Ronald E Miller

List of Publications by Year
in descending order

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76 papers	7,263 citations	126907 33 h-index	102487 66 g-index
79 all docs	79 docs citations	79 times ranked	3833 citing authors

#	Article	IF	Citations
1	Size-dependent elastic properties of nanosized structural elements. Nanotechnology, 2000, 11, 139-147.	2.6	1,605
2	An adaptive finite element approach to atomic-scale mechanicsâ€"the quasicontinuum method. Journal of the Mechanics and Physics of Solids, 1999, 47, 611-642.	4.8	547
3	Atomistic/continuum coupling in computational materials science. Modelling and Simulation in Materials Science and Engineering, 2003, 11, R33-R68.	2.0	466
4	The Quasicontinuum Method: Overview, applications and current directions. Journal of Computer-Aided Materials Design, 2002, 9, 203-239.	0.7	377
5	A unified framework and performance benchmark of fourteen multiscale atomistic/continuum coupling methods. Modelling and Simulation in Materials Science and Engineering, 2009, 17, 053001.	2.0	311
6	Quasicontinuum Models of Interfacial Structure and Deformation. Physical Review Letters, 1998, 80, 742-745.	7.8	295
7	Multiscale plasticity modeling: coupled atomistics and discrete dislocation mechanics. Journal of the Mechanics and Physics of Solids, 2004, 52, 755-787.	4.8	253
8	Nanoindentation and incipient plasticity. Journal of Materials Research, 1999, 14, 2233-2250.	2.6	243
9	A continuum plasticity model for the constitutive and indentation behaviour of foamed metals. International Journal of Mechanical Sciences, 2000, 42, 729-754.	6.7	207
10	Quasicontinuum simulation of fracture at the atomic scale. Modelling and Simulation in Materials Science and Engineering, 1998, 6, 607-638.	2.0	203
11	Failure of sandwich beams with metallic foam cores. International Journal of Solids and Structures, 2001, 38, 4901-4920.	2.7	193
12	Coupled Atomistic and Discrete Dislocation Plasticity. Physical Review Letters, 2002, 89, 025501.	7.8	188
13	Finite-Temperature Quasicontinuum: Molecular Dynamics without All the Atoms. Physical Review Letters, 2005, 95, 060202.	7.8	165
14	The potential of atomistic simulations and the knowledgebase of interatomic models. Jom, 2011, 63, 17-17.	1.9	144
15	Quasicontinuum models of fracture and plasticity. Engineering Fracture Mechanics, 1998, 61, 427-444.	4.3	138
16	A coupled atomistic/continuum model of defects in solids. Journal of the Mechanics and Physics of Solids, 2002, 50, 2085-2106.	4.8	127
17	Modelling grain-boundary resistance in intergranular dislocation slip transmission. Philosophical Magazine A: Physics of Condensed Matter, Structure, Defects and Mechanical Properties, 2002, 82, 2511-2527.	0.6	114
18	A coupled atomistics and discrete dislocation plasticity simulation of nanoindentation into single crystal thin films. Acta Materialia, 2004, 52, 271-284.	7.9	108

