

Ze Zhang

List of Publications by Year in Descending Order

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The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

124
papers

5,886
citations

34
h-index

75
g-index

128
ext. papers

7,411
ext. citations

11.1
avg, IF

5.88
L-index

#	Paper	IF	Citations
124	Direct Atomic-Scale Observation of Ultrasmall Ag Nanowires that Exhibit fcc, bcc, and hcp Structures under Bending.. <i>Physical Review Letters</i> , 2022 , 128, 015701	7.4	7
123	Tracking the sliding of grain boundaries at the atomic scale.. <i>Science</i> , 2022 , 375, 1261-1265	33.3	12
122	Dynamic mechanisms of strengthening and softening of coherent twin boundary via dislocation pile-up and cross-slip. <i>Materials Research Letters</i> , 2022 , 10, 539-546	7.4	2
121	Shock-induced β martensitic transformation in Nb single crystals. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2022 , 143274	5.3	0
120	Twinning-assisted dynamic adjustment of grain boundary mobility. <i>Nature Communications</i> , 2021 , 12, 6695	17.4	2
119	Atomic-scale observation of non-classical nucleation-mediated phase transformation in a titanium alloy. <i>Nature Materials</i> , 2021 ,	27	5
118	Oxygen changes crack modes of Ni-based single crystal superalloy. <i>Materials Research Letters</i> , 2021 , 9, 531-539	7.4	0
117	Timely and atomic-resolved high-temperature mechanical investigation of ductile fracture and atomistic mechanisms of tungsten. <i>Nature Communications</i> , 2021 , 12, 2218	17.4	6
116	Elucidation of Active Sites for CH ₄ Catalytic Oxidation over Pd/CeO ₂ Via Tailoring Metal-Support Interactions. <i>ACS Catalysis</i> , 2021 , 11, 5666-5677	13.1	19
115	Surface study of the reconstructed anatase TiO ₂ (001) surface. <i>Progress in Natural Science: Materials International</i> , 2021 , 31, 1-13	3.6	12
114	In-situ SEM study of temperature-dependent tensile behavior of Inconel 718 superalloy. <i>Journal of Materials Science</i> , 2021 , 56, 16097-16112	4.3	3
113	Resolving the Atomic Reconstruction of SnO (110) Surface. <i>Nano Letters</i> , 2021 , 21, 7309-7316	11.5	1
112	Facet-Dependent Oxidative Strong Metal-Support Interactions of Palladium-TiO Determined by In Situ Transmission Electron Microscopy. <i>Angewandte Chemie - International Edition</i> , 2021 , 60, 22339-22344	16.4	11
111	Facet-Dependent Oxidative Strong Metal-Support Interactions of Palladium-TiO ₂ Determined by In Situ Transmission Electron Microscopy. <i>Angewandte Chemie</i> , 2021 , 133, 22513-22518	3.6	1
110	Revealing extreme twin-boundary shear deformability in metallic nanocrystals. <i>Science Advances</i> , 2021 , 7, eabe4758	14.3	14
109	Discrete twinning dynamics and size-dependent dislocation-to twin transition in body-centred cubic tungsten. <i>Journal of Materials Science and Technology</i> , 2021 , 106, 33-33	9.1	2
108	Defect-driven selective metal oxidation at atomic scale. <i>Nature Communications</i> , 2021 , 12, 558	17.4	11

