Alexey Yu Smolin

List of Publications by Year
in descending order

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103 papers	1,335 citations	331538 21 h-index	360920 35 g-index
104 all docs	104 docs citations	104 times ranked	677 citing authors

#	Article	IF	Citations
1	Verification and validation of numerical models for the materials of the lumbar spine. Procedia Structural Integrity, 2022, 35, 115-123.	0.3	2
2	Development of a numerical 3D model of the knee joint based on the movable cellular automation method. AIP Conference Proceedings, 2022, , .	0.3	0
3	Numerical 3D macromodel of the mechanical behavior of hip and knee joints of real geometry under acoustic impact. AIP Conference Proceedings, 2022, , .	0.3	0
4	Development of numerical models describing the mechanical behavior of tissues of the lumbar spine. AIP Conference Proceedings, 2022, , .	0.3	0
5	Numerical study of the mechanical behavior of model Bi-material samples of biological tissues under shock-wave loading. AIP Conference Proceedings, 2022, , .	0.3	0
6	Shock-wave impact on the knee joint affected with osteoarthritis and after arthroplasty. Defence Technology, 2022, , .	2.1	1
7	The Effect of Fluid-Saturation on Mechanical Behavior of the Coatingâ€“Substrate System under Contact Loading. Russian Physics Journal, 2021, 63, 1538-1544.	0.2	3
8	Risk assessment of resurfacing implant loosening and femur fracture under low-energy impacts taking into account degenerative changes in bone tissues. Computer simulation. Computer Methods and Programs in Biomedicine, 2021, 200, 105929.	2.6	16
9	Increasing fracture toughness of zirconia-based composites as a synergistic effect of the introducing different inclusions. Ceramics International, 2021, 47, 10582-10589.	2.3	14
10	A DISCRETE ELEMENT FORMALISM FOR MODELLING WEAR PARTICLE FORMATION IN CONTACT BETWEEN SLIDING METALS. Facta Universitatis, Series: Mechanical Engineering, 2021, 19, 007.	2.3	10
11	FRICTION BEHAVIOR OF ALUMINUM BRONZE REINFORCED BY BORON CARBIDE PARTICLES. Facta Universitatis, Series: Mechanical Engineering, 2021, 19, 051.	2.3	3
12	Particle-Based Approach for Simulation of Nonlinear Material Behavior in Contact Zones. Springer Tracts in Mechanical Engineering, 2021, , 67-89.	0.1	5
13	A Tool for Studying the Mechanical Behavior of the Boneâ€“Endoprosthesis System Based on Multi-scale Simulation. Springer Tracts in Mechanical Engineering, 2021, , 91-126.	0.1	2
14	Numerical Modeling of Shockwave Treatment of Knee Joint. Materials, 2021, 14, 7678.	1.3	5
15	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.	0.2	1
16	Numerical research of mechanical behavior of biological tissues under uniaxial compression/tension. AIP Conference Proceedings, 2020, , .	0.3	4
17	Simulation of three-point bending test of the silicon-coated nitinol bar. Procedia Structural Integrity, 2020, 25, 477-485.	0.3	0
18	Refinement of the model for iron oxide friction based on movable cellular automata. AIP Conference Proceedings, 2020, , .	0.3	0

