Hao Zhang

List of Publications by Year
in descending order

121 papers	3,398 citations	147726 31 h-index	189801 50 g-index
122 all docs	122 docs citations	122 times ranked	2752 citing authors

#	Article	IF	Citations
1	Grain boundaries exhibit the dynamics of glass-forming liquids. Proceedings of the National Academy of Sciences of the United States of America, 2009, 106, 7735-7740.	3.3	164
2	Stabilization mechanism and chemical demulsification of water-in-oil and oil-in-water emulsions in petroleum industry: A review. Fuel, 2021, 286, 119390.	3.4	143
3	Computer simulation of the elastically driven migration of a flat grain boundary. Acta Materialia, 2004, 52, 2569-2576.	3.8	115
4	Curvature driven grain boundary migration in aluminum: molecular dynamics simulations. Acta Materialia, 2005, 53, 79-86.	3.8	106
5	Role of string-like collective atomic motion on diffusion and structural relaxation in glass forming Cu-Zr alloys. Journal of Chemical Physics, 2015, 142, 164506.	1.2	97
6	Single-atomic Pt sites anchored on defective TiO2 nanosheets as a superior photocatalyst for hydrogen evolution. Journal of Energy Chemistry, 2021, 62, 1-10.	7.1	70
7	String-like cooperative motion in homogeneous melting. Journal of Chemical Physics, 2013, 138, 12A538.	1.2	69
8	Interaction Mechanisms between Air Bubble and Molybdenite Surface: Impact of Solution Salinity and Polymer Adsorption. Langmuir, 2017, 33, 2353-2361.	1.6	67
9	Wetting at the nanoscale: A molecular dynamics study. Journal of Chemical Physics, 2017, 146, 114704.	1.2	64
10	Grain boundary energy and grain growth in Al films: Comparison of experiments and simulations. Scripta Materialia, 2006, 54, 1059-1063.	2.6	63
11	Localization model description of diffusion and structural relaxation in glass-forming Cuâ€“Zr alloys. Journal of Statistical Mechanics: Theory and Experiment, 2016, 2016, 054048.	0.9	62
12	Characterization of atomic motion governing grain boundary migration. Physical Review B, 2006, 74, .	1.1	59
13	Stretchable, compressible, and conductive hydrogel for sensitive wearable soft sensors. Journal of Colloid and Interface Science, 2022, 618, 111-120.	5.0	59
14	Temperature-dependent structure evolution in liquid gallium. Acta Materialia, 2017, 128, 304-312.	3.8	57
15	Mapping the Nanoscale Heterogeneity of Surface Hydrophobicity on the Sphalerite Mineral. Journal of Physical Chemistry C, 2017, 121, 5620-5628.	1.5	55
16	Effects of boundary inclination and boundary type on shear-driven grain boundary migration. Philosophical Magazine, 2008, 88, 243-256.	0.7	52
17	The size-dependent non-localized deformation in a metallic alloy. Scripta Materialia, 2015, 101, 48-51.	2.6	50
18	String-like collective atomic motion in the interfacial dynamics of nanoparticles. Soft Matter, 2010, 6, 5944.	1.2	49