107	In situ manipulation of the active Au-TiO interface with atomic precision during CO oxidation. <i>Science</i> , 2021 , 371, 517-521	33.3	56
106	Free-Standing Two-Dimensional Gold Membranes Produced by Extreme Mechanical Thinning. <i>ACS Nano</i> , 2020 ,	16.7	8
105	Unveiling the gas-dependent sintering behavior of Au-TiO ₂ catalysts via environmental transmission electron microscopy. <i>Journal of Catalysis</i> , 2020 , 388, 84-90	7.3	9
104	Anti-twinning in nanoscale tungsten. <i>Science Advances</i> , 2020 , 6, eaay2792	14.3	19
103	Metallic nanocrystals with low angle grain boundary for controllable plastic reversibility. <i>Nature Communications</i> , 2020 , 11, 3100	17.4	22
102	In situ atomic-scale observation of grain size and twin thickness effect limit in twin-structural nanocrystalline platinum. <i>Nature Communications</i> , 2020 , 11, 1167	17.4	26
101	Temperature Effect on Stacking Fault Energy and Deformation Mechanisms in Titanium and Titanium-aluminium Alloy. <i>Scientific Reports</i> , 2020 , 10, 3086	4.9	7
100	Initial oxidation behavior of a single crystal superalloy during stress at 1150 °C. <i>Scientific Reports</i> , 2020 , 10, 3089	4.9	2
99	Real-time observations of TRIP-induced ultrahigh strain hardening in a dual-phase CrMnFeCoNi high-entropy alloy. <i>Nature Communications</i> , 2020 , 11, 826	17.4	72
98	Visualizing HO molecules reacting at TiO active sites with transmission electron microscopy. <i>Science</i> , 2020 , 367, 428-430	33.3	82
97	In situ observation of temperature-dependent atomistic and mesoscale oxidation mechanisms of aluminum nanoparticles. <i>Nano Research</i> , 2020 , 13, 183-187	10	7
96	Processing, Microstructures and Mechanical Properties of a Ni-Based Single Crystal Superalloy. <i>Crystals</i> , 2020 , 10, 572	2.3	8
95	Recent Progresses on Structural Reconstruction of Nanosized Metal Catalysts via Controlled-Atmosphere Transmission Electron Microscopy: A Review. <i>ACS Catalysis</i> , 2020 , 10, 14419-14450	13.1	30
94	Crack Propagation Behavior of a Ni-Based Single-Crystal Superalloy during In Situ SEM Tensile Test at 1000 °C. <i>Crystals</i> , 2020 , 10, 1047	2.3	0
93	Direct visualization of irreducible ferroelectricity in crystals. <i>Npj Quantum Materials</i> , 2020 , 5,	5	3
92	Oxide Catalysts with Ultrastrong Resistance to SO Deactivation for Removing Nitric Oxide at Low Temperature. <i>Advanced Materials</i> , 2019 , 31, e1903719	24	42
91	In situ interface engineering for probing the limit of quantum dot photovoltaic devices. <i>Nature Nanotechnology</i> , 2019 , 14, 950-956	28.7	23
90	A termination-insensitive and robust electron gas at the heterointerface of two complex oxides. <i>Nature Communications</i> , 2019 , 10, 4026	17.4	8

