

Evgeny V Shilko

List of Publications by Year in descending order

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132
papers

1,226
citations

331670

21
h-index

395702

33
g-index

134
all docs

134
docs citations

134
times ranked

325
citing authors

#	ARTICLE	IF	CITATIONS
1	Movable cellular automata method for simulating materials with mesostructure. Theoretical and Applied Fracture Mechanics, 2001, 37, 311-334.	4.7	105
2	Overcoming the limitations of distinct element method for multiscale modeling of materials with multimodal internal structure. Computational Materials Science, 2015, 102, 267-285.	3.0	92
3	A mathematical model of particle-particle interaction for discrete element based modeling of deformation and fracture of heterogeneous elastic-plastic materials. Engineering Fracture Mechanics, 2014, 130, 96-115.	4.3	77
4	Multiscale simulation of dry friction in wheel/rail contact. Wear, 2006, 261, 874-884.	3.1	52
5	Method of movable cellular automata as a tool for simulation within the framework of mesomechanics. Russian Physics Journal, 1995, 38, 1157-1168.	0.4	45
6	Quasi-fluid nano-layers at the interface between rubbing bodies: simulations by movable cellular automata. Wear, 2003, 254, 901-906.	3.1	44
7	Approach to simulation of deformation and fracture of hierarchically organized heterogeneous media, including contrast media. Physical Mesomechanics, 2011, 14, 224-248.	1.9	44
8	A coupled discrete element-finite difference approach for modeling mechanical response of fluid-saturated porous materials. International Journal for Numerical Methods in Engineering, 2016, 106, 623-643.	2.8	44
9	Influence of Features of Interphase Boundaries on Mechanical Properties and Fracture Pattern in Metal-Ceramic Composites. Journal of Materials Science and Technology, 2013, 29, 1025-1034.	10.7	40
10	Modeling mechanical behaviors of composites with various ratios of matrix-inclusion properties using movable cellular automaton method. Defence Technology, 2015, 11, 18-34.	4.2	39
11	Understanding the mechanisms of friction stir welding based on computer simulation using particles. Defence Technology, 2018, 14, 643-656.	4.2	36
12	Dynamic vortex defects in deformed material. Physical Mesomechanics, 2014, 17, 15-22.	1.9	34
13	The features of fracture of heterogeneous materials and frame structures. Potentialities of MCA design. Computational Materials Science, 1999, 16, 333-343.	3.0	31
14	Three-dimensional movable cellular automata simulation of elastoplastic deformation and fracture of coatings in contact interaction with a rigid indenter. Physical Mesomechanics, 2014, 17, 292-303.	1.9	30
15	Development of a formalism of movable cellular automaton method for numerical modeling of fracture of heterogeneous elastic-plastic materials. Frattura Ed Integrita Strutturale, 2013, 7, 26-59.	0.9	28
16	Key role of elastic vortices in the initiation of intersonic shear cracks. Physical Review E, 2015, 91, 063302.	2.1	28
17	Effect of dynamic stress state perturbation on irreversible strain accumulation at interfaces in block-structured media. Physical Mesomechanics, 2016, 19, 136-148.	1.9	26
18	Spectral analysis of the behavior and properties of solid surface layers. Nanotribospectroscopy. Physical Mesomechanics, 2009, 12, 221-234.	1.9	24

