in temperature field. *IV International Conference. Actual Problems of Solid Mechanics*. Donesk, Ukraine. June 12-14, 2006. pp. 58-60.

12. Guz A.N., Zozulya V.V. On Nonlinear Dynamical Fracture Mechanics Taking Into Account the Interaction of the Cracks. *International Conference on Computational & Experimental Engineering and Sciences*, *ICCES07*, Miami, USA, 3-8 January 2007.

13. Zozulya V.V. Contact of Crack Edges in Elastic Media under Dynamic Loading. *18th Engineering Mechanics Division Conference of the American Society of Civil Engineers.* Virginia Technical University, Virginia, USA. June 3 - 6, 2007 .

14. Zozulya V.V. Mathematical Modeling of Pencil-Thin Nuclear Fuel Rods, *19th International Conference on Structural Mechanics in Reactor Technology* Toronto, Canada. August 12- 17, 2007.

15. Zozulya V.V. Contact of the thin-walled structures and rigid body through the heatconducting layer. 5*th WSEAS, International Conference on Heat and Mass transfer (HMT'08)*, Acapulco, Mexico, January 25-27, 2008.

16. Guz A.N., Zozulya V.V. Brittle Fracture under Dynamical Loading with Accounting of the Crack Edges Contact Interaction. *International Conference on Computational & Experimental Engineering and Sciences, ICCES08*, Honolulu, Hawaii USA, 16-20 March 2008.

17. Zozulya V.V. Theory of thermoelasticity and heat conductivity of laminated shells with considering debonding between laminas, *EM08, Inaugural International Conference of the Engineering Mechanics Institute,* Minneapolis, Minnesota,USA, May 18-21, 2008.

18. Zozulya V.V. Regularization of the divergent integrals in boundary integral equations. *The Tenth International Conference on Integral Methods in Science and Engineering IMSE 2008* Santander, Spain, July 7-10, 2008.

19. Zozulya V.V. Regularization of the hypersingular integrals in 3-D problems of fracture mechanics. *Boundary Elements and Other Mesh Reduction Methods XXX*, Maribor, Slovenia, July 7-9, 2008.

20. Zozulya V.V. Heat transfer between shell and rigid body through the thin heat-conducting layer taking into account mechanical contact. *Heat transfer 2008,* Maribor, Slovenia, July 9-11, 2008.

21. Zozulya V.V. Boundary integral equations for shells of arbitrary geometry. *Eleventh Internatio-nal Conference on Integral Methods in Science and Engineering IMSE 2010*, Brighton, UK, July 12-14, 2010.

22. Zozulya V.V. Regularization of the divergent integrals in boundary integral equations, *Interna-tional Conference on Boundary Element Techniques XI*, Berlin, Germany, 12-14 July 2010.

23. Zozulya V.V. Constrained Optimization Algorithms in Some Problems of Fracture Mechanics. *International Conference on Applied Mathematics and Informatics*, ICAMI 2010, November 28 - December 3, 2010, San Andrés Island, Colombia.

24. Zozulya, V. V., Regularization of the hypersingular integrals in 3-d fracture mechanics. rectangular be and piecewise linear approximations, *5th WSEAS International Conference on Computer Engineering and Applications (CEA ´11), Puerto Morelos, Q. Roo, México, 29 - 31 January 2011*.

25. Zozulya, V. V., Regularization of the hypersingular integrals in elastostatic BIE. *ICCES11, International Conference on Computational & Experimental Engineering and Sciences, Nanjing, China, 18-22 April 2011*

26. Zozulya, V. V. A high order Theory for Functionally Graded Shell, *ICME 2011: International Conference on Mechanical Engineering, Paris, France November 14-16, 2011*

27. Zozulya V. V. Contact interaction of the crack edges in elastic media under dynamic loading. *ICCES 12, International Conference on Computational & Experimental Engineering and Sciences, Crete, Greece, April 30 – May 4, 2012.*

28. Zozulya V. V., Zhang Ch. A high order theory for functionally graded plates and shells. *ICCES 12, International Conference on Computational & Experimental Engineering and Sciences, Crete, Greece, April 30 – May 4, 2012.*

29. Zozulya, V. V. Regularization of the divergent integrals using generalized function based approach, *13th International Conference on Boundary Element and Meshless Techniques, (BeTeq 2012), Prague, Czech Republic, 3-5 September 2012.*

30. Zozulya, V. V. Frequency and time domain BEM in fracture dynamic contact problems. Comparative study, *European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS 2012), Vienna, Austria, September 10-14, 2012.*

31. Zozulya, V. V. , Saez A., High order theory of shells. Application in MEMs and NEMs devises and structures, JSME-CMD International Computational Mechanics Symposium 2012 in Kobe. (JSME-CMD ICMS2012), Kobe, Japan, October, 9-11, 2012.

32. Zozulya V. V. A high order theory for functionally graded shells. *International Symposium on Solid Mechanics - MecSol 2013, Porto Alegre / Rio Grande do Sul / Brazil, April 18-19, 2013.*

33. Oliva-Avilés A.I., Avilés F. Zozulya V.V., Modeling the Electric Field- Guided Motion of Interacting Carbon Nanotubes Using a Dielectrophoretic Framework, *Proceedings of the ASME 2015 Conference on Smart Materials, September 21-23, 2015, Colorado Springs, Colorado, USA.*

34. Celis-Ku J., Oliva-Avilés A.I., Gamboa F., Zozulya V.V, Avilés F. A Study of the Formation of Carbon Nanotube Networks in Liquids Driven by Dielectrophoresis, *IMECE 2015 International Mechanical Engineering Congress & Exposition, November 13-19, 2015, Houston, Texas, USA.*

35. Oliva-Avilés A.I., Alonzo-García A., Gamboa F., Zozulya V.V., Avilés F. Modeling the electric field-guided carbon nanotube manipulation in organic solvents by a classical dielectrophoretic approach, *Dielectrophoresis 2016 Meeting MIT, 13-15 July 2016, Cambridge, MA, USA.*

36. Zozulya V.V. A high order theory of a thermoelastic shells, plates and rods and application to the MEMS/NEMS analysis and simulations. *Asian Advanced Materials Congress (ASAMC 2017*), *11-16 March 2017, Singapore*.

37. Zozulya V.V. Micropolar theory of curved beams. 2-d, high order, Timoshenko's and Euler-Bernoulli models. *ICCES 2017. International Conference on Computational & Experimental Engineering and Sciences, 26-30 June 2017, Funchal, Madeira Island, Portugal***.**

38. Saez A., Zozulya V.V. A high order theory of a thermoelastic shells, plates and rods and its application to the MEMS/NEMS analysis and simulations. *ICCES 2017. International Conference on Computational & Experimental Engineering and Sciences, 26-30 June 2017, Funchal, Madeira Island, Portugal***.**

39. Zozulya V.V. A High Order Theory for Functionally Graded Beams, Plates and Shells. *MECHCOMP3 - International Conference on Mechanics of Composites, 4-7 July 2017, Bologna, Italy.*

40. Zozulya V.V. Solution of the Elastodynamic Contact Problem for Cracked Body Using Boundary Integral Equation Method, *The 17th International Conference on Boundary Element and Meshless Techniques, 11-13 July 2017, Bucharest, Romania*.

41. Zozulya V.V. Nonlocal theory of curved beams. 2-D, high order, Timoshenko's and Euler-Bernoulli models. *ICCE-25. 25th Annual International Conference on Composites/Nano Engineering, 16-22 July, 2017, Rome, Italy.*

Merida, Yucatan, Mexico and September 29, 2017 ______________________