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19	Corrosion fatigue crack growth behavior of pipeline steel under underload-type variable amplitude loading schemes. Acta Materialia, 2015, 96, 159-169.	3.8	49
20	Probing Surface Interactions of Electrochemically Active Galena Mineral Surface Using Atomic Force Microscopy. Journal of Physical Chemistry C, 2016, 120, 22433-22442.	1.5	48
21	On the critical thickness for non-localized to localized plastic flow transition in metallic glasses: A molecular dynamics study. Scripta Materialia, 2016, 114, 93-97.	2.6	48
22	Self-Assembled Mesoporous Carbon Nitride with Tunable Texture for Enhanced Visible-Light Photocatalytic Hydrogen Evolution. ACS Sustainable Chemistry and Engineering, 2018, 6, 8291-8299.	3.2	48
23	Surface interaction mechanisms in mineral flotation: Fundamentals, measurements, and perspectives. Advances in Colloid and Interface Science, 2021, 295, 102491.	7.0	47
24	Simulation and analysis of the migration mechanism of Î£5 tilt grain boundaries in an fcc metal. Acta Materialia, 2006, 54, 623-633.	3.8	46
25	Selective flotation separation of molybdenite and talc by humic substances. Minerals Engineering, 2018, 117, 34-41.	1.8	46
26	Atomic motion during the migration of general [001] tilt grain boundaries in Ni. Acta Materialia, 2007, 55, 4527-4533.	3.8	40
27	Effect of Annealing Treatment on Mechanical Properties of Nanocrystalline Î±-iron: an Atomistic Study. Scientific Reports, 2015, 5, 8459.	1.6	37
28	Mobility of ?5 tilt grain boundaries: Inclination dependence. Scripta Materialia, 2005, 52, 1193-1198.	2.6	36
29	Role of molecular architecture in the modulation of hydrophobic interactions. Current Opinion in Colloid and Interface Science, 2020, 47, 58-69.	3.4	36
30	Non-localized deformation in Cu Zr multi-layer amorphous films under tension. Journal of Alloys and Compounds, 2016, 678, 410-420.	2.8	35
31	Atomistic simulation of hydrogen-assisted ductile-to-brittle transition in Î±-iron. Computational Materials Science, 2017, 127, 211-221.	1.4	34
32	Interfacial Free Energy Controlling Glass-Forming Ability of Cu-Zr Alloys. Scientific Reports, 2014, 4, 5167.	1.6	33
33	Deformation behavior of metallic glasses with shear band like atomic structure: a molecular dynamics study. Scientific Reports, 2016, 6, 30935.	1.6	33
34	Atomistic study of hydrogen embrittlement during cyclic loading: Quantitative model of hydrogen accumulation effects. International Journal of Hydrogen Energy, 2017, 42, 4571-4578.	3.8	33
35	Effects of grain boundary and boundary inclination on hydrogen diffusion in Î±-iron. Journal of Materials Research, 2011, 26, 2735-2743.	1.2	32
36	A size-dependent structural evolution of ZnS nanoparticles. Scientific Reports, 2015, 5, 14267.	1.6	32

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37	Fast dynamics in a model metallic glass-forming material. Journal of Chemical Physics, 2021, 154, 084505.	1.2	32
38	Coacervate-Based Instant and Repeatable Underwater Adhesive with Anticancer and Antibacterial Properties. ACS Applied Materials & Interfaces, 2021, 13, 48239-48251.	4.0	32
39	Glassy interfacial dynamics of Ni nanoparticles: part I Colored noise, dynamic heterogeneity and collective atomic motion. Soft Matter, 2013, 9, 1254-1265.	1.2	31
40	Plastic deformation of nanocrystalline aluminum at high temperatures and strain rate. Acta Materialia, 2010, 58, 2176-2185.	3.8	30
41	String-Like Collective Atomic Motion in the Melting and Freezing of Nanoparticles. Journal of Physical Chemistry B, 2011, 115, 14068-14076.	1.2	30
42	Universal nature of dynamic heterogeneity in glass-forming liquids: A comparative study of metallic and polymeric glass-forming liquids. Journal of Chemical Physics, 2019, 151, 184503.	1.2	30
43	Coacervation-driven instant paintable underwater adhesives with tunable optical and electrochromic properties. Journal of Materials Chemistry A, 2021, 9, 12988-13000.	5.2	30
44	Properties and determination of the interface stiffness. Acta Materialia, 2007, 55, 467-471.	3.8	29
45	Anisotropic Polymer Adsorption on Molybdenite Basal and Edge Surfaces and Interaction Mechanism With Air Bubbles. Frontiers in Chemistry, 2018, 6, 361.	1.8	29
46	High pH stress corrosion cracking initiation and crack evolution in buried steel pipelines: A review. Engineering Failure Analysis, 2021, 120, 105013.	1.8	29
47	Grain boundary self-diffusion in Ni: Effect of boundary inclination. Journal of Materials Research, 2005, 20, 1146-1153.	1.2	28
48	Superionic UO₂: A model anharmonic crystalline material. Journal of Chemical Physics, 2019, 150, 174506.	1.2	28
49	Glassy interfacial dynamics of Ni nanoparticles: Part II Discrete breathers as an explanation of two-level energy fluctuations. Soft Matter, 2013, 9, 1266-1280.	1.2	25
50	Influence of string-like cooperative atomic motion on surface diffusion in the (110) interfacial region of crystalline Ni. Journal of Chemical Physics, 2015, 142, 084704.	1.2	25
51	Size distribution of shear transformation zones and their evolution towards the formation of shear bands in metallic glasses. Journal of Non-Crystalline Solids, 2016, 445-446, 61-68.	1.5	24
52	Recent advances in bubble-based technologies: Underlying interaction mechanisms and applications. Applied Physics Reviews, 2021, 8, .	5.5	24
53	Dynamic heterogeneity, cooperative motion, and Johariâ€“Goldstein $$eta $$-relaxation in a metallic glass-forming material exhibiting a fragile-to-strong transition. European Physical Journal E, 2021, 44, 56.	0.7	24
54	Hydrogen-Bonding-Driven Multifunctional Polymer Hydrogel Networks Based on Tannic Acid. ACS Applied Polymer Materials, 2022, 4, 1836-1845.	2.0	24

