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List of Publications by Year
in descending order

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124 papers	22,801 citations	50276 46 h-index	20961 115 g-index
127 all docs	127 docs citations	127 times ranked	9117 citing authors

#	Article	IF	Citations
1	Embedded-atom method: Derivation and application to impurities, surfaces, and other defects in metals. Physical Review B, 1984, 29, 6443-6453.	3.2	6,059
2	Embedded-atom-method functions for the fcc metals Cu, Ag, Au, Ni, Pd, Pt, and their alloys. Physical Review B, 1986, 33, 7983-7991.	3.2	4,002
3	Semiempirical, Quantum Mechanical Calculation of Hydrogen Embrittlement in Metals. Physical Review Letters, 1983, 50, 1285-1288.	7.8	2,414
4	Modified embedded-atom potentials for cubic materials and impurities. Physical Review B, 1992, 46, 2727-2742.	3.2	1,703
5	Second nearest-neighbor modified embedded-atom-method potential. Physical Review B, 2000, 62, 8564-8567.	3.2	533
6	Hydrogen interactions with defects in crystalline solids. Reviews of Modern Physics, 1992, 64, 559-617.	45.6	471
7	Application of the Embedded-Atom Method to Covalent Materials: A Semiempirical Potential for Silicon. Physical Review Letters, 1987, 59, 2666-2669.	7.8	459
8	Semiempirical atomic potentials for the fcc metals Cu, Ag, Au, Ni, Pd, Pt, Al, and Pb based on first and second nearest-neighbor modified embedded atom method. Physical Review B, 2003, 68, .	3.2	446
9	Semiempirical modified embedded-atom potentials for silicon and germanium. Physical Review B, 1989, 40, 6085-6100.	3.2	421
10	Deformation mechanism in nanocrystalline Al: Partial dislocation slip. Applied Physics Letters, 2003, 83, 632-634.	3.3	382
11	Modified embedded atom potentials for HCP metals. Modelling and Simulation in Materials Science and Engineering, 1994, 2, 147-163.	2.0	343
12	Self-trapping of helium in metals. Physical Review B, 1981, 24, 5616-5624.	3.2	340
13	Trapping of hydrogen to lattice defects in nickel. Modelling and Simulation in Materials Science and Engineering, 1995, 3, 289-307.	2.0	336
14	Modified embedded atom method potential for Al, Si, Mg, Cu, and Fe alloys. Physical Review B, 2012, 85, .	3.2	267
15	Interpretations of Indentation Size Effects. Journal of Applied Mechanics, Transactions ASME, 2002, 69, 433-442.	2.2	243
16	Nucleation and growth of deformation twins in nanocrystalline aluminum. Applied Physics Letters, 2004, 85, 5049-5051.	3.3	202
17	Formation mechanism of wide stacking faults in nanocrystalline Al. Applied Physics Letters, 2004, 84, 3564-3566.	3.3	183
18	Modified embedded-atom method interatomic potentials for Ti and Zr. Physical Review B, 2006, 74, .	3.2	174

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19	Pair potentials for fcc metals. Physical Review B, 1979, 20, 3197-3204.	3.2	171
20	Atomistic calculations of composite interfaces. Modelling and Simulation in Materials Science and Engineering, 1994, 2, 505-518.	2.0	159
21	Bridge structure for the graphene/Ni(111) system: A first principles study. Physical Review B, 2008, 77, .	3.2	158
22	Small-Polaronic Diffusion of Light Interstitials in bcc Metals. Physical Review Letters, 1979, 42, 791-794.	7.8	147
23	Molecular Dynamics Simulation of Brittle Fracture in Silicon. Physical Review Letters, 2002, 89, 085503.	7.8	136
24	Atomistics of helium bubble formation in a face-centered-cubic metal. Physical Review B, 1976, 13, 2470-2478.	3.2	119
25	Monte Carlo simulations of segregation in Pt-Ni catalyst nanoparticles. Journal of Chemical Physics, 2005, 122, 024706.	3.0	116
26	Atomistic Finite Deformation Simulations: A Discussion on Length Scale Effects in Relation to Mechanical Stresses. Journal of Engineering Materials and Technology, Transactions of the ASME, 1999, 121, 114-119.	1.4	104