89	Size-dependent dislocation-twin interactions. <i>Nanoscale</i> , 2019 , 11, 12672-12679	7.7	19
88	An Environmental Transmission Electron Microscopy Study of the Stability of the TiO ₂ (1 1̄) Reconstructed (001) Surface. <i>Journal of Physical Chemistry C</i> , 2019 , 123, 21522-21527	3.8	9
87	Spherical to truncated octahedral shape transformation of palladium nanocrystals driven by e-beam in aqueous solution. <i>Nano Research</i> , 2019 , 12, 2623-2627	10	1
86	Grain boundaries in chemical-vapor-deposited atomically thin hexagonal boron nitride. <i>Physical Review Materials</i> , 2019 , 3,	3.2	14
85	Tuning element distribution, structure and properties by composition in high-entropy alloys. <i>Nature</i> , 2019 , 574, 223-227	50.4	404
84	Direct Observation of Curved Surface Enhanced Disorder in Ag ₂ S Nanoparticles. <i>Journal of Physical Chemistry C</i> , 2019 , 123, 940-944	3.8	3
83	Surface Energy Driven Liquid-Drop-Like Pseudoelastic Behaviors and In Situ Atomistic Mechanisms of Small-Sized Face-Centered-Cubic Metals. <i>Nano Letters</i> , 2019 , 19, 292-298	11.5	13
82	Nanoscale Behavior and Manipulation of the Phase Transition in Single-Crystal Cu Se. <i>Advanced Materials</i> , 2019 , 31, e1804919	24	17
81	In situ atomistic observation of disconnection-mediated grain boundary migration. <i>Nature Communications</i> , 2019 , 10, 156	17.4	60
80	Cubic-like BaZrO ₃ nanocrystals with exposed {001}/{011} facets and tuned electronic band structure for enhanced photocatalytic hydrogen production. <i>Journal of Materials Science</i> , 2019 , 54, 19674-1976	4.3	11
79	Mesopores induced zero thermal expansion in single-crystal ferroelectrics. <i>Nature Communications</i> , 2018 , 9, 1638	17.4	23
78	Temperature distribution of wedge-shaped specimen in TEM. <i>Micron</i> , 2018 , 110, 46-49	2.3	4
77	Discrete shear band plasticity through dislocation activities in body-centered cubic tungsten nanowires. <i>Scientific Reports</i> , 2018 , 8, 4574	4.9	12
76	Recent advances in gas-involved in situ studies via transmission electron microscopy. <i>Nano Research</i> , 2018 , 11, 42-67	10	40
75	Electrostatic Force-Driven Oxide Heteroepitaxy for Interface Control. <i>Advanced Materials</i> , 2018 , 30, e1707017	17	13
74	Early Stage Growth of Rutile Titania Mesocrystals. <i>Crystal Growth and Design</i> , 2018 , 18, 4209-4214	3.5	8
73	Consecutive crystallographic reorientations and superplasticity in body-centered cubic niobium nanowires. <i>Science Advances</i> , 2018 , 4, eaas8850	14.3	21
72	Fast Gas-Solid Reaction Kinetics of Nanoparticles Unveiled by Millisecond In Situ Electron Diffraction at Ambient Pressure. <i>Angewandte Chemie - International Edition</i> , 2018 , 57, 11344-11348	16.4	21

71	Fast Gas/Solid Reaction Kinetics of Nanoparticles Unveiled by Millisecond In Situ Electron Diffraction at Ambient Pressure. <i>Angewandte Chemie</i> , 2018 , 130, 11514-11518	3.6	4
70	Growth of SWS-doped molybdenum disulfide on graphene transferred molybdenum substrate. <i>Scientific Reports</i> , 2018 , 8, 7396	4.9	2
69	In situ atomic scale mechanisms of strain-induced twin boundary shear to high angle grain boundary in nanocrystalline Pt. <i>Ultramicroscopy</i> , 2018 , 195, 69-73	3.1	6
68	Towards quantitative mapping of the charge distribution along a nanowire by in-line electron holography. <i>Ultramicroscopy</i> , 2018 , 194, 126-132	3.1	3
67	Three-dimensional atomic-scale observation of structural evolution of cathode material in a working all-solid-state battery. <i>Nature Communications</i> , 2018 , 9, 3341	17.4	45
66	Direct In Situ TEM Visualization and Insight into the Facet-Dependent Sintering Behaviors of Gold on TiO. <i>Angewandte Chemie - International Edition</i> , 2018 , 57, 16827-16831	16.4	55
65	Direct In Situ TEM Visualization and Insight into the Facet-Dependent Sintering Behaviors of Gold on TiO ₂ . <i>Angewandte Chemie</i> , 2018 , 130, 17069-17073	3.6	12
64	Organic/Organic Hybrid g-C ₃ N ₄ /Ethanediamine Nanosheets for Photocatalytic H ₂ Evolution. <i>Journal of Physical Chemistry C</i> , 2018 , 122, 24725-24731	3.8	8
63	The Exceptional Strong Face-centered Cubic Phase and Semi-coherent Phase Boundary in a Eutectic Dual-phase High Entropy Alloy AlCoCrFeNi. <i>Scientific Reports</i> , 2018 , 8, 14910	4.9	26
62	Superplasticity in Gold Nanowires through the Operation of Multiple Slip Systems. <i>Advanced Functional Materials</i> , 2018 , 28, 1805258	15.6	13
61	In-situ fabrication of MoS ₂ -nanowire-terminated edges in monolayer molybdenum disulfide. <i>Nano Research</i> , 2018 , 11, 5849-5857	10	20
60	Unexpected refacetting of palladium nanoparticles under atmospheric N conditions. <i>Chemical Communications</i> , 2018 , 54, 8587-8590	5.8	20
59	Strain Gradient Modulated Exciton Evolution and Emission in ZnO Fibers. <i>Scientific Reports</i> , 2017 , 7, 406589	4.9	5
58	Dislocation mechanisms and 3D twin architectures generate exceptional strength-ductility-toughness combination in CrCoNi medium-entropy alloy. <i>Nature Communications</i> , 2017 , 8, 14390	17.4	231
57	Atomic Defects in Two-Dimensional Materials: From Single-Atom Spectroscopy to Functionalities in Opto-/Electronics, Nanomagnetism, and Catalysis. <i>Advanced Materials</i> , 2017 , 29, 1606434	24	146
56	Probing the oxidative etching induced dissolution of palladium nanocrystals in solution by liquid cell transmission electron microscopy. <i>Micron</i> , 2017 , 97, 22-28	2.3	25
55	In Situ STEM Determination of the Atomic Structure and Reconstruction Mechanism of the TiO ₂ (001) (1 × 1) Surface. <i>Chemistry of Materials</i> , 2017 , 29, 3189-3194	9.6	29
54	An In situ TEM study of the surface oxidation of palladium nanocrystals assisted by electron irradiation. <i>Nanoscale</i> , 2017 , 9, 6327-6333	7.7	45