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55	String-like collective motion and diffusion in the interfacial region of ice. Journal of Chemical Physics, 2017, 147, 194508.	1.2	23
56	Nanomechanical Insights into Versatile Polydopamine Wet Adhesive Interacting with Liquid-Infused and Solid Slippery Surfaces. ACS Applied Materials & Interfaces, 2021, 13, 6941-6950.	4.0	23
57	Size-dependent deformation mechanisms in hollow silicon nanoparticles. AIP Advances, 2015, 5, 077162.	0.6	22
58	Atomic picture of elastic deformation in a metallic glass. Scientific Reports, 2015, 5, 9184.	1.6	22
59	Probing the Reversible Fe³⁺â€“DOPA-Mediated Bridging Interaction in Mussel Foot Protein-1. Journal of Physical Chemistry C, 2016, 120, 21670-21677.	1.5	22
60	Hydrogen hardening effect in heavily deformed single crystal Î±-Fe. Computational Materials Science, 2011, 50, 3397-3402.	1.4	21
61	Prediction of crack propagation under cyclic loading based on hydrogen diffusion. Materials Letters, 2015, 152, 86-89.	1.3	21
62	Probing interactions between sphalerite and hydrophobic/hydrophilic surfaces: Effect of water chemistry. Powder Technology, 2017, 320, 511-518.	2.1	21
63	Defect generation in nano-twinned, nano-grained and single crystal Cu systems caused by wear: A molecular dynamics study. Scripta Materialia, 2010, 63, 1116-1119.	2.6	20
64	Effects of misorientation and inclination on mechanical response of âŒ©1 1 0âŒª tilt grain boundaries inÎ±-Fe to external stresses. Modelling and Simulation in Materials Science and Engineering, 2014, 22, 065016.	0.8	20
65	Local piezoelectric response of ZnO nanoparticles embedded in a photosensitive polymer. Physica Status Solidi - Rapid Research Letters, 2012, 6, 77-79.	1.2	19
66	Origin and Nature of Spontaneous Shape Fluctuations in â€œSmallâ€•Nanoparticles. ACS Nano, 2014, 8, 7465-7477.	7.3	19
67	Mechanistic Understanding and Nanomechanics of Multiple Hydrogen-Bonding Interactions in Aqueous Environment. Journal of Physical Chemistry C, 2019, 123, 4540-4548.	1.5	19
68	Structural evolution and atomic dynamics in Niâ€“Nb metallic glasses: A molecular dynamics study. Journal of Chemical Physics, 2017, 147, 144503.	1.2	18
69	Effects of Thickness and Adsorption of Airborne Hydrocarbons on Wetting Properties of MoS₂: An Atomistic Simulation Study. Journal of Physical Chemistry C, 2018, 122, 6737-6747.	1.5	18
70	Localization model description of diffusion and structural relaxation in superionic crystalline UO2. Journal of Chemical Physics, 2019, 151, 071101.	1.2	18
71	Flame normalizing-induced robust and oriented metallic layer for stable Zn anode. Chemical Engineering Journal, 2022, 437, 135246.	6.6	18
72	Hydrogen diffusion and vacancy clusterization in iron. International Journal of Hydrogen Energy, 2018, 43, 15378-15385.	3.8	17