27	Trapping of hydrogen to lattice defects in nickel. Modelling and Simulation in Materials Science and Engineering, 1997, 5, 651-652.	2.0	102
28	First principles calculations of the structure and elastic constants of Î±, Î² and Î³ uranium. Journal of Nuclear Materials, 2013, 433, 143-151.	2.7	91
29	The retention of deuterium and tritium in POCO AXFâ€5Q graphite. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 1986, 4, 1189-1192.	2.1	88
30	Properties of liquid nickel: A critical comparison of EAM and MEAM calculations. Physical Review B, 2001, 65, .	3.2	88
31	Atomistic model of plutonium. Physical Review B, 2000, 62, 15532-15537.	3.2	87
32	Lowâ€temperature helium release in nickel. Journal of Applied Physics, 1979, 50, 6942-6947.	2.5	86
33	A deformation gradient tensor and strain tensors for atomistic simulations. Modelling and Simulation in Materials Science and Engineering, 2008, 16, 015001.	2.0	86
34	An atomic model of crack tip deformation in aluminum using an embedded atom potential. Journal of Materials Research, 1990, 5, 313-324.	2.6	81
35	Structural, elastic, and thermal properties of cementite (<mml:math) Tj ETQq1 1 0.784314 rgBT /Overlock 10 Tf 50 107 Td (xmlns:mml= calculated using a modified embedded atom method. Physical Review B, 2014, 89, .	3.2	81
36	Many-Body Effects in fcc Metals: A Lennard-Jones Embedded-Atom Potential. Physical Review Letters, 1999, 83, 2592-2595.	7.8	77

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37	Solidification modeling and solid-state transformations in high-energy density stainless steel welds. Metallurgical and Materials Transactions A - Physical Metallurgy and Materials Science, 1991, 22, 915-926.	1.4	70
38	Atomistic model of helium bubbles in gallium-stabilized plutonium alloys. Physical Review B, 2006, 73, .	3.2	69
39	Atomistic simulations of shock induced microstructural evolution and spallation in single crystal nickel. Journal of Applied Physics, 2007, 101, 043504.	2.5	66
40	Monte Carlo simulations of segregation in Pt-Re catalyst nanoparticles. Journal of Chemical Physics, 2004, 121, 5410-5422.	3.0	62
41	A multiscale analysis of fixed-end simple shear using molecular dynamics, crystal plasticity, and a macroscopic internal state variable theory. Modelling and Simulation in Materials Science and Engineering, 2003, 11, 265-286.	2.0	61
42	Compact and Dissociated Dislocations in Aluminum: Implications for Deformation. Physical Review Letters, 2005, 94, 125502.	7.8	60
43	Modified embedded-atom method interatomic potentials for theMgâ^'Alalloy system. Physical Review B, 2007, 75, .	3.2	60
44	Atomistic model of gallium. Physical Review B, 2002, 66, .	3.2	56
45	Multistate modified embedded atom method. Physical Review B, 2007, 75, .	3.2	52
46	Trapping of hydrogen and helium at grain boundaries in nickel: An atomistic study. Metallurgical and Materials Transactions A - Physical Metallurgy and Materials Science, 1985, 16, 1625-1631.	1.4	48
47	Influence of interfacial dislocations on hysteresis loops of ferroelectric films. Journal of Applied Physics, 2008, 104, .	2.5	41
48	An interatomic potential for saturated hydrocarbons based on the modified embedded-atom method. Physical Chemistry Chemical Physics, 2014, 16, 6233-6249.	2.8	41
49	The role of interface structure in spallation of a layered nanocomposite. Jom, 2011, 63, 74-77.	1.9	40
50	The Role of Metallic Bonding in the Crystallographic Pitting of Magnesium. Journal of the Electrochemical Society, 2006, 153, B358.	2.9	39
51	Using the modified embedded-atom method to calculate the properties of Pu-Ga alloys. Jom, 2003, 55, 41-50.	1.9	38