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19	Strength of shear bands in fluid-saturated rocks: a nonlinear effect of competition between dilation and fluid flow. <i>Scientific Reports</i> , 2018, 8, 1428.	3.3	24
20	A new way to manage displacements in zones of active faults. <i>Tribology International</i> , 2007, 40, 995-1003.	5.9	23
21	Modeling nanoindentation of TiCCaPON coating on Ti substrate using movable cellular automaton method. <i>Computational Materials Science</i> , 2013, 76, 89-98.	3.0	22
22	Influence of phase interface properties on mechanical characteristics of metal ceramic composites. <i>Physical Mesomechanics</i> , 2014, 17, 282-291.	1.9	22
23	Computer-aided examination and forecast of strength properties of heterogeneous coal-beds. <i>Computational Materials Science</i> , 2000, 19, 69-76.	3.0	18
24	Role of Adhesion Stress in Controlling Transition between Plastic, Grinding and Breakaway Regimes of Adhesive Wear. <i>Scientific Reports</i> , 2020, 10, 1585.	3.3	18
25	Peculiarities of the mechanical response of heterogeneous materials with highly deformable interfaces. <i>Technical Physics Letters</i> , 2004, 30, 237-239.	0.7	17
26	Acoustic emission characterization of sliding wear under condition of direct and inverse transformations in low-temperature degradation aged Y-TZP and Y-TZP-AL ₂ O ₃ . <i>Friction</i> , 2018, 6, 323-340.	6.4	17
27	Converting displacement dynamics into creep in block media. <i>Technical Physics Letters</i> , 2006, 32, 545-549.	0.7	12
28	Hybrid cellular automata method. Application to research on mechanical response of contrast media. <i>Physical Mesomechanics</i> , 2013, 16, 42-51.	1.9	12
29	Analysis of the Quasi-Static and Dynamic Fracture of the Silica Refractory Using the Mesoscale Discrete Element Modelling. <i>Materials</i> , 2021, 14, 7376.	2.9	12
30	Influence of the State of Interfaces on the Character of Local Displacements in Fault-Block and Interfacial Media. <i>Technical Physics Letters</i> , 2005, 31, 712.	0.7	11
31	Kinetic approach to the development of computational dynamic models for brittle solids. <i>International Journal of Impact Engineering</i> , 2019, 123, 14-25.	5.0	11
32	The determining influence of the competition between pore volume change and fluid filtration on the strength of permeable brittle solids. <i>Procedia Structural Integrity</i> , 2018, 13, 1508-1513.	0.8	10
33	A DISCRETE ELEMENT FORMALISM FOR MODELLING WEAR PARTICLE FORMATION IN CONTACT BETWEEN SLIDING METALS. <i>Facta Universitatis, Series: Mechanical Engineering</i> , 2021, 19, 007.	4.6	10
34	Effect of local stress on the interface response to dynamic loading in faulted crust. <i>Russian Geology and Geophysics</i> , 2008, 49, 52-58.	0.7	7
35	On the feasibility of shear stress estimation at interfaces of block-structured medium. <i>Physical Mesomechanics</i> , 2010, 13, 21-27.	1.9	7
36	Model study of the formation of deformation-induced structures of subduction type in block-structured media. Ice cover of Lake Baikal as a model medium. <i>Tectonophysics</i> , 2009, 465, 204-211.	2.2	6

