

Xiaodong Han

List of Publications by Year in descending order

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97
papers

6,240
citations

87888

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66911

78
g-index

97
all docs

97
docs citations

97
times ranked

7207
citing authors

#	ARTICLE	IF	CITATIONS
1	Direct observation of noble metal nanoparticles transforming to thermally stable single atoms. Nature Nanotechnology, 2018, 13, 856-861.	31.5	741
2	Engineering the Atomic Interface with Single Platinum Atoms for Enhanced Photocatalytic Hydrogen Production. Angewandte Chemie - International Edition, 2020, 59, 1295-1301.	13.8	344
3	Constructing NiCo/Fe ₃ O ₄ Heteroparticles within MOF-74 for Efficient Oxygen Evolution Reactions. Journal of the American Chemical Society, 2018, 140, 15336-15341.	13.7	310
4	Grain rotation mediated by grain boundary dislocations in nanocrystalline platinum. Nature Communications, 2014, 5, 4402.	12.8	286
5	Electron-beam-assisted superplastic shaping of nanoscale amorphous silica. Nature Communications, 2010, 1, 24.	12.8	280
6	Low-Temperature in Situ Large Strain Plasticity of Ceramic SiC Nanowires and Its Atomic-Scale Mechanism. Nano Letters, 2007, 7, 452-457.	9.1	247
7	A Transforming Metal Nanocomposite with Large Elastic Strain, Low Modulus, and High Strength. Science, 2013, 339, 1191-1194.	12.6	241
8	Approaching the Theoretical Elastic Strain Limit in Copper Nanowires. Nano Letters, 2011, 11, 3151-3155.	9.1	202
9	Thermal Atomization of Platinum Nanoparticles into Single Atoms: An Effective Strategy for Engineering High-Performance Nanozymes. Journal of the American Chemical Society, 2021, 143, 18643-18651.	13.7	174
10	Size-Dependent Bandgap Modulation of ZnO Nanowires by Tensile Strain. Nano Letters, 2012, 12, 4595-4599.	9.1	173
11	Atomically Dispersed Ni _{1-x} MoC Catalyst for Hydrogen Production from Methanol/Water. Journal of the American Chemical Society, 2021, 143, 309-317.	13.7	168
12	In situ atomic-scale observation of continuous and reversible lattice deformation beyond the elastic limit. Nature Communications, 2013, 4, 2413.	12.8	147
13	<i>In Situ</i> Observation of Dislocation Behavior in Nanometer Grains. Physical Review Letters, 2010, 105, 135501.	7.8	135
14	Atomic Mechanisms Governing the Elastic Limit and the Incipient Plasticity of Bending Si Nanowires. Nano Letters, 2009, 9, 2471-2476.	9.1	127
15	Co and Pt Dual-Atom Single-Sites with Oxygen-Coordinated Co-O-Pt Dimer Sites for Ultrahigh Photocatalytic Hydrogen Evolution Efficiency. Advanced Materials, 2021, 33, e2003327.	21.0	123
16	Understanding the Stability for Li-Rich Layered Oxide Li ₂ RuO ₃ Cathode. Advanced Functional Materials, 2016, 26, 1330-1337.	14.9	118
17	Tracking the sliding of grain boundaries at the atomic scale. Science, 2022, 375, 1261-1265.	12.6	115
18	In situ experimental mechanics of nanomaterials at the atomic scale. NPG Asia Materials, 2013, 5, e40-e40.	7.9	110

