Zhi-Wei Shan

List of Publications by Year
in descending order

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81 papers	5,764 citations	109321 35 h-index	74163 75 g-index
88 all docs	88 docs citations	88 times ranked	5991 citing authors

#	Article	IF	Citations
1	Grain Boundary-Mediated Plasticity in Nanocrystalline Nickel. Science, 2004, 305, 654-657.	12.6	803
2	Strong crystal size effect on deformation twinning. Nature, 2010, 463, 335-338.	27.8	553
3	A new view of the onset of plasticity during the nanoindentation of aluminium. Nature Materials, 2006, 5, 697-702.	27.5	398
4	Approaching the ideal elastic limit of metallic glasses. Nature Communications, 2012, 3, 609.	12.8	345
5	Electron-beam-assisted superplastic shaping of nanoscale amorphous silica. Nature Communications, 2010, 1, 24.	12.8	280
6	Large plasticity in magnesium mediated by pyramidal dislocations. Science, 2019, 365, 73-75.	12.6	264
7	Elastic strain engineering for unprecedented materials properties. MRS Bulletin, 2014, 39, 108-114.	3.5	214
8	Exceptional plasticity in the bulk single-crystalline van der Waals semiconductor InSe. Science, 2020, 369, 542-545.	12.6	163
9	Twinning-like lattice reorientation without a crystallographic twinning plane. Nature Communications, 2014, 5, 3297.	12.8	154
10	The Mechanical Properties of Nanowires. Advanced Science, 2017, 4, 1600332.	11.2	152
11	Inflating hollow nanocrystals through a repeated Kirkendall cavitation process. Nature Communications, 2017, 8, 1261.	12.8	135
12	In situ study of the initiation of hydrogen bubbles at the aluminium metal/oxide interface. Nature Materials, 2015, 14, 899-903.	27.5	134
13	Hydrogenated vacancies lock dislocations in aluminium. Nature Communications, 2016, 7, 13341.	12.8	131
14	Radiation-Induced Helium Nanobubbles Enhance Ductility in Submicron-Sized Single-Crystalline Copper. Nano Letters, 2016, 16, 4118-4124.	9.1	102
15	In situ TEM nanoindentation and dislocation-grain boundary interactions: a tribute to David Brandon. Journal of Materials Science, 2006, 41, 7704-7719.	3.7	101
16	A new regime for mechanical annealing and strong sample-size strengthening in body centred cubic molybdenum. Nature Communications, 2011, 2, 547.	12.8	84
17	The mechanical behavior of nanoporous gold thin films. Jom, 2007, 59, 54-58.	1.9	78
18	Turning a native or corroded Mg alloy surface into an anti-corrosion coating in excited CO2. Nature Communications, 2018, 9, 4058.	12.8	76

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19	Ductile necking behavior of nanoscale metallic glasses under uniaxial tension at room temperature. Acta Materialia, 2013, 61, 4823-4830.	7.9	73
20	Phase transition enhanced superior elasticity in freestanding single-crystalline multiferroic BiFeO ₃ membranes. Science Advances, 2020, 6, .	10.3	73
21	Sample size effects on the large strain bursts in submicron aluminum pillars. Applied Physics Letters, 2012, 100, .	3.3	67
22	From â€œSmaller is Strongerâ€• to â€œSizeâ€Independent Strength Plateauâ€• Towards Measuring the Ideal Strength of Iron. Advanced Materials, 2015, 27, 3385-3390.	21.0	62
23	Real-time, high-resolution study of nanocrystallization and fatigue cracking in a cyclically strained metallic glass. Proceedings of the National Academy of Sciences of the United States of America, 2013, 110, 19725-19730.	7.1	61
24	Nanobubble Fragmentation and Bubble-Free-Channel Shear Localization in Helium-Irradiated Submicron-Sized Copper. Physical Review Letters, 2016, 117, 215501.	7.8	61
25	Elastic Properties of GaN Nanowires: Revealing the Influence of Planar Defects on Youngâ€™s Modulus at Nanoscale. Nano Letters, 2015, 15, 8-15.	9.1	60
26	In situ TEM study of deformation-induced crystalline-to-amorphous transition in silicon. NPG Asia Materials, 2016, 8, e291-e291.	7.9	60
27	Insight from in situ microscopy into which precipitate morphology can enable high strength in magnesium alloys. Journal of Materials Science and Technology, 2018, 34, 1061-1066.	10.7	60
28	Visualizing size-dependent deformation mechanism transition in Sn. Scientific Reports, 2013, 3, 2113.	3.3	57
29	Terrace-like morphology of the boundary created through basal-prismatic transformation in magnesium. Scripta Materialia, 2015, 100, 86-89.	5.2	55
30	In situ nanoindentation in the TEM. Materials Today, 2007, 10, 59-60.	14.2	53
31	Growth Conditions Control the Elastic and Electrical Properties of ZnO Nanowires. Nano Letters, 2015, 15, 7886-7892.	9.1	53
32	Nanoscratching of copper surface by CeO2. Acta Materialia, 2017, 124, 343-350.	7.9	47
33	Sliding of coherent twin boundaries. Nature Communications, 2017, 8, 1108.	12.8	44
34	Cyclic deformation leads to defect healing and strengthening of small-volume metal crystals. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 13502-13507.	7.1	40
35	Effect of hydrogen on the integrity of aluminiumâ€“oxide interface at elevated temperatures. Nature Communications, 2017, 8, 14564.	12.8	39
36	Tensionâ€“compression asymmetry in amorphous silicon. Nature Materials, 2021, 20, 1371-1377.	27.5	36