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37	Nonlinear effect of elastic vortexlike motion on the dynamic stress state of solids. <i>Physical Review E</i> , 2016, 93, 053005.	2.1	6
38	Influence of the Adhesion Force and Strain Hardening Coefficient of the Material on the Rate of Adhesive Wear in a Dry Tangential Frictional Contact. <i>Russian Physics Journal</i> , 2019, 62, 1398-1408.	0.4	6
39	Suppression of wear in dry sliding friction induced by negative thermal expansion. <i>Physical Review E</i> , 2020, 102, 042801.	2.1	6
40	SIMULATION OF FRACTURE USING A MESH-DEPENDENT FRACTURE CRITERION IN THE DISCRETE ELEMENT METHOD. <i>Facta Universitatis, Series: Mechanical Engineering</i> , 2018, 16, 41.	4.6	6
41	On the possibility of development of the technology for managing seismotectonic displacements in fault zones. <i>AIP Conference Proceedings</i> , 2018, , .	0.4	5
42	The Continuum Approach to the Description of Semi-Crystalline Polymers Deformation Regimes: The Role of Dynamic and Translational Defects. <i>Polymers</i> , 2018, 10, 1155.	4.5	5
43	Nonlinear Mechanical Effect of Free Water on the Dynamic Compressive Strength and Fracture of High-Strength Concrete. <i>Materials</i> , 2021, 14, 4011.	2.9	5
44	Particle-Based Approach for Simulation of Nonlinear Material Behavior in Contact Zones. <i>Springer Tracts in Mechanical Engineering</i> , 2021, , 67-89.	0.3	5
45	Simulation of mechanical behaviour of the proximal femur as a poroelastic solid using particles. <i>Journal of Physics: Conference Series</i> , 2019, 1391, 012005.	0.4	5
46	Effect of compression nonequiaxiality on shear-induced dilatation in a block-structured medium. <i>Physical Mesomechanics</i> , 2012, 15, 80-87.	1.9	4
47	Use of controlled dynamic impacts on hierarchically structured seismically hazardous faults for seismically safe relaxation of shear stresses. <i>AIP Conference Proceedings</i> , 2017, , .	0.4	4
48	Selective Filtration of Fluids in Materials with Slit-Shaped Nanopores. <i>Physical Mesomechanics</i> , 2018, 21, 538-545.	1.9	4
49	A possible method of computer-aided design of materials with a highly porous matrix structure based on the method of moving cellular automata. <i>Technical Physics Letters</i> , 1998, 24, 154-156.	0.7	3
50	Assessment of nanostructured ceramic coating damage. <i>Nanotribospectroscopy. Russian Physics Journal</i> , 2009, 52, 380-385.	0.4	3
51	Influence of constrained conditions on the character of deformation and fracture of block media under shear loads. <i>Physical Mesomechanics</i> , 2010, 13, 164-172.	1.9	3
52	Advance in earthquake prediction by physical simulation on the baikal ice cover. <i>Physical Mesomechanics</i> , 2013, 16, 52-61.	1.9	3
53	Physical modeling of seismic source generation in failure of fault asperities. <i>Physical Mesomechanics</i> , 2014, 17, 274-281.	1.9	3
54	Study of the role of vortex displacement in contact loading of strengthening coatings based on movable cellular automaton modeling. <i>AIP Conference Proceedings</i> , 2015, , .	0.4	3

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55	Parametric study of the conditions of supershear crack propagation in brittle materials. AIP Conference Proceedings, 2015, , .	0.4	3
56	Numerical analysis of the geometrical and material criteria of acceleration of shear crack to supershear velocity in brittle nanoporous solids. Procedia Structural Integrity, 2016, 2, 409-416.	0.8	3
57	Role of vortex-like motion in fracture of coating-substrate system under contact loading. Procedia Structural Integrity, 2016, 2, 1781-1788.	0.8	3
58	An approach to determining the parameters of kinetic strength theory based dynamic model of brittle solids mechanical behavior. AIP Conference Proceedings, 2017, , .	0.4	3
59	Baikal Ice Cover as a Representative Block Medium for Research in Lithospheric Geodynamics. Physical Mesomechanics, 2018, 21, 223-233.	1.9	3
60	Computer-Aided Design of Boron Nitride-Based Membranes with Armchair and Zigzag Nanopores for Efficient Water Desalination. Materials, 2020, 13, 5256.	2.9	3
61	FRICION BEHAVIOR OF ALUMINUM BRONZE REINFORCED BY BORON CARBIDE PARTICLES. Facta Universitatis, Series: Mechanical Engineering, 2021, 19, 051.	4.6	3
62	Internal stress in block media as a factor responsible for interface strain activity. Estimation of excess tectonic stress. Physical Mesomechanics, 2011, 14, 32-39.	1.9	2
63	Theoretical study of peculiarities of unstable longitudinal shear crack growth in sub-Rayleigh and supershear regimes. , 2014, , .		2
64	Development of DEM formalism to modeling the dynamic response of brittle solids. AIP Conference Proceedings, 2016, , .	0.4	2
65	The Fundamental Regularities of the Evolution of Elastic Vortices Generated in the Surface Layers of Solids under Tangential Contact Loading. Lubricants, 2018, 6, 51.	2.9	2
66	The development of the formalism of movable cellular automata for modeling the nonlinear mechanical behavior of viscoelastic materials. EPJ Web of Conferences, 2019, 221, 01052.	0.3	2
67	Physical mesomechanics based interdisciplinary approach to the development of new methods for managing deformation process in fault zones. AIP Conference Proceedings, 2019, , .	0.4	2
68	The Numerical study of the influence of a two-scale pore structure on the dynamic strength of water-saturated concrete. PNRPU Mechanics Bulletin, 2020, , 37-51.	0.4	2
69	A Tool for Studying the Mechanical Behavior of the Boneâ€œEndoprosthesis System Based on Multi-scale Simulation. Springer Tracts in Mechanical Engineering, 2021, , 91-126.	0.3	2
70	Laws of motion of the exothermic reaction front in a powder medium. Powder Metallurgy and Metal Ceramics, 1995, 34, 288-292.	0.8	1
71	Strength Analysis of Ceramics Under Different Constraints by Movable Cellular Automata Method. Journal of Aircraft, 2004, 41, 641-644.	2.4	1
72	The numerical study of fracture and strength characteristics of heterogeneous brittle materials under dynamic loading. , 2014, , .		1