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73	Localization model description of the interfacial dynamics of crystalline Cu and Cu64Zr36 metallic glass films. Journal of Chemical Physics, 2020, 153, 124508.	1.2	16
74	A size effect in grain boundary migration: A molecular dynamics study of bicrystal thin films. Acta Materialia, 2005, 53, 5273-5279.	3.8	15
75	Molecular dynamics study on structure evolution of monocarboxylic acid intercalated layered double hydroxides. RSC Advances, 2016, 6, 98804-98811.	1.7	15
76	Hydrogen inhibited phase transition near crack tip â€“ An atomistic mechanism of hydrogen embrittlement. International Journal of Hydrogen Energy, 2019, 44, 17146-17153.	3.8	15
77	A Novel Method to Improve Crystallinity of Supported Nanoparticles Using Low Melting Point Metals. Journal of Physical Chemistry C, 2011, 115, 14591-14597.	1.5	13
78	A Sensitive Ammonia Sensor Using Long Period Fiber Grating Coated With Graphene Oxide/Cellulose Acetate. IEEE Sensors Journal, 2021, 21, 16691-16700.	2.4	13
79	The initiation of shear band formation in deformed metallic glasses from soft localized domains. Journal of Chemical Physics, 2021, 155, 204504.	1.2	13
80	A closer look at the local responses of twin and grain boundaries in Cu to stress at the nanoscale with possible transition from the Pâ€“H to the inverse Pâ€“H relation. Acta Materialia, 2010, 58, 2677-2684.	3.8	12
81	On the atomistic mechanisms of grain boundary migration in [001] twist boundaries: Molecular dynamics simulations. Computational Materials Science, 2010, 48, 773-782.	1.4	12
82	Molecular dynamics simulation of Bauschingerâ€™s effect in deformed copper single crystal in different strain ranges. Journal of Applied Physics, 2011, 110, 124911.	1.1	12
83	Influence of Nanotwin Boundary on the Bauschingerâ€™s Effect in Cu: A Molecular Dynamics Simulation Study. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2013, 44, 4207-4217.	1.1	12
84	Comparative Study of the Collective Dynamics of Proteins and Inorganic Nanoparticles. Scientific Reports, 2017, 7, 41671.	1.6	12
85	Quantification of Temperature Dependence of Hydrogen Embrittlement in Pipeline Steel. Materials, 2019, 12, 585.	1.3	12
86	Effects of Loading Spectra on High pH Crack Growth Behavior of X65 Pipeline Steel. Corrosion, 2020, 76, 601-615.	0.5	12
87	Size effect on atomic structure in low-dimensional Cu-Zr amorphous systems. Scientific Reports, 2017, 7, 7291.	1.6	11
88	Study of Thermal Stability of Hydrotalcite and Carbon Dioxide Adsorption Behavior on Hydrotalcite-Derived Mixed Oxides Using Atomistic Simulations. ACS Omega, 2018, 3, 12041-12051.	1.6	11
89	Atomistic simulation of sliding of [1010] tilt grain boundaries in Mg. Journal of Materials Research, 2009, 24, 3446-3453.	1.2	10
90	Effects of Location of Twin Boundaries and Grain Size on Plastic Deformation of Nanocrystalline Copper. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2012, 43, 3547-3555.	1.1	10