53	Facile synthesis of g-C ₃ N ₄ nanosheets loaded with WO ₃ nanoparticles with enhanced photocatalytic performance under visible light irradiation. <i>RSC Advances</i> , 2017 , 7, 24097-24104	3.7	72
52	Direct identification of monolayer rhenium diselenide by an individual diffraction pattern. <i>Nano Research</i> , 2017 , 10, 2535-2544	10	4
51	Atomistic dynamics of sulfur-deficient high-symmetry grain boundaries in molybdenum disulfide. <i>Nanoscale</i> , 2017 , 9, 10312-10320	7.7	15
50	Direct Imaging of Kinetic Pathways of Atomic Diffusion in Monolayer Molybdenum Disulfide. <i>Nano Letters</i> , 2017 , 17, 3383-3390	11.5	27
49	Reaction and Capacity-Fading Mechanisms of Tin Nanoparticles in Potassium-Ion Batteries. <i>Journal of Physical Chemistry C</i> , 2017 , 121, 12652-12657	3.8	121
48	Deriving phosphorus atomic chains from few-layer black phosphorus. <i>Nano Research</i> , 2017 , 10, 2519-2526	6	19
47	Inversion Domain Boundary Induced Stacking and Bandstructure Diversity in Bilayer MoSe. <i>Nano Letters</i> , 2017 , 17, 6653-6660	11.5	34
46	Capture the growth kinetics of CVD growth of two-dimensional MoS ₂ . <i>Npj 2D Materials and Applications</i> , 2017 , 1,	8.8	82
45	Atomic-resolution imaging of electrically induced oxygen vacancy migration and phase transformation in SrCoO. <i>Nature Communications</i> , 2017 , 8, 104	17.4	46
44	Tuning the Outward to Inward Swelling in Lithiated Silicon Nanotubes via Surface Oxide Coating. <i>Microscopy and Microanalysis</i> , 2017 , 23, 2018-2019	0.5	
43	In situ TEM observation of dissolution and regrowth dynamics of MoO ₂ nanowires under oxygen. <i>Nano Research</i> , 2017 , 10, 397-404	10	13
42	Slip-activated surface creep with room-temperature super-elongation in metallic nanocrystals. <i>Nature Materials</i> , 2017 , 16, 439-445	27	54
41	New twinning route in face-centered cubic nanocrystalline metals. <i>Nature Communications</i> , 2017 , 8, 2142	17.4	75
40	Hybrid CN-MEA microplates with enhanced photocatalytic hydrogen evolution under visible light irradiation. <i>Catalysis Science and Technology</i> , 2017 , 7, 3777-3784	5.5	8
39	Tuning the Outward to Inward Swelling in Lithiated Silicon Nanotubes via Surface Oxide Coating. <i>Nano Letters</i> , 2016 , 16, 5815-22	11.5	39
38	Direct observation of structural transitions in the phase change material Ge ₂ Sb ₂ Te ₅ . <i>Journal of Materials Chemistry C</i> , 2016 , 4, 9303-9309	7.1	15
37	Layer-dependent anisotropic electronic structure of freestanding quasi-two-dimensional MoS ₂ . <i>Physical Review B</i> , 2016 , 93,	3.3	26
36	Facile synthesis of hierarchical LiFePO ₄ and its phase transformation to electrochemically active LiFePO ₄ for Li-ion batteries. <i>CrystEngComm</i> , 2016 , 18, 7707-7714	3.3	5