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73	Simulation of Deformation and Fracture of Fluid-saturated Porous Media with Hybrid Cellular Automaton Method. , 2014, 3, 985-990.		1
74	Development of a Structural and Rheological Model for Investigation of Peculiarities of Deformation and Fracture of Metal-ceramic Composites with Multimodal Internal Structure. , 2014, 3, 568-573.		1
75	Theoretical Study of the Conditions and the Mechanism of Shear Crack Acceleration towards the Longitudinal Wave Velocity. , 2014, 3, 251-256.		1
76	A theoretical study of the influence of technological friction stir welding parameters on weld structures. AIP Conference Proceedings, 2015, , .	0.4	1
77	Similarity in seismogeodynamics on different scales. AIP Conference Proceedings, 2015, , .	0.4	1
78	Study of the influence of morphology and strength of interphase boundaries on the integral mechanical properties of NiCr-TiC composite. AIP Conference Proceedings, 2016, , .	0.4	1
79	Theoretical study of strength of elastic-plastic water-saturated interface under constrained shear. AIP Conference Proceedings, 2016, , .	0.4	1
80	Molecular Dynamics Simulation Of Electric Pulse Explosion Of Metal Wires. Procedia Structural Integrity, 2016, 2, 1421-1426.	0.8	1
81	Elastic vortex displacements as precursors of mechanical stress relaxation in heterogeneous materials. AIP Conference Proceedings, 2016, , .	0.4	1
82	Investigation of regularities of formation and propagation of elastic vortices in surface layers of materials under dynamic contact loading. AIP Conference Proceedings, 2016, , .	0.4	1
83	Study of the influence of volume fraction of ceramic inclusions in NiCr-TiC composite with columnar structure on its mechanical behavior. AIP Conference Proceedings, 2017, , .	0.4	1
84	Computer-aided study of key factors determining high mechanical properties of nanostructured surface layers in metal-ceramic composites. AIP Conference Proceedings, 2017, , .	0.4	1
85	Computer-aided study of the mechanical behavior of the porous ceramic based composite with plastic pore filler. AIP Conference Proceedings, 2018, , .	0.4	1
86	Bionic structural design as a promising way of increasing the mechanical characteristics of the surface layers of metal-ceramic composites. AIP Conference Proceedings, 2018, , .	0.4	1
87	Numerical study of the limitations of the energy-based criterion for the formation of wear debris. AIP Conference Proceedings, 2018, , .	0.4	1
88	Microscopic mechanical model of the main structural element of Bazhenov Suite reservoir rocks. Journal of Physics: Conference Series, 2019, 1268, 012019.	0.4	1
89	Coupling of Discrete and Continuum Approaches in Modeling the Behavior of Materials. , 2019, , 1675-1714.		1
90	Particle-based modeling of the mechanical behavior of porous fluid-saturated viscoelastic solids. Journal of Physics: Conference Series, 2019, 1391, 012116.	0.4	1

