

Andrey Jivkov

List of Publications by Year in descending order

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109
papers

2,513
citations

279798

23
h-index

214800

47
g-index

112
all docs

112
docs citations

112
times ranked

2061
citing authors

#	ARTICLE	IF	CITATIONS
1	Review of pore network modelling of porous media: Experimental characterisations, network constructions and applications to reactive transport. <i>Journal of Contaminant Hydrology</i> , 2016, 192, 101-117.	3.3	380
2	Monte Carlo simulations of mesoscale fracture modelling of concrete with random aggregates and pores. <i>Construction and Building Materials</i> , 2015, 75, 35-45.	7.2	243
3	Computational technology for analysis of 3D meso-structure effects on damage and failure of concrete. <i>International Journal of Solids and Structures</i> , 2016, 80, 310-333.	2.7	168
4	Monte Carlo simulations of mesoscale fracture of concrete with random aggregates and pores: a size effect study. <i>Construction and Building Materials</i> , 2015, 80, 262-272.	7.2	144
5	Three dimensional observations and modelling of intergranular stress corrosion cracking in austenitic stainless steel. <i>Journal of Nuclear Materials</i> , 2006, 352, 62-74.	2.7	108
6	A chemo-transport-damage model for concrete under external sulfate attack. <i>Cement and Concrete Research</i> , 2020, 132, 106048.	11.0	84
7	On the effect of ITZ thickness in meso-scale models of concrete. <i>Construction and Building Materials</i> , 2020, 258, 119639.	7.2	80
8	A novel architecture for pore network modelling with applications to permeability of porous media. <i>Journal of Hydrology</i> , 2013, 486, 246-258.	5.4	66
9	Micromechanical modelling of deformation and fracture of hydrating cement paste using X-ray computed tomography characterisation. <i>Composites Part B: Engineering</i> , 2016, 88, 64-72.	12.0	63
10	A 3D multi-phase meso-scale model for modelling coupling of damage and transport properties in concrete. <i>Cement and Concrete Composites</i> , 2020, 109, 103545.	10.7	62
11	Reliability of Algorithms Interpreting Topological and Geometric Properties of Porous Media for Pore Network Modelling. <i>Transport in Porous Media</i> , 2019, 128, 271-301.	2.6	53
12	Elastic behaviour of a regular lattice for meso-scale modelling of solids. <i>International Journal of Solids and Structures</i> , 2012, 49, 3089-3099.	2.7	51
13	Pore space and brittle damage evolution in concrete. <i>Engineering Fracture Mechanics</i> , 2013, 110, 378-395.	4.3	48
14	Microstructure-informed modelling of damage evolution in cement paste. <i>Construction and Building Materials</i> , 2014, 66, 731-742.	7.2	48
15	Experimental and numerical investigation of mortar and ITZ parameters in meso-scale models of concrete. <i>Theoretical and Applied Fracture Mechanics</i> , 2020, 109, 102722.	4.7	48
16	A three-dimensional computational model for intergranular cracking. <i>Computational Materials Science</i> , 2006, 38, 442-453.	3.0	44
17	Experimental and numerical study of the effects of solution concentration and temperature on concrete under external sulfate attack. <i>Cement and Concrete Research</i> , 2021, 139, 106284.	11.0	42
18	A two-dimensional mesoscale model for intergranular stress corrosion crack propagation. <i>Acta Materialia</i> , 2006, 54, 3493-3501.	7.9	35