35	In situ observation of sublimation-enhanced magnesium oxidation at elevated temperature. <i>Nano Research</i> , 2016 , 9, 2796-2802	10	14
34	Microscopy sparks development. <i>Nature Materials</i> , 2016 , 15, 695-7	27	
33	Atomic-Scale Observation of Vapor-Solid Nanowire Growth via Oscillatory Mass Transport. <i>ACS Nano</i> , 2016 , 10, 763-9	16.7	29
32	Real-Time Observation of Reconstruction Dynamics on TiO ₂ (001) Surface under Oxygen via an Environmental Transmission Electron Microscope. <i>Nano Letters</i> , 2016 , 16, 132-7	11.5	84
31	In Situ Observation on Dislocation-Controlled Sublimation of Mg Nanoparticles. <i>Nano Letters</i> , 2016 , 16, 1156-60	11.5	20
30	Dislocation "Bubble-Like-Effect" and the Ambient Temperature Super-plastic Elongation of Body-centred Cubic Single Crystalline Molybdenum. <i>Scientific Reports</i> , 2016 , 6, 22937	4.9	14
29	In Situ Observation of Hydrogen-Induced Surface Faceting for Palladium-Copper Nanocrystals at Atmospheric Pressure. <i>Angewandte Chemie - International Edition</i> , 2016 , 55, 12427-30	16.4	62
28	In Situ Observation of Hydrogen-Induced Surface Faceting for Palladium-Copper Nanocrystals at Atmospheric Pressure. <i>Angewandte Chemie</i> , 2016 , 128, 12615-12618	3.6	20
27	Exploring atomic defects in molybdenum disulphide monolayers. <i>Nature Communications</i> , 2015 , 6, 6293	17.4	851
26	In situ atomic scale mechanical microscopy discovering the atomistic mechanisms of plasticity in nano-single crystals and grain rotation in polycrystalline metals. <i>Ultramicroscopy</i> , 2015 , 151, 94-100	3.1	24
25	Vertical/Planar Growth and Surface Orientation of Bi ₂ Te ₃ and Bi ₂ Se ₃ Topological Insulator Nanoplates. <i>Nano Letters</i> , 2015 , 15, 3147-52	11.5	30
24	Revealing the elemental-specific growth dynamics of Pt-Cu multipods by scanning transmission electron microscopy and chemical mapping. <i>Journal of Materials Chemistry A</i> , 2015 , 3, 21284-21289	13	6
23	Controllable synthesis of rutile titania with novel curved surfaces. <i>CrystEngComm</i> , 2015 , 17, 7254-7257	3.3	7
22	B12-P-08 In situ observation of dislocation accumulation and small angle grain boundary formation. <i>Microscopy (Oxford, England)</i> , 2015 , 64, i89.1-i89	1.3	
21	B21-O-14 Ultra-large elasticity and Liquid-like behavior of Nano-materials. <i>Microscopy (Oxford, England)</i> , 2015 , 64, i46.1-i46	1.3	
20	B21-P-09 The crystal micro-structure evolution of in-situ annealed phase change material TiSbTe film. <i>Microscopy (Oxford, England)</i> , 2015 , 64, i101.2-i101	1.3	
19	B11-O-10 In situ Atomic Scale Mechanical Microscopy. <i>Microscopy (Oxford, England)</i> , 2015 , 64, i15.1-i15	1.3	
18	B21-O-05 Atomic motion in monolayer molybdenum disulfide probed by in-situ ADF-STEM. <i>Microscopy (Oxford, England)</i> , 2015 , 64, i41.2-i41	1.3	