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19	Mesomodel of the mechanical behavior of biological tissues under low-energy impact taking into account their layered structure. AIP Conference Proceedings, 2020, , .	0.3	0
20	Simulation of tibia as a poroelastic composite under dynamic loading. AIP Conference Proceedings, 2020, , .	0.3	0
21	Coupling of Discrete and Continuum Approaches in Modeling the Behavior of Materials. , 2019, , 1675-1714.		1
22	3D simulation of dry friction of metal-based composites. EPJ Web of Conferences, 2019, 221, 01046.	0.1	0
23	Numerical modeling of wearing two rough surfaces of a biocompatible ceramic coating. AIP Conference Proceedings, 2019, , .	0.3	2
24	Numerical modeling of the mechanical behavior of hip resurfacing endoprosthesis and healthy bone. AIP Conference Proceedings, 2019, , .	0.3	1
25	Numerical modeling of the indentation of cancellous bone. AIP Conference Proceedings, 2019, , .	0.3	6
26	Dependences of Mechanical Properties of Ceramics with Bimodal Pore Size Distribution on the Porosity at Various Scale Levels. Russian Physics Journal, 2019, 62, 1445-1454.	0.2	10
27	Numerical modeling of uniaxial compression of a fluid-saturated sample of TiN coating. AIP Conference Proceedings, 2019, , .	0.3	0
28	Modern methods for describing pore structure of porous materials: A review. AIP Conference Proceedings, 2019, , .	0.3	0
29	MULTILEVEL NUMERICAL MODEL OF HIP JOINT ACCOUNTING FOR FRICTION IN THE HIP RESURFACING ENDOPROSTHESIS. Facta Universitatis, Series: Mechanical Engineering, 2019, 17, 29.	2.3	14
30	Modelling the Behavior of Complex Media by Jointly Using Discrete and Continuum Approaches. , 2019, , 1311-1345.		1
31	Mechanisms of Deformation and Fracture of Thin Coatings on Different Substrates in Instrumented Indentation. Russian Physics Journal, 2018, 60, 2169-2176.	0.2	5
32	Development of the particle method code for coupled discrete-continuum simulation of friction. AIP Conference Proceedings, 2018, , .	0.3	1
33	3D numerical study of the elastic and strength properties of ceramics with cylindrical pores. AIP Conference Proceedings, 2018, , .	0.3	0
34	Investigation of the influence of parameters of thin coating on mechanical behavior of the system â€œcoatingâ€“substrateâ€• AIP Conference Proceedings, 2018, , .	0.3	0
35	Multiscale model of mechanical behavior of ceramics composite with soft matter filling based on movable cellular automaton. Procedia Structural Integrity, 2018, 13, 680-685.	0.3	0
36	The determining influence of the competition between pore volume change and fluid filtration on the strength of permeable brittle solids. Procedia Structural Integrity, 2018, 13, 1508-1513.	0.3	10

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37	Mechanobiology of framework material used for manufacture of bone tissue implants. Review of mathematical models. AIP Conference Proceedings, 2018, , .	0.3	0
38	Coupling of Discrete and Continuum Approaches in Modeling the Behavior of Materials. , 2018, , 1-40.		0
39	Modelling the Behavior of Complex Media by Jointly Using Discrete and Continuum Approaches. , 2018, , 1-35.		0
40	Understanding the mechanisms of friction stir welding based on computer simulation using particles. Defence Technology, 2018, 14, 643-656.	2.1	36
41	The Fundamental Regularities of the Evolution of Elastic Vortices Generated in the Surface Layers of Solids under Tangential Contact Loading. Lubricants, 2018, 6, 51.	1.2	2
42	Multiscale Simulation of Porous Ceramics Based on Movable Cellular Automaton Method. Journal of Physics: Conference Series, 2017, 894, 012087.	0.3	1
43	Multiscale modeling of porous ceramics using movable cellular automaton method. AIP Conference Proceedings, 2017, , .	0.3	7
44	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, , .	0.3	1
45	Numerical study of the influence of the thickness and roughness of TiN coatings on their wear in scratch testing. AIP Conference Proceedings, 2017, , .	0.3	1
46	Mechanical behavior of deformed intravascular NiTi stents differing in design. Numerical simulation. AIP Conference Proceedings, 2017, , .	0.3	2
47	MOVABLE CELLULAR AUTOMATON METHOD AS A TREND IN DISCRETE COMPUTATIONAL MECHANICS. Chebyshevskii Sbornik, 2017, 18, 444-465.	0.0	0
48	NUMERICAL STUDY OF THE INFLUENCE OF SUBSTRATE MATERIAL ON DEFORMATION AND FRACTURE OF THE COATING â€“ SUBSTRATE SYSTEM. Vestnik Tomskogo Gosudarstvennogo Universiteta, Matematika I Mekhanika, 2017, , 91-106.	0.3	0
49	Study of the influence of morphology and strength of interphase boundaries on the integral mechanical properties of NiCr-TiC composite. AIP Conference Proceedings, 2016, , .	0.3	1
50	Role of vortex-like motion in fracture of coating-substrate system under contact loading. Procedia Structural Integrity, 2016, 2, 1781-1788.	0.3	3
51	Probabilistic Approach for Analysis of Strength of Ceramics With Different Porous Structure Based on Movable Cellular Automaton Modeling. Procedia Structural Integrity, 2016, 2, 2742-2749.	0.3	5
52	Possibilities of tribospectroscopy using two indenters for identifying defects in the surface layer. AIP Conference Proceedings, 2016, , .	0.3	0
53	Elastic vortex displacements as precursors of mechanical stress relaxation in heterogeneous materials. AIP Conference Proceedings, 2016, , .	0.3	1
54	Study of strength properties of ceramic composites with soft filler based on 3D computer simulation. AIP Conference Proceedings, 2016, , .	0.3	1