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91	Finite-element analysis of the mechanical characteristics of materials manufactured by electron-beam additive technology with metal wire. AIP Conference Proceedings, 2019, , .	0.4	1
92	Influence of fracture incubation time on dynamic crack propagation in brittle solids. EPJ Web of Conferences, 2019, 221, 01013.	0.3	1
93	The study of the dependence of mechanical properties and fracture of water-saturated high-strength concrete on the parameters of pore structure. EPJ Web of Conferences, 2019, 221, 01020.	0.3	1
94	Fracture incubation time and scale invariance of dynamic crack propagation in brittle solids. AIP Conference Proceedings, 2019, , .	0.4	1
95	Molecular dynamics of water and ions filtration through rectangular nanopores in boron nitride nanosheets. AIP Conference Proceedings, 2019, , .	0.4	1
96	Estimation of the Diffusion Coefficient of Doxorubicin Molecules in a Water Solution in the Volume of a Porous Carrier Medium. Russian Physics Journal, 2020, 62, 2319-2323.	0.4	1
97	Investigation of influence of stress state parameters of fault zones on peculiarities of their mechanical response under shear loading. PNRPU Mechanics Bulletin, 2014, 2, 76-101.	0.4	1
98	COUPLED MODEL OF FLUID-SATURATED POROUS MATERIALS BASED ON A COMBINATION OF DISCRETE AND CONTINUUM APPROACHES. PNRPU Mechanics Bulletin, 2014, 1, 68-101.	0.4	1
99	Modelling the Behavior of Complex Media by Jointly Using Discrete and Continuum Approaches. , 2019, , 1311-1345.		1
100	A New Method for Seismically Safe Managing of Seismotectonic Deformations in Fault Zones. Springer Tracts in Mechanical Engineering, 2021, , 45-66.	0.3	1
101	Structure, Properties, and Phase Transformations of Water Nanoconfined between Brucite-like Layers: The Role of Wall Surface Polarity. Materials, 2022, 15, 3043.	2.9	1
102	Theoretical investigation of influence of pore pressure on mechanical response of gas-filled permeable materials. , 2014, , .		0
103	The computer-aided simulation of deformation and fracture of water-saturated elastic porous material with hybrid cellular automaton method. , 2014, , .		0
104	Multiscale Numerical Study of Fracture and Strength Characteristics of Zirconium Alumina Concrete with Use of the Particle-based MCA Method. , 2014, 3, 936-941.		0
105	Development of numerical models of interfaces for multiscale simulation of heterogeneous materials. AIP Conference Proceedings, 2015, , .	0.4	0
106	Investigation of influence of friction stir welding regimes on the features of mass transfer and temperature distribution in forming welds. AIP Conference Proceedings, 2015, , .	0.4	0
107	On the influence of dynamic stress variations on strain accumulation in fault zones. AIP Conference Proceedings, 2015, , .	0.4	0
108	Metal ceramic alloy structure and surface layer modification during electron-ion-plasma irradiation of its surface. AIP Conference Proceedings, 2016, , .	0.4	0

