michael Baskes

List of Publications by Citations

123 papers	19,949 citations	45 h-index	127 g-index
127 ext. papers	21,249 ext. citations	3.4 avg, IF	6.68 L-index

#	Paper	IF	Citations
123	Embedded-atom method: Derivation and application to impurities, surfaces, and other defects in metals. *Physical Review B*, **1984**, 29, 6443-6453	3.3	5299
122	Embedded-atom-method functions for the fcc metals Cu, Ag, Au, Ni, Pd, Pt, and their alloys. *Physical Review B*, **1986**, 33, 7983-7991	3.3	3562
121	Semiempirical, Quantum Mechanical Calculation of Hydrogen Embrittlement in Metals. *Physical Review Letters*, **1983**, 50, 1285-1288	7.4	2147
120	Modified embedded-atom potentials for cubic materials and impurities. *Physical Review B*, **1992**, 46, 2727-2742	3.3	1447
119	Second nearest-neighbor modified embedded-atom-method potential. *Physical Review B*, **2000**, 62, 8564-8567	3.3	430
118	Hydrogen interactions with defects in crystalline solids. *Reviews of Modern Physics*, **1992**, 64, 559-617	40.5	417
117	Application of the embedded-atom method to covalent materials: A semiempirical potential for silicon. *Physical Review Letters*, **1987**, 59, 2666-2669	7.4	404
116	Semiempirical modified embedded-atom potentials for silicon and germanium. *Physical Review B*, **1989**, 40, 6085-6100	3.3	375
115	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,	3.3	368
114	Deformation mechanism in nanocrystalline Al: Partial dislocation slip. *Applied Physics Letters*, **2003**, 83, 632-634	3.4	335
113	Self-trapping of helium in metals. *Physical Review B*, **1981**, 24, 5616-5624	3.3	309
112	Modified embedded atom potentials for HCP metals. *Modelling and Simulation in Materials Science and Engineering*, **1994**, 2, 147-163	2	304
111	Trapping of hydrogen to lattice defects in nickel. *Modelling and Simulation in Materials Science and Engineering*, **1995**, 3, 289-307	2	274
110	Interpretations of Indentation Size Effects. *Journal of Applied Mechanics, Transactions ASME*, **2002**, 69, 433-442	2.7	219
109	Modified embedded atom method potential for Al, Si, Mg, Cu, and Fe alloys. *Physical Review B*, **2012** , 85,	3.3	201
108	Nucleation and growth of deformation twins in nanocrystalline aluminum. *Applied Physics Letters*, **2004**, 85, 5049-5051	3.4	174
107	Pair potentials for fcc metals. *Physical Review B*, **1979**, 20, 3197-3204	3.3	170

106	Formation mechanism of wide stacking faults in nanocrystalline Al. *Applied Physics Letters*, **2004**, 84, 3564-3566	3.4	152
105	Bridge structure for the graphene/Ni(111) system: A first principles study. *Physical Review B*, **2008**, 77,	3.3	149
104	Modified embedded-atom method interatomic potentials for Ti and Zr. *Physical Review B*, **2006**, 74,	3.3	145
103	Atomistic calculations of composite interfaces. *Modelling and Simulation in Materials Science and Engineering*, **1994**, 2, 505-518	2	135
102	Small-Polaronic Diffusion of Light Interstitials in bcc Metals. *Physical Review Letters*, **1979**, 42, 791-794	7.4	135
101	Molecular dynamics simulation of brittle fracture in silicon. *Physical Review Letters*, **2002**, 89, 085503	7.4	123
100	Atomistics of helium bubble formation in a face-centered-cubic metal. *Physical Review B*, **1976**, 13, 2470-2478	3.3	116
99	Monte Carlo simulations of segregation in Pt-Ni catalyst nanoparticles. *Journal of Chemical Physics*, **2005**, 122, 024706	3.9	113
98	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	1.8	93
97	Trapping of hydrogen to lattice defects in nickel. *Modelling and Simulation in Materials Science and Engineering*, **1997**, 5, 651-652	2	89
96	Atomistic model of plutonium. *Physical Review B*, **2000**, 62, 15532-15537	3.3	83
95	Low-temperature helium release in nickel. *Journal of Applied Physics*, **1979**, 50, 6942-6947	2.5	82
94	The retention of deuterium and tritium in POCO AXF-5Q graphite. *Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films*, **1986**, 4, 1189-1192	2.9	81
93	Properties of liquid nickel: A critical comparison of EAM and MEAM calculations. *Physical Review B*, **2001**, 65,	3.3	78
92	First principles calculations of the structure and elastic constants of □ and □ uranium. *Journal of Nuclear Materials*, **2013**, 433, 143-151	3.3	75
91	An atomic model of crack tip deformation in aluminum using an embedded atom potential. *Journal of Materials Research*, **1990**, 5, 313-324	2.5	73
90	A deformation gradient tensor and strain tensors for atomistic simulations. *Modelling and Simulation in Materials Science and Engineering*, **2008**, 16, 015001	2	68
89	Many-Body Effects in fcc Metals: A Lennard-Jones Embedded-Atom Potential. *Physical Review Letters*, **1999**, 83, 2592-2595	7.4	67