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55	On the nanocrack detection using tribospectroscopy. AIP Conference Proceedings, 2015, , .	0.3	0
56	Study of the role of vortex displacement in contact loading of strengthening coatings based on movable cellular automaton modeling. AIP Conference Proceedings, 2015, , .	0.3	3
57	Peculiarities of modeling of nanoindentation of coating-substrate system. AIP Conference Proceedings, 2015, , .	0.3	1
58	On dependence of mechanical properties of brittle material on partial concentrations of different sized pores in its structure in a wide range of porosity. AIP Conference Proceedings, 2015, , .	0.3	5
59	Modeling mechanical behaviors of composites with various ratios of matrixâ€“inclusion properties using movable cellular automaton method. Defence Technology, 2015, 11, 18-34.	2.1	39
60	Overcoming the limitations of distinct element method for multiscale modeling of materials with multimodal internal structure. Computational Materials Science, 2015, 102, 267-285.	1.4	92
61	Identification of nanosized defects using tribospectroscopy. Modeling by movable cellular automaton method. , 2014, , .		3
62	Numerical study of mechanical behavior of ceramic composites under compression loading in the framework of movable cellular automaton method. , 2014, , .		1
63	The numerical study of fracture and strength characteristics of heterogeneous brittle materials under dynamic loading. , 2014, , .		1
64	On the dependence of effective mechanical properties of ceramics on partial concentrations of different size pores in its structure. , 2014, , .		1
65	3D modeling of the mechanical behavior of ceramics with pores of different size. , 2014, , .		1
66	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.	1.0	30
67	Dynamic vortex defects in deformed material. Physical Mesomechanics, 2014, 17, 15-22.	1.0	34
68	3D simulation of dependence of mechanical properties of porous ceramics on porosity. Engineering Fracture Mechanics, 2014, 130, 53-64.	2.0	42
69	Nanostructured titanium-based materials for medical implants: Modeling and development. Materials Science and Engineering Reports, 2014, 81, 1-19.	14.8	214
70	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
71	Modeling Fracture of Nanostructured Bioactive Coatings on Ti-based Materials under Contact Loading. , 2014, 3, 621-626.		3
72	A mathematical model of particleâ€“particle interaction for discrete element based modeling of deformation and fracture of heterogeneous elasticâ€“plastic materials. Engineering Fracture Mechanics, 2014, 130, 96-115.	2.0	77