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19	Peridynamics modelling of coupled water flow and chemical transport in unsaturated porous media. <i>Journal of Hydrology</i> , 2020, 591, 125648.	5.4	27
20	Evolution of Pore-Scale Morphology of Oil Shale During Pyrolysis: A Quantitative Analysis. <i>Transport in Porous Media</i> , 2017, 119, 143-162.	2.6	27
21	Discrete modelling of contaminant diffusion in porous media with sorption. <i>Microporous and Mesoporous Materials</i> , 2014, 185, 51-60.	4.4	26
22	Pore-scale modelling of 3D moisture distribution and critical saturation in cementitious materials. <i>Construction and Building Materials</i> , 2014, 64, 222-230.	7.2	26
23	Rates of intergranular environment assisted cracking in three-dimensional model microstructures. <i>Theoretical and Applied Fracture Mechanics</i> , 2007, 48, 187-202.	4.7	25
24	A novel particle failure criterion for cleavage fracture modelling allowing measured brittle particle distributions. <i>Engineering Fracture Mechanics</i> , 2014, 121-122, 98-115.	4.3	24
25	A mechanistic model for long-term nuclear waste glass dissolution integrating chemical affinity and interfacial diffusion barrier. <i>Journal of Nuclear Materials</i> , 2017, 486, 70-85.	2.7	23
26	Structural modelling of the cardiovascular system. <i>Biomechanics and Modeling in Mechanobiology</i> , 2018, 17, 1217-1242.	2.8	22
27	Experimental and numerical analyses of microstructure evolution of Cu-Cr-Zr alloys during severe plastic deformation. <i>Materials Characterization</i> , 2019, 156, 109849.	4.4	21
28	A model for hydraulic conductivity of compacted bentonite "inclusion of microstructure effects under confined wetting. <i>Geotechnique</i> , 2021, 71, 1071-1084.	4.0	21
29	Thermo-osmosis in hydrophilic nanochannels: mechanism and size effect. <i>Nanoscale</i> , 2021, 13, 1696-1716.	5.6	21
30	Measurement and modelling of reactive transport in geological barriers for nuclear waste containment. <i>Physical Chemistry Chemical Physics</i> , 2015, 17, 30577-30589.	2.8	18
31	A Network Model for Diffusion in Media with Partially Resolvable Pore Space Characteristics. <i>Transport in Porous Media</i> , 2014, 105, 83-104.	2.6	17
32	Meso-scale modelling of mechanical behaviour and damage evolution in normal strength concrete. <i>Procedia Structural Integrity</i> , 2018, 13, 560-565.	0.8	17
33	3D mesoscale modeling and fracture property study of rubberized self-compacting concrete based on uniaxial tension test. <i>Theoretical and Applied Fracture Mechanics</i> , 2019, 104, 102363.	4.7	17
34	Structure of micro-crack population and damage evolution in quasi-brittle media. <i>Theoretical and Applied Fracture Mechanics</i> , 2014, 70, 1-9.	4.7	16
35	Non-Fickian dispersive transport of strontium in laboratory-scale columns: Modelling and evaluation. <i>Journal of Hydrology</i> , 2017, 549, 1-11.	5.4	16
36	Site-bond modelling of porous quasi-brittle media. <i>Mineralogical Magazine</i> , 2012, 76, 2969-2974.	1.4	15

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37	Strain-driven corrosion crack growth. <i>Engineering Fracture Mechanics</i> , 2002, 69, 2095-2111.	4.3	14
38	Strain-induced passivity breakdown in corrosion crack initiation. <i>Theoretical and Applied Fracture Mechanics</i> , 2004, 42, 43-52.	4.7	14
39	A mathematical model for plasticity and damage: A discrete calculus formulation. <i>Journal of Computational and Applied Mathematics</i> , 2017, 312, 27-38.	2.0	14
40	Dynamic fracture analysis by explicit solid dynamics and implicit crack propagation. <i>International Journal of Solids and Structures</i> , 2017, 110-111, 113-126.	2.7	14
41	Anion diffusion in clay-rich sedimentary rocks – A pore network modelling. <i>Applied Clay Science</i> , 2018, 161, 374-384.	5.2	14
42	On dissolution driven crack growth. <i>International Journal of Solids and Structures</i> , 2007, 44, 1880-1890.	2.7	13
43	Analysis of heat transfer and water flow with phase change in saturated porous media by bond-based peridynamics. <i>International Journal of Heat and Mass Transfer</i> , 2022, 185, 122327.	4.8	13
44	Multi-scale modelling of nuclear graphite tensile strength using the site-bond lattice model. <i>Carbon</i> , 2016, 100, 273-282.	10.3	12
45	Modelling reactive diffusion in clays with two-phase-informed pore networks. <i>Applied Clay Science</i> , 2016, 119, 222-228.	5.2	11
46	A mesoscale framework for analysis of corrosion induced damage of concrete. <i>Construction and Building Materials</i> , 2019, 216, 347-361.	7.2	11
47	Interfacial transition zones in concrete meso-scale models – Balancing physical realism and computational efficiency. <i>Construction and Building Materials</i> , 2021, 293, 123332.	7.2	11
48	A mathematical model for elasticity using calculus on discrete manifolds. <i>Mathematical Methods in the Applied Sciences</i> , 2018, 41, 9057-9070.	2.3	10
49	Diffusion in multi-dimensional solids using Forman’s combinatorial differential forms. <i>Applied Mathematical Modelling</i> , 2022, 110, 172-192.	4.2	10
50	Analysis of pore structure effects on diffusive transport in Opalinus clay via pore network models. <i>Mineralogical Magazine</i> , 2015, 79, 1369-1377.	1.4	9
51	Optimisation of rGO-enriched nanoceramics by combinatorial analysis. <i>Materials and Design</i> , 2021, 212, 110191.	7.0	9
52	Modelling the effects of water chemistry and flowrate on clay erosion. <i>Engineering Geology</i> , 2021, 294, 106409.	6.3	9
53	Modelling soil desiccation cracking by peridynamics. <i>Geotechnique</i> , 2023, 73, 388-400.	4.0	9
54	Evolution of fatigue crack corrosion from surface irregularities. <i>Theoretical and Applied Fracture Mechanics</i> , 2003, 40, 45-54.	4.7	8