88	Structural, elastic, and thermal properties of cementite (Fe3C) calculated using a modified embedded atom method. *Physical Review B*, **2014**, 89,	3.3	66
87	Atomistic model of helium bubbles in gallium-stabilized plutonium alloys. *Physical Review B*, **2006**, 73,	3.3	64
86	Atomistic simulations of shock induced microstructural evolution and spallation in single crystal nickel. *Journal of Applied Physics*, **2007**, 101, 043504	2.5	56
85	Modified embedded-atom method interatomic potentials for the Mg-Al alloy system. *Physical Review B*, **2007**, 75,	3.3	54
84	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	54
83	Monte Carlo simulations of segregation in Pt-Re catalyst nanoparticles. *Journal of Chemical Physics*, **2004**, 121, 5410-22	3.9	53
82	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		53
81	Compact and dissociated dislocations in aluminum: implications for deformation. *Physical Review Letters*, **2005**, 94, 125502	7.4	52
80	Atomistic model of gallium. *Physical Review B*, **2002**, 66,	3.3	52
79	Multistate modified embedded atom method. *Physical Review B*, **2007**, 75,	3.3	45
78	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		45
77	Influence of interfacial dislocations on hysteresis loops of ferroelectric films. *Journal of Applied Physics*, **2008**, 104, 104110	2.5	38
76	Using the modified embedded-atom method to calculate the properties of Pu-Ga alloys. *Jom*, **2003**, 55, 41-50	2.1	36
75	An interatomic potential for saturated hydrocarbons based on the modified embedded-atom method. *Physical Chemistry Chemical Physics*, **2014**, 16, 6233-49	3.6	35
74	Nucleation of kink pairs on partial dislocations: A new model for solution hardening and softening. *Philosophical Magazine*, **2003**, 83, 1329-1346	1.6	35
73	The role of interface structure in spallation of a layered nanocomposite. *Jom*, **2011**, 63, 74-77	2.1	34
72	Kinetics of helium self-trapping in metals. *Physical Review B*, **1983**, 27, 2210-2217	3.3	34
71	The Role of Metallic Bonding in the Crystallographic Pitting of Magnesium. *Journal of the Electrochemical Society*, **2006**, 153, B358	3.9	32