52	Nucleation of kink pairs on partial dislocations: A new model for solution hardening and softening. Philosophical Magazine, 2003, 83, 1329-1346.	1.6	37
53	Surface Structures of Cubo-Octahedral Ptâ^'Mo Catalyst Nanoparticles from Monte Carlo Simulations. Journal of Physical Chemistry B, 2005, 109, 11683-11692.	2.6	35
54	Kinetics of helium self-trapping in metals. Physical Review B, 1983, 27, 2210-2217.	3.2	34

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55	Morphology and dynamics of 2D Sn-Cu alloys on (100) and (111) Cu surfaces. Modelling and Simulation in Materials Science and Engineering, 2000, 8, 335-344.	2.0	34
56	Atomistic properties of Î³ uranium. Journal of Physics Condensed Matter, 2012, 24, 075401.	1.8	34
57	The Diffusion of Hydrogen and its Isotopes in BCC Metals*. Zeitschrift Fur Physikalische Chemie, 1979, 114, 231-238.	2.8	33
58	Non-classical nucleation in supercooled nickel. Modelling and Simulation in Materials Science and Engineering, 2004, 12, 1063-1068.	2.0	33
59	Modified embedded atom method study of the mechanical properties of carbon nanotube reinforced nickel composites. Physical Review B, 2010, 81, .	3.2	31
60	Phase-Field Crystal Model for Fe Connected to MEAM Molecular Dynamics Simulations. Jom, 2014, 66, 429-436.	1.9	31
61	Lattice vibrations inÎ´-plutonium: Molecular dynamics calculation. Physical Review B, 2005, 72, .	3.2	30
62	Stress-induced platelet formation in silicon: A molecular dynamics study. Physical Review B, 2005, 72, .	3.2	29
63	Atomic-Scale Simulation in Materials Science. MRS Bulletin, 1988, 13, 28-35.	3.5	28
64	An atomistic study of the strength of an extended-dislocation barrier. Modelling and Simulation in Materials Science and Engineering, 1998, 6, 9-18.	2.0	28
65	Theoretical Study of the Trapping and Mobility of Hydrogen Near Vacancies, Dislocations, and Cracks in Nickel*. Zeitschrift Fur Physikalische Chemie, 1979, 116, 19-29.	2.8	27
66	Calculation of the behaviour of Si ad-dimers on Si(001). Modelling and Simulation in Materials Science and Engineering, 1997, 5, 149-158.	2.0	26
67	Determining the range of forces in empirical many-body potentials using first-principles calculations. Philosophical Magazine A: Physics of Condensed Matter, Structure, Defects and Mechanical Properties, 2001, 81, 991-1008.	0.6	26
68	Torsion/Simple Shear of Single Crystal Copper. Journal of Engineering Materials and Technology, Transactions of the ASME, 2002, 124, 322-328.	1.4	25
69	Hydrogen isotope retention and release from copper. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 1987, 5, 2319-2324.	2.1	24
70	A modified Embedded-Atom Method interatomic potential for uranium-silicide. Journal of Nuclear Materials, 2017, 495, 267-276.	2.7	24
71	Modified embedded-atom method potential for high-temperature crystal-melt properties of Tiâ€“Ni alloys and its application to phase field simulation of solidification. Modelling and Simulation in Materials Science and Engineering, 2020, 28, 015006.	2.0	24
72	MEAM molecular dynamics study of lead free solder for electronic packaging applications. Modelling and Simulation in Materials Science and Engineering, 2005, 13, 1279-1290.	2.0	22

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73	Phase-field modeling of microvoid evolution under elastic-plastic deformation. Applied Physics Letters, 2007, 90, 081921.	3.3	22
74	An atomistic study of solid/liquid interfaces and phase equilibrium in binary systems. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2003, 34, 435-439.	2.2	21
75	Molecular dynamics investigation of grain boundaries and surfaces in U3Si2. Journal of Nuclear Materials, 2019, 514, 290-298.	2.7	21
76	Atomistic simulations of Ga atom ordering in Pu 5Âat. % Ga alloys. Journal of Computer-Aided Materials Design, 2007, 14, 379-388.	0.7	20