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55	Assessment of Local Approach Methods for Predicting End-of-Life Toughness of RPV Steels. , 2011, , .		7
56	Fracture Energy of Graphite from Microstructure-informed Lattice Model. , 2014, 3, 1848-1853.		7
57	Meso-scale site-bond model for elasticity: theory and calibration. Materials Research Innovations, 2014, 18, S2-982-S2-986.	2.3	7
58	Use of local approaches to calculate changes in cleavage fracture toughness due to pre-straining and constraint effects. Theoretical and Applied Fracture Mechanics, 2019, 104, 102380.	4.7	7
59	Evolution of triple junctionsâ€™ network during severe plastic deformation of copper alloys â€™ a discrete stochastic modelling. Philosophical Magazine, 2020, 100, 467-485.	1.6	7
60	Investigation of tensile fracture of rubberized selfâ€™compacting concrete by acoustic emission and digital image correlation. Structural Control and Health Monitoring, 2021, 28, e2744.	4.0	7
61	Assessment of damage in hydraulic concrete by gray wolf optimizationâ€™support vector machine model and hierarchical clustering analysis of acoustic emission. Structural Control and Health Monitoring, 2022, 29, .	4.0	7
62	Mesoscale Mechanical Model for Intergranular Stress Corrosion Cracking and Implications for Microstructure Engineering. Journal of Pressure Vessel Technology, Transactions of the ASME, 2008, 130, .	0.6	6
63	Effect of colloids on non-Fickian transport of strontium in sediments elucidated by continuous-time random walk analysis. Environmental Pollution, 2019, 252, 1491-1499.	7.5	6
64	Parametric Study of Cohesive ITZ in Meso-scale Concrete Model. Procedia Structural Integrity, 2019, 23, 167-172.	0.8	6
65	A geometric formulation of linear elasticity based on discrete exterior calculus. International Journal of Solids and Structures, 2022, 236-237, 111345.	2.7	6
66	Grain boundary control for improved intergranular stress corrosion cracking resistance in austenitic stainless steels: new approach. Energy Materials, 2006, 1, 98-102.	0.1	5
67	Dynamic fracture effects on remote stress amplification in AGR graphite bricks. Nuclear Engineering and Design, 2017, 323, 280-289.	1.7	5
68	Triple junctions network as the key pattern for characterisation of grain structure evolution in metals. Materials and Design, 2021, 198, 109352.	7.0	5
69	Peridynamic modelling of clay erosion. Geotechnique, 2022, 72, 510-521.	4.0	5
70	A guide to the finite and virtual element methods for elasticity. Applied Numerical Mathematics, 2021, 169, 351-395.	2.1	5
71	Discrete Lattice Model of Quasi-Brittle Fracture in Porous Graphite. Materials Performance and Characterization, 2014, 3, 414-428.	0.3	4
72	A Lattice-spring Model for Damage Evolution in Cement Paste. , 2014, 3, 1854-1859.		4