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19	New twinning route in face-centered cubic nanocrystalline metals. Nature Communications, 2017, 8, 2142.	12.8	110
20	Quantitative Evidence of Crossover toward Partial Dislocation Mediated Plasticity in Copper Single Crystalline Nanowires. Nano Letters, 2012, 12, 4045-4049.	9.1	108
21	Ultrahigh Photocatalytic CO ₂ Reduction Efficiency and Selectivity Manipulation by Single Tungsten Atom Oxide at the Atomic Step of TiO ₂ . Advanced Materials, 2022, 34, e2109074.	21.0	107
22	Direct Atomic-Scale Imaging about the Mechanisms of Ultralarge Bent Straining in Si Nanowires. Nano Letters, 2011, 11, 2382-2385.	9.1	100
23	<i>In-situ</i> observation of dislocation dynamics near heterostructured interfaces. Materials Research Letters, 2019, 7, 376-382.	8.7	100
24	Element-resolved atomic structure imaging of rocksalt Ge ₂ Sb ₂ Te ₅ phase-change material. Applied Physics Letters, 2016, 108, .	3.3	89
25	A novel HfNbTaTiV high-entropy alloy of superior mechanical properties designed on the principle of maximum lattice distortion. Journal of Materials Science and Technology, 2021, 79, 109-117.	10.7	83
26	Sodium-Doped Tin Sulfide Single Crystal: A Nontoxic Earth-Abundant Material with High Thermoelectric Performance. Advanced Energy Materials, 2018, 8, 1800087.	19.5	80
27	Piezoresistance behaviors of ultra-strained SiC nanowires. Applied Physics Letters, 2012, 101, .	3.3	79
28	Uniform tensile elongation in framed submicron metallic glass specimen in the limit of suppressed shear banding. Acta Materialia, 2011, 59, 6511-6518.	7.9	74
29	Low Temperature Oxidation of Ethane to Oxygenates by Oxygen over Iridium-Cluster Catalysts. Journal of the American Chemical Society, 2019, 141, 18921-18925.	13.7	72
30	Ultra-high average figure of merit in synergistic band engineered Sn _{1-x} Na _x Se _{0.95} O _{0.1} single crystals. Materials Today, 2018, 21, 501-507.	14.2	71
31	Plastic Deformation through Dislocation Saturation in Ultrasmall Pt Nanocrystals and Its in Situ Atomistic Mechanisms. Nano Letters, 2017, 17, 4733-4739.	9.1	60
32	In situ observation of stress induced grain boundary migration in nanocrystalline gold. Scripta Materialia, 2017, 134, 95-99.	5.2	58
33	Bandgap engineering and manipulating electronic and optical properties of ZnO nanowires by uniaxial strain. Nanoscale, 2014, 6, 4936-4941.	5.6	55
34	Ultrahigh Photocatalytic Rate at a Single Metal Atom Oxide. Advanced Materials, 2019, 31, e1903491.	21.0	53
35	In situ atomic-scale observation of grain size and twin thickness effect limit in twin-structural nanocrystalline platinum. Nature Communications, 2020, 11, 1167.	12.8	48
36	Direct Atomic-Scale Observation of Ultrasmall Ag Nanowires that Exhibit fcc, bcc, and hcp Structures under Bending. Physical Review Letters, 2022, 128, 015701.	7.8	47

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37	Crystalline Liquid and Rubber-Like Behavior in Cu Nanowires. <i>Nano Letters</i> , 2013, 13, 3812-3816.	9.1	45
38	Proximity-Induced Magnetic Order in a Transferred Topological Insulator Thin Film on a Magnetic Insulator. <i>ACS Nano</i> , 2018, 12, 5042-5050.	14.6	41
39	Atomistic Mechanism of Stress-Induced Combined Slip and Diffusion in Sub-5 Nanometer-Sized Ag Nanowires. <i>ACS Nano</i> , 2019, 13, 8708-8716.	14.6	37
40	Dynamic and atomic-scale understanding of the twin thickness effect on dislocation nucleation and propagation activities by in situ bending of Ni nanowires. <i>Acta Materialia</i> , 2015, 90, 194-203.	7.9	34
41	Orientation Dependence of Electromechanical Characteristics of Defect-free InAs Nanowires. <i>Nano Letters</i> , 2016, 16, 1787-1793.	9.1	30
42	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.	1.9	28
43	Mechanically Driven Grain Boundary Formation in Nickel Nanowires. <i>ACS Nano</i> , 2017, 11, 12500-12508.	14.6	28
44	Observation of Quantum Anomalous Hall Effect and Exchange Interaction in Topological Insulator/Antiferromagnet Heterostructure. <i>Advanced Materials</i> , 2020, 32, e2001460.	21.0	27
45	Timely and atomic-resolved high-temperature mechanical investigation of ductile fracture and atomistic mechanisms of tungsten. <i>Nature Communications</i> , 2021, 12, 2218.	12.8	27
46	In situ atomistic deformation mechanisms of twin-structured nanocrystal Pt. <i>Scripta Materialia</i> , 2018, 147, 103-107.	5.2	24
47	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.	3.3	21
48	Retaining Large and Adjustable Elastic Strains of Kilogram-Scale Nb Nanowires. <i>ACS Applied Materials & Interfaces</i> , 2016, 8, 2917-2922.	8.0	21
49	Growth of III-V semiconductor nanowires and their heterostructures. <i>Science China Materials</i> , 2016, 59, 51-91.	6.3	20
50	In Situ TEM Investigation of Electron Irradiation Induced Metastable States in Lithium-Ion Battery Cathodes: $\text{Li}_2\text{FeSiO}_4$ versus LiFePO_4 . <i>ACS Applied Energy Materials</i> , 2018, 1, 3180-3189.	5.1	20
51	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.	9.1	20
52	Locality and rapidity of the ultra-large elastic deformation of Nb nanowires in a NiTi phase-transforming matrix. <i>Scientific Reports</i> , 2014, 4, 6753.	3.3	18
53	Deformation mechanisms of bent Si nanowires governed by the sign and magnitude of strain. <i>Applied Physics Letters</i> , 2016, 108, 151903.	3.3	18
54	Direct observation of structural transitions in the phase change material $\text{Ge}_2\text{Sb}_2\text{Te}_5$. <i>Journal of Materials Chemistry C</i> , 2016, 4, 9303-9309.	5.5	18