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37	Pristine-to-pristine regime of plastic deformation in submicron-sized single crystal gold particles. Acta Materialia, 2012, 60, 1368-1377.	7.9	33
38	Inter- and Intra-Agglomerate Fracture in Nanocrystalline Nickel. Physical Review Letters, 2008, 100, 105502.	7.8	31
39	In-situ quantitative TEM investigation on the dynamic evolution of individual twin boundary in magnesium under cyclic loading. Acta Materialia, 2019, 179, 414-423.	7.9	30
40	Effects of notches on the deformation behavior of submicron sized metallic glasses: Insights from in situ experiments. Acta Materialia, 2018, 154, 172-181.	7.9	28
41	Raftingâ€Enabled Recovery Avoids Recrystallization in 3Dâ€Printingâ€Repaired Singleâ€Crystal Superalloys. Advanced Materials, 2020, 32, e1907164.	21.0	28
42	Rejuvenation of plasticity via deformation graining in magnesium. Nature Communications, 2022, 13, 1060.	12.8	26
43	Thermal treatment-induced ductile-to-brittle transition of submicron-sized Si pillars fabricated by focused ion beam. Applied Physics Letters, 2015, 106, .	3.3	24
44	Mechanical Behavior of Micronanoscaled Metallic Glasses. Materials Research Letters, 2016, 4, 63-74.	8.7	24
45	Helium Nanobubbles Enhance Superelasticity and Retard Shear Localization in Small-Volume Shape Memory Alloy. Nano Letters, 2017, 17, 3725-3730.	9.1	24
46	Ceramic nanowelding. Nature Communications, 2018, 9, 96.	12.8	24
47	Strongly correlated breeding of high-speed dislocations. Acta Materialia, 2016, 119, 229-241.	7.9	21
48	In Situ TEM Investigation of the Mechanical Behavior of Micronanoscaled Metal Pillars. Jom, 2012, 64, 1229-1234.	1.9	20
49	Deformation of small-volume Al-4Cu alloy under electron beam irradiation. Acta Materialia, 2017, 141, 183-192.	7.9	20
50	Cracking behavior of helium-irradiated small-volume copper. Scripta Materialia, 2018, 147, 1-5.	5.2	20
51	Controlled growth of single-crystalline metal nanowires via thermomigration across a nanoscale junction. Nature Communications, 2019, 10, 4478.	12.8	16
52	Insights into fundamental deformation processes from advanced in situ transmission electron microscopy. MRS Bulletin, 2019, 44, 443-449.	3.5	16
53	Ultrafast shape change and joining of small-volume materials using nanoscale electrical discharge. Nano Research, 2015, 8, 2143-2151.	10.4	15
54	Hydrogen enhanced cracking via dynamic formation of grain boundary inside aluminium crystal. Corrosion Science, 2021, 183, 109307.	6.6	12