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73	Combined Numerical-Statistical Analyses of Damage and Failure of 2D and 3D Mesoscale Heterogeneous Concrete. <i>Mathematical Problems in Engineering</i> , 2015, 2015, 1-12.	1.1	4
74	A local approach incorporating the measured statistics of microcracks to assess the temperature dependence of cleavage fracture for a reactor pressure vessel steel. <i>Procedia Structural Integrity</i> , 2019, 18, 28-35.	0.8	4
75	Unsaturated Hydraulic Conductivity of Compacted Bentonite: Revisit of Microstructure Effects. <i>Environmental Science and Engineering</i> , 2019, , 544-550.	0.2	4
76	Large-Scale Modeling of Damage and Failure of Nuclear Graphite Moderated Reactor. <i>Journal of Pressure Vessel Technology, Transactions of the ASME</i> , 2022, 144, .	0.6	4
77	Image-Based vs. Parametric Modelling of Concrete Meso-Structures. <i>Materials</i> , 2022, 15, 704.	2.9	4
78	Applicability of local approaches to assessment of cleavage fracture in complex constraint and load history cases. <i>Procedia Structural Integrity</i> , 2018, 13, 63-68.	0.8	3
79	Progress and challenges with local approaches to cleavage fracture. <i>Procedia Structural Integrity</i> , 2019, 23, 39-44.	0.8	3
80	Geometric modelling of elastic and elastic-plastic solids by separation of deformation energy and Prandtl operators. <i>International Journal of Solids and Structures</i> , 2020, 198, 136-148.	2.7	3
81	A model for graded materials with application to cracks. <i>International Journal of Fracture</i> , 2003, 124, 93-105.	2.2	2
82	Lattice-Spring Modeling of Graphite Accounting for Pore Size Distribution. <i>Key Engineering Materials</i> , 0, 592-593, 92-95.	0.4	2
83	Site-bond Modelling of Structure-failure Relations in Quasi-brittle Media. , 2014, 3, 1872-1877.		2
84	Two-parameter fracture characterization of a welded pipe in the presence of residual stresses. <i>Procedia Structural Integrity</i> , 2016, 2, 777-784.	0.8	2
85	A meso-scale approach to modelling stable dynamic crack propagation in glass under rate-dependent loading. <i>Procedia Structural Integrity</i> , 2016, 2, 381-388.	0.8	2
86	Analysis of dynamic fracture and fragmentation of graphite bricks by combined XFEM and cohesive zone approach. <i>International Journal of Pressure Vessels and Piping</i> , 2019, 171, 117-124.	2.6	2
87	Incorporation of Obstacle Hardening into Local Approach to Cleavage Fracture to Predict Temperature Effects in the Ductile to Brittle Transition Regime. <i>Materials</i> , 2021, 14, 1224.	2.9	2
88	Thermo-osmosis in silica nanochannels. <i>Japanese Geotechnical Society Special Publication</i> , 2021, 9, 210-214.	0.2	2
89	Parallelized discrete exterior calculus for three-dimensional elliptic problems. <i>Computer Physics Communications</i> , 2022, 279, 108456.	7.5	2
90	Fatigue corrosion crack extension across the interface of an elastic bi-material. <i>Engineering Fracture Mechanics</i> , 2004, 71, 1119-1133.	4.3	1

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91	Modelling Intergranular Stress Corrosion Cracking in Simulated Three-Dimensional Microstructures. Key Engineering Materials, 2007, 345-346, 1019-1022.	0.4	1
92	Novel Lattice Models for Porous Media. Materials Research Society Symposia Proceedings, 2012, 1475, 565.	0.1	1
93	Effective Properties of Pore Network Elements Derived from Reactive Transport in Individual Pores. Defect and Diffusion Forum, 0, 369, 125-130.	0.4	1
94	A Local Approach to Assess Effects of Specimen Geometry on Cleavage Fracture Toughness in Reactor Pressure Vessel Steels. , 2018, , .		1
95	Cleavage Fracture Modelling for RPV Steels: Discrete Model for Collective Behaviour of Micro-Cracks. , 2013, , .		1
96	Predictions of Fracture Toughness for Weld Material When Adopting a Novel Particle Failure Criterion and a Measured Experimental Particle Distribution. , 2013, , .		1
97	Discussions on nomenclatures related to bentonite. Geotechnique, 0, , 1-9.	4.0	1
98	Corrosion Cracks Nucleation By Deformation-Induced Passivity Breakdown. Journal of the Mechanical Behavior of Materials, 2005, 16, 177-194.	1.8	0
99	Meso-Scale Mechanical Model for Intergranular Stress Corrosion Cracking and Implications for Microstructure Engineering. , 2006, , 591.		0
100	Local Approach Studies of the Effect of Load History on Ductile Fracture. , 2008, , .		0
101	A Discrete Model for Diffusion-Induced Grain Boundary Deterioration. Key Engineering Materials, 0, 592-593, 757-760.	0.4	0
102	Engineering Criterion for Rupture of Brittle Particles in a Ductile Matrix Including Particle Size and Stress Triaxiality Effects. , 2014, 3, 1922-1927.		0
103	On the Geometric Description of Nonlinear Elasticity via an Energy Approach Using Barycentric Coordinates. Mathematics, 2021, 9, 1689.	2.2	0
104	On the Derivation of Multisymplectic Variational Integrators for Hyperbolic PDEs Using Exponential Functions. Applied Sciences (Switzerland), 2021, 11, 7837.	2.5	0
105	Development of Geometric Formulation of Elasticity. Structural Integrity, 2019, , 262-267.	1.4	0
106	Analysis of Materials Systems Represented with Graphs. Structural Integrity, 2019, , 249-254.	1.4	0
107	A Local Approach to Assess Temperature Effects on Fracture Toughness Incorporating the Measured Distribution of Microcracks. , 2019, , .		0
108	Observations of cleavage initiation in ferritic steel. Procedia Structural Integrity, 2020, 28, 1787-1794.	0.8	0

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109	Capturing the Temperature Dependence of Cleavage Fracture Toughness in the Ductile-to-Brittle Transition Regime in Ferritic Steels Using an Improved Engineering Local Approach. Journal of Pressure Vessel Technology, Transactions of the ASME, 2022, 144, .	0.6	0