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91	Effects of nano-scale grain boundaries in Cu on its Bauschinger's effect and response to cyclic deformation. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2013, 583, 140-150.	2.6	10
92	Structural Evolutions of ZnS Nanoparticles in Hydrated and Bare States. Journal of Physical Chemistry C, 2016, 120, 7870-7884.	1.5	10
93	Bulk and surface properties of gypsum: A comparison between classical force fields and dispersion-corrected DFT calculations. Computational Materials Science, 2019, 164, 8-16.	1.4	10
94	Effects of load interactions on the onset of stage two of high pH stress corrosion cracking. Journal of Pipeline Science and Engineering, 2021, 1, 122-136.	2.4	10
95	Determination of grain boundary stiffness from molecular dynamics simulation. Applied Physics Letters, 2006, 88, 121927.	1.5	9
96	Anisotropic Deformation in the Compressions of Single Crystalline Copper Nanoparticles. Crystals, 2018, 8, 116.	1.0	9
97	A comparison of different empirical potentials in ZnS. Modelling and Simulation in Materials Science and Engineering, 2014, 22, 085014.	0.8	8
98	Atomistic deformation mechanisms in twinned copper nanospheres. Nanoscale Research Letters, 2014, 9, 335.	3.1	8
99	Atomistic simulation of Cuâ€“Ni precipitates hardening inÎ±-iron. Journal Physics D: Applied Physics, 2015, 48, 115302.	1.3	8
100	Probing the Interactions between Pickering Emulsion Droplets Stabilized with pH-Responsive Nanoparticles. Journal of Physical Chemistry B, 2021, 125, 7320-7331.	1.2	8
101	Unraveling the Interaction of Water-in-Oil Emulsion Droplets via Molecular Simulations and Surface Force Measurements. Journal of Physical Chemistry B, 2021, 125, 7556-7567.	1.2	8
102	Molecular dynamics simulation of cluster beam Al deposition on Si (100) substrate. Nuclear Instruments & Methods in Physics Research B, 2000, 160, 372-376.	0.6	7
103	Size-dependent concentrations of thermal vacancies in solid films. Physical Chemistry Chemical Physics, 2016, 18, 22661-22667.	1.3	7
104	Structure and CO2 physisorption capacity of hydrotalcite-derived oxide. Journal of CO2 Utilization, 2020, 36, 64-75.	3.3	7
105	Molecular Dynamics Studies of Hydrogen Effect on Intergranular Fracture in Î±-Iron. Materials, 2020, 13, 4949.	1.3	7
106	Crack Growth Sensitivity to the Magnitude and Frequency of Load Fluctuation in Stage 1b of High-pH Stress Corrosion Cracking. Corrosion, 2021, 77, 618-631.	0.5	7
107	Comparative investigation of a newly optimized modified embedded atom method potential with other potentials for silicon. Computational Materials Science, 2015, 109, 277-286.	1.4	6
108	Molecular Dynamics Study of the Role of Water in the Carbon Dioxide Intercalation in Chloride Ions Bearing Hydrotalcite. Journal of Physical Chemistry C, 2018, 122, 9507-9514.	1.5	6

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109	Localization model description of the interfacial dynamics of crystalline Cu and $$hbox {Cu}_{64}hbox {Zr}_{36}$$ metallic glass nanoparticles. European Physical Journal E, 2021, 44, 33.	0.7	6
110	Development of a second-nearest-neighbor modified embedded atom method potential for siliconâ€“phosphorus binary system. Computational Materials Science, 2016, 120, 1-12.	1.4	5
111	Deposition of an energetic Al cluster on Si(111) substrate: a molecular dynamics simulation. Modelling and Simulation in Materials Science and Engineering, 1998, 6, 709-716.	0.8	4
112	Topological correlations of grain faces in polycrystal with experimental verification. Europhysics Letters, 2013, 104, 56006.	0.7	4
113	Ultrasound driven aggregationâ€”A novel method to assemble ceramic nanoparticles. Extreme Mechanics Letters, 2016, 7, 71-77.	2.0	4
114	High pH Crack Growth Sensitivity to Underload-Type of Pressure Fluctuations. , 2018, , .		4
115	Probing Hydrophobic Interactions between Polymer Surfaces and Air Bubbles or Oil Droplets: Effects of Molecular Weight and Surfactants. Langmuir, 2022, 38, 5257-5268.	1.6	4
116	Design of highT_gZr-based metallic glasses using atomistic simulation and experiment. Philosophical Magazine, 2011, 91, 3393-3405.	0.7	3
117	Microbubble-Enhanced Cell Membrane Permeability in High Gravity Field. Cellular and Molecular Bioengineering, 2013, 6, 266-278.	1.0	3
118	Interactions of model airborne particulate matter with dipalmitoyl phosphatidylcholine and a clinical surfactant Calsurf. Journal of Colloid and Interface Science, 2022, 607, 1993-2009.	5.0	3
119	Vacancy enhanced formation and phase transition of Cu-rich precipitates in Îµ - iron under neutron irradiation. AIP Advances, 2016, 6, 045004.	0.6	2
120	Surface compressive and softening effect on deformation mode transition in Ni-Nb metallic glassy thin films: A molecular dynamics study. Journal of Applied Physics, 2018, 124, 205304.	1.1	1
121	Warm hydrogen direct adsorptive separation and purification with highly CO/H2S-tolerant rare earth alloys. Applications in Energy and Combustion Science, 2020, 1-4, 100004.	0.9	1