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19	Atomic-scale simulations of nanoindentation-induced plasticity in copper crystals with nanometer-sized nickel coatings. Acta Materialia, 2006, 54, 33-45.	7.9	105
20	A finite-temperature dynamic coupled atomistic/discrete dislocation method. Modelling and Simulation in Materials Science and Engineering, 2005, 13, 1101-1118.	2.0	97
21	Deformation characteristics and stressâ€“strain response of nanotwinned copper via molecular dynamics simulation. Acta Materialia, 2009, 57, 4364-4373.	7.9	84
22	On the nonlocal nature of dislocation nucleation during nanoindentation. Journal of the Mechanics and Physics of Solids, 2008, 56, 1203-1223.	4.8	77
23	Multiscale simulation of material removal processes at the nanoscale. Journal of the Mechanics and Physics of Solids, 2007, 55, 2384-2405.	4.8	66
24	Long-Range, Entangled Carbon Nanotube Networks in Polycarbonate. Advanced Functional Materials, 2003, 13, 868-872.	14.9	63
25	Coupled Atomistic/Discrete Dislocation Simulations of Nanoindentation at Finite Temperature. Journal of Engineering Materials and Technology, Transactions of the ASME, 2005, 127, 358-368.	1.4	62
26	New Perspectives in Plasticity Theory: Dislocation Nucleation, Waves, and Partial Continuity of Plastic Strain Rate. Mathematics and Mechanics of Solids, 2008, 13, 292-315.	2.4	62
27	A stress-gradient based criterion for dislocation nucleation in crystals. Journal of the Mechanics and Physics of Solids, 2004, 52, 1507-1525.	4.8	56
28	Finite-Temperature Quasi-Continuum. Applied Mechanics Reviews, 2013, 65, .	10.1	47
29	A non-local formulation of the peierls dislocation model. Journal of the Mechanics and Physics of Solids, 1998, 46, 1845-1867.	4.8	46
30	Atomistic simulation of nanoindentation into copper multilayers. Modelling and Simulation in Materials Science and Engineering, 2005, 13, 1089-1099.	2.0	45
31	Hybrid Continuum Mechanics and Atomistic Methods for Simulating Materials Deformation and Failure. MRS Bulletin, 2007, 32, 920-926.	3.5	43
32	A molecular dynamics study of twin width, grain size and temperature effects on the toughness of 2D-columnar nanotwinned copper. Modelling and Simulation in Materials Science and Engineering, 2009, 17, 055009.	2.0	37
33	Critical analysis of local constitutive models for slip and decohesion. Philosophical Magazine A: Physics of Condensed Matter, Structure, Defects and Mechanical Properties, 1996, 73, 803-827.	0.6	34
34	Multiscale modeling of crack initiation and propagation at the nanoscale. Journal of the Mechanics and Physics of Solids, 2016, 88, 35-49.	4.8	30
35	Energy absorption mechanisms of nanoscopic multilayer structures under ballistic impact loading. Computational Materials Science, 2021, 195, 110504.	3.0	29
36	An Energy Balance Criterion for Nanoindentation-Induced Single and Multiple Dislocation Events. Journal of Applied Mechanics, Transactions ASME, 2006, 73, 327-334.	2.2	24

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37	Crystallographic Texture and Volume Fraction of Î± and Î² Phases in Zr-2.5Nb Pressure Tube Material During Heating and Cooling. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2012, 43, 806-821.	2.2	24
38	Molecular dynamics study of the penetration resistance of multilayer polymer/ceramic nanocomposites under supersonic projectile impacts. Extreme Mechanics Letters, 2021, 44, 101238.	4.1	23
39	Molecular dynamics at constant Cauchy stress. Journal of Chemical Physics, 2016, 144, 184107.	3.0	21
40	Direct Coupling of Atomistic and Continuum Mechanics in Computational Materials Science. International Journal for Multiscale Computational Engineering, 2003, 1, 16.	1.2	20
41	Grain boundary motion assisted via radiation cascades in bcc Fe. Physical Review B, 2008, 78, .	3.2	19
42	Molecular dynamics study of the mechanical behaviour of ultrathin polymerâ€“metal multilayers under extreme dynamic conditions. Computational Materials Science, 2020, 184, 109951.	3.0	18
43	Molecular Dynamics Simulations of Shock Propagation and Spallation in Amorphous Polymers. Journal of Applied Mechanics, Transactions ASME, 2021, 88, .	2.2	17
44	Superior Dynamic Penetration Resistance of Nanoscale Multilayer Polymer/Metal Films. Journal of Applied Mechanics, Transactions ASME, 2020, 87, .	2.2	15
45	A perspective on atomistic-continuum multiscale modeling. Modelling and Simulation in Materials Science and Engineering, 2017, 25, 071004.	2.0	14
46	Synthesis and characterization of partially silane-terminated polyurethanes reinforced with acid-treated halloysite nanotubes for transparent armour systems. Scientific Reports, 2020, 10, 13805.	3.3	13
47	Density Functional Theory Rate Calculation of Hydrogen Abstraction Reactions of N-Phenyl-Î±-naphthylamine Antioxidants. Industrial & Engineering Chemistry Research, 2018, 57, 876-880.	3.7	11
48	Multiscale modeling of solids at the nanoscale: dynamic approach. Canadian Journal of Physics, 2008, 86, 391-400.	1.1	10
49	Quantum and classical molecular dynamics simulations of shocked polyurea and polyurethane. Computational Materials Science, 2022, 203, 111166.	3.0	10
50	Molecular dynamics study on the shock induced spallation of polyethylene. Journal of Applied Physics, 2022, 131, .	2.5	9
51	Physical properties of liquid hexane and derived polar by-products of hexane autoxidation: molecular dynamics calculations using the TraPPE-UA force field. Molecular Simulation, 2013, 39, 882-894.	2.0	8
52	Effect of single initial overload and mean load on the low-cycle fatigue life of normalized 300â€M alloy steel. International Journal of Fatigue, 2020, 130, 105273.	5.7	8
53	The Theory and Implementation of the Quasicontinuum Method. , 2005, , 663-682.		8
54	Multiscale approach for determining hydrogen diffusivity in zirconium. Modelling and Simulation in Materials Science and Engineering, 2018, 26, 085002.	2.0	7