17	Ultrathin Two-Dimensional Pd-Based Nanorings as Catalysts for Hydrogenation with High Activity and Stability. <i>Small</i> , 2015 , 11, 4745-52	11	56
16	In situ atomic-scale observation of twinning-dominated deformation in nanoscale body-centred cubic tungsten. <i>Nature Materials</i> , 2015 , 14, 594-600	27	189
15	Mesoporous Fe ₂ O ₃ flakes of high aspect ratio encased within thin carbon skeleton for superior lithium-ion battery anodes. <i>Journal of Materials Chemistry A</i> , 2015 , 3, 14178-14187	13	37
14	B22-O-12 In Situ Atomic Scale Observation of Grain Rotation Mediated by Grain Boundary Dislocations. <i>Microscopy (Oxford, England)</i> , 2015 , 64, i52.2-i52	1.3	
13	B22-P-17 Evolution of the MC carbide in Nickel-base single crystal superalloy exposing at 950 °C. <i>Microscopy (Oxford, England)</i> , 2015 , 64, i111.1-i111	1.3	
12	Nanoscale origins of the damage tolerance of the high-entropy alloy CrMnFeCoNi. <i>Nature Communications</i> , 2015 , 6, 10143	17.4	451
11	High-performance hydrogen evolution electrocatalysis by layer-controlled MoS ₂ nanosheets. <i>RSC Advances</i> , 2014 , 4, 34733-34738	3.7	48
10	Oxidation of ZrB ₂ Nanoparticles at High Temperature under Low Oxygen Pressure. <i>Journal of the American Ceramic Society</i> , 2014 , 97, 2360-2363	3.8	12
9	Formation of monatomic metallic glasses through ultrafast liquid quenching. <i>Nature</i> , 2014 , 512, 177-80	50.4	291
8	Liquid-like pseudoelasticity of sub-10-nm crystalline silver particles. <i>Nature Materials</i> , 2014 , 13, 1007-12	27	205
7	Plasma-assisted fabrication of monolayer phosphorene and its Raman characterization. <i>Nano Research</i> , 2014 , 7, 853-859	10	535
6	Observation of enhanced carrier transport properties of Si <100>-oriented whiskers under uniaxial strains. <i>Applied Physics Letters</i> , 2014 , 104, 013111	3.4	15
5	Direct observation of Pt nanocrystal coalescence induced by electron-excitation-enhanced van der Waals interactions. <i>Nano Research</i> , 2014 , 7, 308-314	10	19
4	Near-ideal theoretical strength in gold nanowires containing angstrom scale twins. <i>Nature Communications</i> , 2013 , 4, 1742	17.4	188
3	Crystal-crystal phase transformation via surface-induced virtual premelting. <i>Physical Review B</i> , 2012 , 85,	3.3	34
2	Piezoresistance behaviors of ultra-strained SiC nanowires. <i>Applied Physics Letters</i> , 2012 , 101, 233109	3.4	66
1	In situ atomistic mechanisms of detwinning in nanocrystalline AuAg alloy. <i>Science China Materials</i> , 2011 , 4, 101-106	7.1	1