77	Mechanical instabilities in the modeling of phase transitions of titanium. Modelling and Simulation in Materials Science and Engineering, 2018, 26, 065002.	2.0	20
78	A modified embedded-atom method interatomic potential for ionic systems:2NNMEAM+Qeq. Physical Review B, 2016, 93, .	3.2	19
79	Stacking-fault energy and yield stress asymmetry in molybdenum disilicide. Philosophical Magazine A: Physics of Condensed Matter, Structure, Defects and Mechanical Properties, 2001, 81, 1079-1097.	0.6	17
80	Semi-Empirical Potential Methods for Atomistic Simulations of Metals and Their Construction Procedures. Journal of Engineering Materials and Technology, Transactions of the ASME, 2009, 131, .	1.4	16
81	Volume changes in copper due to point defects. Physical Review B, 1978, 17, 422-426.	3.2	14
82	Strain Tensors at the Atomic Scale. Materials Research Society Symposia Proceedings, 1999, 578, 15.	0.1	14
83	Predicted transport properties of liquid plutonium. Physical Review B, 2003, 67, .	3.2	14
84	On the Lennardâ€"Jones EAM potential. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2004, 460, 1649-1672.	2.1	14
85	Spallation of single crystal nickel by void nucleation at shock induced grain junctions. Journal of Materials Science, 2006, 41, 7838-7842.	3.7	14
86	A statistical model of low temperature blister formation in helium-implanted metals. Radiation Effects, 1978, 37, 93-98.	0.4	13
87	Hierarchical Bridging Between Ab Initio and Atomistic Level Computations: Calibrating the Modified Embedded Atom Method (MEAM) Potential (Part A). Jom, 2015, 67, 143-147.	1.9	13
88	Hierarchical Bridging Between Ab Initio and Atomistic Level Computations: Sensitivity and Uncertainty Analysis for the Modified Embedded-Atom Method (MEAM) Potential (Part B). Jom, 2015, 67, 148-153.	1.9	13
89	Self-Irradiation Cascade Simulations in Plutonium Metal: Model Behavior at High Energy. Journal of Computer-Aided Materials Design, 2007, 14, 357-365.	0.7	12
90	An atomistic study of solid/liquid interfaces in binary systems. Jom, 2004, 56, 45-48.	1.9	11

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91	Explicit studies of the quantum theory of light interstitial diffusion. Hyperfine Interactions, 1979, 6, 255-259.	0.5	10
92	APPLICATION OF THE EMBEDDED ATOM METHOD TO THE FRACTURE OF INTERFACES. Journal De Physique Colloque, 1988, 49, C5-483-C5-495.	0.2	10
93	The Embedded Atom Method: Theory and Application. Materials Research Society Symposia Proceedings, 1988, 141, 31.	0.1	8
94	Molecular Dynamics Studies of Thin-Films of Sn On Cu. Materials Research Society Symposia Proceedings, 1997, 492, 43.	0.1	8
95	Molecular dynamics simulations showing 1-palmitoyl-2-oleoyl-phosphatidylcholine (POPC) membrane mechanoporation damage under different strain paths. Journal of Biomolecular Structure and Dynamics, 2019, 37, 1346-1359.	3.5	8
96	Accelerated Molecular Dynamics Study of Vacancies in Pu. AIP Conference Proceedings, 2003, , .	0.4	7
97	Coherent phase decomposition in the Pdâ€“H system. Journal of Materials Science, 2020, 55, 4864-4882.	3.7	7
98	Commentary on â€˜modified embedded atom method potentials for hcp metalsâ€™ M I Baskes and R A Johnson (1994) Modelling Simul. Mater. Sci. Eng.â€”the early basis for modeling hcp materials using MEAM. Modelling and Simulation in Materials Science and Engineering, 2017, 25, 071002.	2.0	6
99	A combined atomistic and monte carlo simulation of point defectâ€“dislocation interactions. Physica Status Solidi A, 1983, 75, 323-334.	1.7	5
100	Atomistic Ordering in Body Centered Cubic Uranium-Zirconium Alloy. Materials Research Society Symposia Proceedings, 2013, 1514, 27-35.	0.1	5
101	Atomistic computer calculation of the dilatation caused by a 1/2 ãˆ111ã€‰ {110} edge dislocation in molybdenum. Physica Status Solidi A, 1981, 67, 585-589.	1.7	4