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73	Modeling nanoindentation of TiCCaPON coating on Ti substrate using movable cellular automaton method. Computational Materials Science, 2013, 76, 89-98.	1.4	22
74	Nanostructured titanium alloys and multicomponent bioactive films: Mechanical behavior at indentation. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2013, 570, 51-62.	2.6	39
75	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.	0.5	28
76	Multiscale approach to description of deformation and fracture of brittle media with hierarchical porous structure on the basis of movable cellular automaton method. Frattura Ed Integrita Strutturale, 2013, 7, 75-80.	0.5	11
77	On the estimation of strength properties of porous ceramic coatings. Physical Mesomechanics, 2012, 15, 88-93.	1.0	14
78	Approach to simulation of deformation and fracture of hierarchically organized heterogeneous media, including contrast media. Physical Mesomechanics, 2011, 14, 224-248.	1.0	44
79	Percolation transitions in porous structure and their effect on physicochemical properties of ceramics. Technical Physics Letters, 2011, 37, 360-363.	0.2	7
80	Time-frequency analysis of acoustic signals in the audio-frequency range generated during Hadfieldâ€™s steel friction. Technical Physics Letters, 2010, 36, 606-609.	0.2	37
81	Multilevel simulation of deformation and fracture of brittle porous materials in the method of movable cellular automata. Physical Mesomechanics, 2010, 13, 47-53.	1.0	13
82	A multilevel computer simulation of friction and wear by numerical methods of discrete mechanics and a phenomenological theory. Physical Mesomechanics, 2009, 12, 11-19.	1.0	38
83	On rotation in the movable cellular automaton method. Physical Mesomechanics, 2009, 12, 124-129.	1.0	24
84	Spectral analysis of the behavior and properties of solid surface layers. Nanotribospectroscopy. Physical Mesomechanics, 2009, 12, 221-234.	1.0	24
85	Features of the fragmentation of mechanically processed zirconia particles. Technical Physics Letters, 2009, 35, 130-132.	0.2	1
86	On the possibility of using acoustic spectra to study deformation processes in surface layers during friction. Technical Physics Letters, 2009, 35, 1124-1128.	0.2	1
87	Dependence of the macroscopic elastic properties of porous media on the parameters of a stochastic spatial pore distribution. Technical Physics, 2009, 54, 758-761.	0.2	18
88	Computer modeling of local tribological contacts by the example of the automotive brake friction pair. Physical Mesomechanics, 2008, 11, 73-84.	1.0	27
89	Simulation of mechanical behavior of calcium-phosphate coatings with different calcium content under shear loading based on the movable cellular automaton method. Physical Mesomechanics, 2007, 10, 79-85.	1.0	0
90	Identification of elastic waves generated in the contact zone of a friction couple. Technical Physics Letters, 2007, 33, 600-603.	0.2	9

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91	Quasi-viscous fracture of brittle media with stochastic pore distribution. Technical Physics Letters, 2006, 32, 738-740.	0.2	10
92	Modeling the behavior of complex media by jointly using discrete and continuum approaches. Technical Physics Letters, 2004, 30, 712-714.	0.2	26
93	The effect of surface waves on the interaction of incident particles with a solid surface. Technical Physics Letters, 2004, 30, 1009-1012.	0.2	2
94	Movable cellular automata method for simulating materials with mesostructure. Theoretical and Applied Fracture Mechanics, 2001, 37, 311-334.	2.1	105
95	The effect of elastic energy accumulation and the possibility of controlling the fracture process in complex structures. Technical Physics Letters, 2000, 26, 51-53.	0.2	1
96	Computer-aided examination and forecast of strength properties of heterogeneous coal-beds. Computational Materials Science, 2000, 19, 69-76.	1.4	18
97	Discrete approach to study fracture energy absorption under dynamic loading. Computational Materials Science, 2000, 19, 179-182.	1.4	7
98	The features of fracture of heterogeneous materials and frame structures. Potentialities of MCA design. Computational Materials Science, 1999, 16, 333-343.	1.4	31
99	A possible method of computer-aided design of materials with a highly porous matrix structure based on the method of moving cellular automata. Technical Physics Letters, 1998, 24, 154-156.	0.2	3
100	Characteristics of the relaxation to steady-state deformation in solids. Technical Physics, 1997, 42, 1016-1018.	0.2	5
101	Method of movable cellular automata as a tool for simulation within the framework of mesomechanics. Russian Physics Journal, 1995, 38, 1157-1168.	0.2	45
102	Model of the process of quasistatic pressing of porous bodies with merging of pores taken into account. Soviet Powder Metallurgy and Metal Ceramics (English Translation of Poroshkovaya) Tj ETQq0 0 0 rgBT /Overlock 10 Tf 50 297	0.2	0
103	Dependences of Mechanical Properties of Ceramics with Bimodal Pore Size Distribution on the Porosity at Various Scale Levels. Russian Physics Journal, 0, , .	0.2	0