70	Surface structures of cubo-octahedral Pt-Mo catalyst nanoparticles from Monte Carlo simulations. *Journal of Physical Chemistry B*, **2005**, 109, 11683-92	3.4	32
69	The Diffusion of Hydrogen and its Isotopes in BCC Metals*. *Zeitschrift Fur Physikalische Chemie*, **1979**, 114, 231-238	3.1	31
68	Non-classical nucleation in supercooled nickel. *Modelling and Simulation in Materials Science and Engineering*, **2004**, 12, 1063-1068	2	30
67	Phase-Field Crystal Model for Fe Connected to MEAM Molecular Dynamics Simulations. *Jom*, **2014**, 66, 429-436	2.1	29
66	Lattice vibrations in δ-plutonium: Molecular dynamics calculation. *Physical Review B*, **2005**, 72,	3.3	29
65	Atomistic properties of α-uranium. *Journal of Physics Condensed Matter*, **2012**, 24, 075401	1.8	28
64	Stress-induced platelet formation in silicon: A molecular dynamics study. *Physical Review B*, **2005**, 72,	3.3	27
63	Atomic-Scale Simulation in Materials Science. *MRS Bulletin*, **1988**, 13, 28-35	3.2	27
62	Modified embedded atom method study of the mechanical properties of carbon nanotube reinforced nickel composites. *Physical Review B*, **2010**, 81,	3.3	26
61	Calculation of the behaviour of Si ad-dimers on Si(001). *Modelling and Simulation in Materials Science and Engineering*, **1997**, 5, 149-158	2	26
60	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		25
59	An atomistic study of the strength of an extended-dislocation barrier. *Modelling and Simulation in Materials Science and Engineering*, **1998**, 6, 9-18	2	24
58	Theoretical Study of the Trapping and Mobility of Hydrogen Near Vacancies, Dislocations, and Cracks in Nickel*. *Zeitschrift Fur Physikalische Chemie*, **1979**, 116, 19-29	3.1	24
57	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	23
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55	Torsion/Simple Shear of Single Crystal Copper. *Journal of Engineering Materials and Technology, Transactions of the ASME*, **2002**, 124, 322-328	1.8	21
54	A modified Embedded-Atom Method interatomic potential for uranium-silicide. *Journal of Nuclear Materials*, **2017**, 495, 267-276	3.3	20
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51	Phase-field modeling of microvoid evolution under elastic-plastic deformation. *Applied Physics Letters*, **2007**, 90, 081921	3.4	19
50	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		17
49	Atomistic Simulation of Superdislocation Dissociation in Ni3A1 **1989**, 401-410		16
48	On the Lennard□Jones EAM potential. *Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences*, **2004**, 460, 1649-1672	2.4	14
47	Predicted transport properties of liquid plutonium. *Physical Review B*, **2003**, 67,	3.3	14
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45	Molecular dynamics investigation of grain boundaries and surfaces in U3Si2. *Journal of Nuclear Materials*, **2019**, 514, 290-298	3.3	14
44	Mechanical instabilities in the modeling of phase transitions of titanium. *Modelling and Simulation in Materials Science and Engineering*, **2018**, 26, 065002	2	13
43	Volume changes in copper due to point defects. *Physical Review B*, **1978**, 17, 422-426	3.3	13
42	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,	1.8	12
41	Spallation of single crystal nickel by void nucleation at shock induced grain junctions. *Journal of Materials Science*, **2006**, 41, 7838-7842	4.3	12
40	A statistical model of low temperature blister formation in helium-implanted metals. *Radiation Effects*, **1978**, 37, 93-98		12
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38	Self-Irradiation Cascade Simulations in Plutonium Metal: Model Behavior at High Energy. *Journal of Computer-Aided Materials Design*, **2007**, 14, 357-365		11
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36	Modified embedded-atom method potential for high-temperature crystal-melt properties of TiNi alloys and its application to phase field simulation of solidification. *Modelling and Simulation in Materials Science and Engineering*, **2020**, 28, 015006	2	11
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34	Strain Tensors at the Atomic Scale. *Materials Research Society Symposia Proceedings*, **1999**, 578, 15		10
33	APPLICATION OF THE EMBEDDED ATOM METHOD TO THE FRACTURE OF INTERFACES. *Journal De Physique Colloque*, **1988**, 49, C5-483-C5-495		10
32	Explicit studies of the quantum theory of light interstitial diffusion. *Hyperfine Interactions*, **1979**, 6, 255-259		9
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26	Coherent phase decomposition in the Pd□H system. *Journal of Materials Science*, **2020**, 55, 4864-4882	4.3	5
25	Atomistic Ordering in Body Centered Cubic Uranium-Zirconium Alloy. *Materials Research Society Symposia Proceedings*, **2013**, 1514, 27-35		4
24	A combined atomistic and monte carlo simulation of point defect□dislocation interactions. *Physica Status Solidi A*, **1983**, 75, 323-334		4
23	Design of first walls and beam dumps for Tandem Mirror Experiment Upgrade. *Journal of Vacuum Science and Technology*, **1982**, 20, 1288-1291		4
22	Atomistic Modeling of Void Growth and Coalescence in Ni+H. *Materials Research Society Symposia Proceedings*, **1999**, 578, 333		3
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20	A multi-state modified embedded atom method potential for titanium. *Modelling and Simulation in Materials Science and Engineering*, **2017**, 25, 015010	2	2
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17	Effect of Elastic Anisotropy and Inhomogeneity on Coring Structure Evolution in Pu-Ga Alloys □ Phase-field modeling. *Journal of Computer-Aided Materials Design*, **2007**, 14, 389-402		2

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15	Atomistic computer calculation of the dilatation caused by a 1/2 <111> {110} edge dislocation in molybdenum. *Physica Status Solidi A*, **1981**, 67, 585-589		2
14	Atomistic Calculations of Hydrogen Interactions with Ni3Al Grain Boundaries and Ni/Ni3Al Interfaces **2013**, 77-90		1
13	Roles of dendrite tip undercooling and solid state diffusion in microsegregation of Fe□Nb welds. *Science and Technology of Welding and Joining*, **1997**, 2, 160-166	3.7	1
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10	Magnetic Investigation of the Effect of Small Additions of Co and Mn on the Martensite Reversal in Fe□Ni Alloys. *Journal of Applied Physics*, **1971**, 42, 1697-1697	2.5	1
9	Atomistic Investigations of Intrinsic and Extrinsic Point Defects in bcc Uranium **2013**, 231-247		1
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5	Dr Smith goes to Los Alamos **2006**, 11, 8-25		
4	Kinetics of the Nucleation and Growth of Helium Bubbles in bcc Iron. *Materials Research Society Symposia Proceedings*, **2006**, 929, 1		
3	Calculations of the Structure and Properties of Rapidly Quenched Ni/Zr Alloys. *Materials Research Society Symposia Proceedings*, **2002**, 754, 1		
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1	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		