102	Design of first walls and beam dumps for Tandem Mirror Experiment Upgrade. Journal of Vacuum Science and Technology, 1982, 20, 1288-1291.	1.9	4
103	A multi-state modified embedded atom method potential for titanium. Modelling and Simulation in Materials Science and Engineering, 2017, 25, 015010.	2.0	4
104	Molecular dynamics simulations of phospholipid bilayer mechanoporation under different strain statesâ€”a comparison between GROMACS and LAMMPS. Modelling and Simulation in Materials Science and Engineering, 2021, 29, 055015.	2.0	4
105	Summary Abstract: The Tara neutral beamline hydrogen pumping system. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 1986, 4, 1759-1761.	2.1	3
106	Atomistic Modeling of Void Growth and Coalescence in Ni+H. Materials Research Society Symposia Proceedings, 1999, 578, 333.	0.1	3
107	Shock Hugoniot and Melt Curve for a Modified Embedded Atom Method Model of Gallium. AIP Conference Proceedings, 2004, , .	0.4	3
108	The embedded atom method ansatz: validation and violation. Modelling and Simulation in Materials Science and Engineering, 2014, 22, 025025.	2.0	3

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109	Summary Abstract: Surfaceâ€limited permeation of deuterium through iron as a function of oxygen coverage. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 1988, 6, 1076-1077.	2.1	2
110	Roles of dendrite tip undercooling and solid state diffusion in microsegregation of Feâ€“Nb welds. Science and Technology of Welding and Joining, 1997, 2, 160-166.	3.1	2
111	Effect of Elastic Anisotropy and Inhomogeneity on Coring Structure Evolution in Pu-Ga Alloys â€“ Phase-field modeling. Journal of Computer-Aided Materials Design, 2007, 14, 389-402.	0.7	2
112	Correlating damage progression to fragmentation at high strain rates using molecular dynamics. Modelling and Simulation in Materials Science and Engineering, 2020, 28, 025009.	2.0	2
113	Development of 2NN MEAM potential for Feâ€“Al and atomistic investigation of surface and interface properties of the inhibition layer in galvanized Fe. Modelling and Simulation in Materials Science and Engineering, 2022, 30, 045001.	2.0	2
114	Magnetic Investigation of the Effect of Small Additions of Co and Mn on the Martensite Reversal in Feâ€“Ni Alloys. Journal of Applied Physics, 1971, 42, 1697-1697.	2.5	1
115	Properties of a Single Asperity and the Interface between Molecular Dynamics and Continuum Mechanics:Â A Commentaryâ€. Langmuir, 1996, 12, 4535-4536.	3.5	1
116	Kinetics of the Nucleation and Growth of Helium Bubbles in bcc Iron. Materials Research Society Symposia Proceedings, 2006, 929, 1.	0.1	1
117	Atomistic Investigations of Intrinsic and Extrinsic Point Defects in bcc Uranium. , 2013, , 231-247.		1
118	Magnetic investigation of the effect of small additions of cobalt and manganese on the martensite reversal in an Fe-Ni alloy. Metallurgical and Materials Transactions A - Physical Metallurgy and Materials Science, 1972, 3, 1407-1411.	1.4	0
119	The Nature of Crack Tip Fields in Atomic Scale Models of Aluminum. Materials Research Society Symposia Proceedings, 1990, 193, 283.	0.1	0
120	Calculations of the Structure and Properties of Rapidly Quenched Ni/Zr Alloys. Materials Research Society Symposia Proceedings, 2002, 754, 1.	0.1	0
121	Phase Stability of Pu and Pu-Ga Alloys from Atomistic Calculations. AIP Conference Proceedings, 2003, , .	0.4	0
122	Dr Smith goes to Los Alamos. Resonance, 2006, 11, 8-25.	0.3	0
123	Scaling Laws in the Ductile Fracture of Metallic Crystals. Journal of Applied Mechanics, Transactions ASME, 2015, 82, .	2.2	0
124	Kinetics of the Migration and Clustering of Extrinsic Gas in bcc Metals. , 0, , 177-177-13.		0