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55	Strongly enhanced ultraviolet emission of an Au@SiO ₂ /ZnO plasmonic hybrid nanostructure. <i>Nanoscale</i> , 2016, 8, 4030-4036.	5.6	18
56	Hygroscopic analysis of individual Beijing haze aerosol particles by environmental scanning electron microscopy. <i>Atmospheric Environment</i> , 2018, 172, 149-156.	4.1	18
57	Observation of enhanced carrier transport properties of Si α -100 α -oriented whiskers under uniaxial strains. <i>Applied Physics Letters</i> , 2014, 104, .	3.3	17
58	Giant Topological Hall Effect and Superstable Spontaneous Skyrmions below 330 K in a Centrosymmetric Complex Noncollinear Ferromagnet NdMn ₂ Ge ₂ . <i>ACS Applied Materials & Interfaces</i> , 2020, 12, 24125-24132.	8.0	17
59	A Second Amorphous Layer Underneath Surface Oxide. <i>Microscopy and Microanalysis</i> , 2017, 23, 173-178.	0.4	16
60	Highly efficient blue emissive copper halide Cs ₅ Cu ₃ Cl ₆ I ₂ scintillators for X-ray detection and imaging. <i>Ceramics International</i> , 2022, 48, 30788-30796.	4.8	16
61	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.	8.7	15
62	Polarization Driven Covalently-Bonded Octahedral-Twinning and Backbone-Peripheral-Helical Nanoarchitectures. <i>Nano Letters</i> , 2008, 8, 2258-2264.	9.1	14
63	Screw-rotation twinning through helical movement of triple-partials. <i>Applied Physics Letters</i> , 2012, 101, 121901.	3.3	14
64	Atomistic mechanism of nucleation and growth of a face-centered orthogonal phase in small-sized single-crystalline Mo. <i>Materials Research Letters</i> , 2020, 8, 348-355.	8.7	14
65	In-situ observation of cooperative grain boundary sliding and migration in the nano-twinned nanocrystalline-Au thin-films. <i>Scripta Materialia</i> , 2020, 180, 97-102.	5.2	14
66	Reveal the size effect on the plasticity of ultra-small sized Ag nanowires with in situ atomic-scale microscopy. <i>Journal of Alloys and Compounds</i> , 2016, 676, 377-382.	5.5	13
67	The chemistry and structural thermal stability of hole-doped single crystalline SnSe. <i>Journal of Alloys and Compounds</i> , 2016, 688, 1088-1094.	5.5	12
68	Ultra-high strength yet superplasticity in a hetero-grain-sized nanocrystalline Au nanowire. <i>Journal of Materials Science and Technology</i> , 2022, 101, 95-106.	10.7	12
69	Temperature-Dependent Luminescence and Anisotropic Optical Properties of Centimeter-Sized One-Dimensional Perovskite Trimethylammonium Lead Iodide Single Crystals. <i>Journal of Physical Chemistry Letters</i> , 2022, 13, 5451-5460.	4.6	10
70	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.	1.9	9
71	Room-temperature superplasticity in Au nanowires and their atomistic mechanisms. <i>Nanoscale</i> , 2019, 11, 8727-8735.	5.6	9
72	Dynamic Epitaxial Crystallization of SnSe ₂ on the Oxidized SnSe Surface and Its Atomistic Mechanisms. <i>ACS Applied Materials & Interfaces</i> , 2020, 12, .	8.0	9