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109	Comparative analysis of different models of interphase boundaries in metal-ceramic composites. AIP Conference Proceedings, 2016, , .	0.4	0
110	Determination of the parameters of plasticity models of geological media on the base of computer simulation. AIP Conference Proceedings, 2016, , .	0.4	0
111	Strength of water-filled permeable elastic-plastic medium under shear accompanied by compression: A theoretical study. Procedia Structural Integrity, 2016, 2, 2606-2613.	0.8	0
112	Theoretical investigation of influence of peculiarities of internal structure on deformation and fracture of metal-ceramic composites using discrete element approach. Procedia Structural Integrity, 2016, 2, 2214-2221.	0.8	0
113	An influence of normal stress and pore pressure on the conditions and dynamics of shear crack propagation in brittle solids. AIP Conference Proceedings, 2016, , .	0.4	0
114	Effect of the features of functionalized structure on elastic properties and strength of partially-filled brittle porous materials. AIP Conference Proceedings, 2016, , .	0.4	0
115	The influence of the mutual relationship between dilatancy and fluid flow on the strength of localized shear bands in permeable rocks. AIP Conference Proceedings, 2017, , .	0.4	0
116	The model of dynamic mechanical behaviour of brittle solids based on kinetic theory of strength. Journal of Physics: Conference Series, 2018, 1141, 012076.	0.4	0
117	The model of dynamic inelastic behavior of brittle solids based on the concept of finite fracture time. AIP Conference Proceedings, 2018, , .	0.4	0
118	Multiscale model of mechanical behavior of ceramics composite with soft matter filling based on movable cellular automaton. Procedia Structural Integrity, 2018, 13, 680-685.	0.8	0
119	Numerical analysis of the applicability of engineering linear models of inelastic behavior and fracture for the description of porous rocks under confined conditions. Journal of Physics: Conference Series, 2018, 1141, 012077.	0.4	0
120	Coupling of Discrete and Continuum Approaches in Modeling the Behavior of Materials. , 2018, , 1-40.		0
121	Modelling the Behavior of Complex Media by Jointly Using Discrete and Continuum Approaches. , 2018, , 1-35.		0
122	Regimes of adhesive wear in dry contact: Conditions of realization and determining parameters. AIP Conference Proceedings, 2019, , .	0.4	0
123	On combined quantized and mechanical descriptions of the Chernov-Luders macroband of localized deformation. AIP Conference Proceedings, 2019, , .	0.4	0
124	The numerical study of the influence of material parameters on the regime of adhesive wear of surface asperities. ÉPJ Web of Conferences, 2019, 221, 01015.	0.3	0
125	The nonlinear relationship between local and macroscopic parameters of dynamic fracture in brittle composite materials. Journal of Physics: Conference Series, 2020, 1666, 012016.	0.4	0
126	Study of the pattern of fluid flow in the pore space of kerogen-clay-carbonate-siliceous rocks of Bazhenov Suite. Journal of Physics: Conference Series, 2020, 1666, 012063.	0.4	0

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127	Investigation of Structural Factors that Increase the Mechanical Properties of Surface Layers Modified by Pulsed Electro-Beam Irradiation. <i>Metal Working and Material Science</i> , 2019, 21, 93-107.	0.3	0
128	Development of the formalism of the discrete element method for the study of the mechanical behavior of liquid-saturated porous materials on a pore scale. <i>Journal of Physics: Conference Series</i> , 2019, 1391, 012023.	0.4	0
129	Theoretical analysis of the mechanical characteristics of bimetallic composites manufactured by electron-beam additive technology with metal filaments. <i>AIP Conference Proceedings</i> , 2020, , .	0.4	0
130	On the control of slip modes and seismic activity of faults using drilling fluid injection. <i>AIP Conference Proceedings</i> , 2020, , .	0.4	0
131	Influence of pore fluid on the compressive strength of high-strength concrete under dynamic loading. <i>Journal of Physics: Conference Series</i> , 2020, 1666, 012022.	0.4	0
132	Theoretical Study of Physico-mechanical Response of Permeable Fluid-Saturated Materials Under Complex Loading Based on the Hybrid Cellular Automaton Method. <i>Springer Tracts in Mechanical Engineering</i> , 2021, , 485-501.	0.3	0