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55	A real-time TEM study of the deformation mechanisms in Î²-Ti reinforced bulk metallic glass composites. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2021, 818, 141427.	5.6	12
56	Ultralong one-dimensional plastic zone created in aluminum underneath a nanoscale indent. Acta Materialia, 2022, 232, 117944.	7.9	12
57	Deformation mechanism maps for sub-micron sized aluminum. Acta Materialia, 2020, 188, 570-578.	7.9	11
58	An index for deformation controllability of small-volume materials. Science China Technological Sciences, 2014, 57, 663-670.	4.0	10
59	Solidification of Mgâ€“Znâ€“Zr Alloys: Grain Growth Restriction, Dendrite Coherency and Grain Size. Acta Metallurgica Sinica (English Letters), 2020, 33, 1477-1486.	2.9	10
60	Effect of Hydrogen Charging on Pop-in Behavior of a Zr-Based Metallic Glass. Metals, 2020, 10, 22.	2.3	10
61	Achieving room-temperature M2-phase VO2 nanowires for superior thermal actuation. Nano Research, 2021, 14, 4146-4153.	10.4	10
62	Large lattice strain in individual grains of deformed nanocrystalline Ni. Applied Physics Letters, 2008, 92, .	3.3	9
63	In Situ Study of Deformation Twinning and Detwinning in Helium Irradiated Smallâ€Volume Copper. Advanced Engineering Materials, 2017, 19, 1700357.	3.5	9
64	Helium Ion Microscope Fabrication Causing Changes in the Structure and Mechanical Behavior of Silicon Micropillars. Small, 2017, 13, 1601753.	10.0	9
65	In-situ surface transformation of magnesium to protect against oxidation at elevated temperatures. Journal of Materials Science and Technology, 2020, 44, 48-53.	10.7	7
66	A high-strength Coâ€“Feâ€“Taâ€“B metallic-glass phase enabled tensile plasticity in Coâ€“Feâ€“Taâ€“Bâ€“O oxide glass matrix nanocomposites. Applied Physics Letters, 2020, 116, .	3.3	7
67	In situ study of the mechanical properties of airborne haze particles. Science China Technological Sciences, 2015, 58, 2046-2051.	4.0	6
68	Surface Rebound of Relativistic Dislocations Directly and Efficiently Initiates Deformation Twinning. Physical Review Letters, 2016, 117, 165501.	7.8	6
69	Atypical Defect Motions in Brittle Layered Sodium Titanate Nanowires. Journal of Physical Chemistry Letters, 2018, 9, 6052-6059.	4.6	5
70	Tunable Anelasticity in Amorphous Si Nanowires. Nano Letters, 2020, 20, 449-455.	9.1	5
71	A new approach of using Lorentz force to study single-asperity friction inside TEM. Journal of Materials Science and Technology, 2021, 84, 43-48.	10.7	5
72	Carbon-nanotube-templated carbon nanofibers with improved mechanical performance. Journal of Applied Physics, 2021, 129, 044303.	2.5	5

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73	Reaching near-theoretical strength by achieving quasi-homogenous surface dislocation nucleation in MgO particles. Materials Today, 2022, 55, 37-45.	14.2	4
74	Environmental transmission electron microscopy study of hydrogen charging effect on a Cu-Zr metallic glass. Materials Research Letters, 2020, 8, 439-445.	8.7	3
75	The cross-transition of deformation twinning in magnesium. Scripta Materialia, 2022, 206, 114231.	5.2	3
76	Size Effect of CeO2 Particle on Nanoscale Single-Asperity Sliding Friction. Tribology Letters, 2022, 70, 1.	2.6	3
77	A New Perspective on Mechanical Testing:In SituCompression in the TEM. Microscopy Today, 2008, 16, 34-37.	0.3	2
78	New Attempts on Preparing Tungsten FIB Sample. Microscopy and Microanalysis, 2016, 22, 174-175.	0.4	1
79	Peristalsis-like migration of carbon-metabolizing catalytic nanoparticles. Extreme Mechanics Letters, 2021, 49, 101463.	4.1	1
80	Non-Dislocation Based Room Temperature Plastic Deformation Mechanism in Magnesium. , 2016, , 199-201.		0
81	10.1063/1.5143598.2. , 2020, , .		0