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55	Umbrella spherical integration: a stable meshless method for non-linear solids. International Journal for Numerical Methods in Engineering, 2007, 69, 2807-2847.	2.8	6
56	Benchmarking, validation and reproducibility of concurrent multiscale methods are still needed. Modelling and Simulation in Materials Science and Engineering, 2017, 25, 071001.	2.0	5
57	First principles study of hydrogen in lead zirconate titanate. Smart Materials and Structures, 2019, 28, 034002.	3.5	5
58	Molecular dynamics simulation of pull-out Halloysite nanotube from polyurethane matrix. Advances in Mechanical Engineering, 2021, 13, 168781402110446.	1.6	5
59	Crack Behaviour at Bi-Crystal Interfaces: A Mixed Atomistic and Continuum Approach. Materials Research Society Symposia Proceedings, 2000, 653, 1.	0.1	5
60	A Continuum Plasticity Model for the Constitutive Behaviour of Foamed Metals. Materials Research Society Symposia Proceedings, 1998, 521, 39.	0.1	4
61	Multiscale modeling of ductile crystals at the nanoscale subjected to cyclic indentation. Acta Materialia, 2008, 56, 2799-2809.	7.9	4
62	A multi-state modified embedded atom method potential for titanium. Modelling and Simulation in Materials Science and Engineering, 2017, 25, 015010.	2.0	4
63	Molecular-level investigation on the spallation of polyurea. MRS Communications, 2021, 11, 532-538.	1.8	4
64	Finite Temperature Multiscale Computational Modeling of Materials at Nanoscale. , 0, , .		3
65	Microstructural evidence of the toughening mechanisms of polyurethane reinforced with halloysite nanotubes under high strain-rate tensile loading. Scientific Reports, 2021, 11, 13161.	3.3	3
66	Finite Temperature Coupled Atomistic/Continuum Discrete Dislocation Dynamics Simulation of Nanoindentation. , 2006, , 225-234.		3
67	Effect of a Halloysite-polyurethane nanocomposite interlayer on the ballistic performance of laminate transparent armour. Composites Part C: Open Access, 2022, 7, 100231.	3.2	3
68	Crack Behaviour at Bi-Crystal Interfaces: A Mixed Atomistic and Continuum Approach. Materials Research Society Symposia Proceedings, 2000, 653, .	0.1	2
69	Experimental observations of void growth in the Zrâ€“2.5Nb pressure tube alloy. Journal of Nuclear Materials, 2005, 341, 231-234.	2.7	2
70	A Differential Scanning Calorimetry (DSC) Study of Phase Changes in an As-Received Zr-2.5Nb Pressure Tube Material during Continuous Heating and Cooling. Materials Science Forum, 0, 706-709, 853-858.	0.3	2
71	A study of nano-indentation using coupled atomistic and discrete dislocation (CADD) modeling. , 2003, , 455-459.		1
72	Coupled atomistic/continuum modelling of plasticity in materials. , 2007, , 189-219.		0

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73	Transiting the molecular potential energy surface along low energy pathways: The TRREAT algorithm. Journal of Computational Chemistry, 2013, 34, 2502-2513.	3.3	0
74	Denuded zones in zirconium pressure vessels: oxygenâ€™s role examined via multi-scale diffusion model. Modelling and Simulation in Materials Science and Engineering, 2020, 28, 065005.	2.0	0
75	Mesoscopic Length Scales for Deformed Nanostructures. , 2006, , 263-275.		0
76	A study of nano-indentation using coupled atomistic and discrete dislocation (CADD) modeling. , 2003, , 455-459.		0