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73	MEMS Device for Quantitative In Situ Mechanical Testing in Electron Microscope. <i>Micromachines</i> , 2017, 8, 31.	2.9	8
74	Direct realizing the growth direction of epitaxial nanowires by electron microscopy. <i>Science China Materials</i> , 2015, 58, 433-440.	6.3	7
75	Charge compensation by in-situ heating for insulating ceramics in scanning electron microscope. <i>Ultramicroscopy</i> , 2009, 109, 1326-1332.	1.9	6
76	Strain Gradient Modulated Exciton Evolution and Emission in ZnO Fibers. <i>Scientific Reports</i> , 2017, 7, 40658.	3.3	6
77	Mechanical behavior of metallic nanowires with twin boundaries parallel to loading axis. <i>Computational Materials Science</i> , 2019, 169, 109087.	3.0	6
78	Bent strain values affect the plastic deformation behaviours of twinned Ni NWs. <i>Scripta Materialia</i> , 2019, 167, 1-5.	5.2	6
79	In situ TEM revealing pretreatment and interface effects in Ge ₂ Sb ₂ Te ₅ . <i>Applied Physics Letters</i> , 2020, 116, 222105.	3.3	6
80	In situ atomic-scale observation of dislocation behaviors in twin-structured Pt nanocrystals. <i>Science China Technological Sciences</i> , 2021, 64, 599-604.	4.0	6
81	Twin thickness and dislocation interactions affect the incoherent-twin boundary phase in face-centered cubic metals. <i>Cell Reports Physical Science</i> , 2022, 3, 100736.	5.6	6
82	Deformation-Induced Phase Transformations in Gold Nanoribbons with the 4H Phase. <i>ACS Nano</i> , 2022, 16, 3272-3279.	14.6	5
83	In situ atomistic mechanisms of detwinning in nanocrystalline AuAg alloy. <i>Science China Materials</i> , 2022, 65, 820-826.	6.3	4
84	In situ investigation of synchronized dislocation array nucleation and phase transformation at mode I-II cracks of single-crystalline Mo. <i>Journal of Alloys and Compounds</i> , 2019, 806, 283-291.	5.5	3
85	Liquid-phase scanning electron microscopy for single membrane protein imaging. <i>Biochemical and Biophysical Research Communications</i> , 2022, 590, 163-168.	2.1	3
86	Luminescence characteristics of individual Beijing haze aerosol particles. <i>Atmospheric Environment</i> , 2018, 190, 249-255.	4.1	2
87	Investigations of EGFR configurations on tumor cell surface by high-resolution electron microscopy. <i>Biochemical and Biophysical Research Communications</i> , 2020, 532, 179-184.	2.1	2
88	Nb/NiTi laminate composite with high pseudoelastic energy dissipation capacity. <i>Materials Today Nano</i> , 2022, 19, 100238.	4.6	2
89	Enhanced contrast separation in scanning electron microscopes via a suspended-thin sample approach. <i>Ultramicroscopy</i> , 2014, 146, 83-90.	1.9	1
90	In Situ TEM: Theory and Applications. <i>Springer Tracts in Modern Physics</i> , 2018, , 381-477.	0.1	1

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91	Tunable Mechanical Property and Structural Transition of Silicon Nitride Nanowires Induced by Focused Ion Beam Irradiation. ACS Applied Materials & Interfaces, 2020, 12, 32175-32181.	8.0	1
92	B12-P-08 In situ observation of dislocation accumulation and small angle grain boundary formation. Microscopy (Oxford, England), 2015, 64, i89.1-i89.	1.5	0
93	B21-O-14 Ultra-large elasticity and Liquid-like behavior of Nano-materials. Microscopy (Oxford, England), 2015, 64, i15.1-i15.	1.5	0
94	B11-O-10 In situ Atomic Scale Mechanical Microscopy. Microscopy (Oxford, England), 2015, 64, i15.1-i15.	1.5	0
95	B22-O-12 In Situ Atomic Scale Observation of Grain Rotation Mediated by Grain Boundary Dislocations. Microscopy (Oxford, England), 2015, 64, i52.2-i52.	1.5	0
96	B12-P-06 The study of liquid like behaviors in silver nanocrystal. Microscopy (Oxford, England), 2015, 64, i88.1-i88.	1.5	0
97	Superelasticity and the Shape Memory Effect. , 2016, , 3874-3880.		0