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	The cross-transition of deformation twinning in magnesium. Scripta Materialia, 2022, 206, 114231.	5.2	3
2	Size Effect of CeO2 Particle on Nanoscale Single-Asperity Sliding Friction. Tribology Letters, 2022, 70, 1.	2.6	3
3	Rejuvenation of plasticity via deformation graining in magnesium. Nature Communications, 2022, 13, 1060.	12.8	26
4	Ultralong one-dimensional plastic zone created in aluminum underneath a nanoscale indent. Acta Materialia, 2022, 232, 117944.	7.9	12
5	Reaching near-theoretical strength by achieving quasi-homogenous surface dislocation nucleation in MgO particles. Materials Today, 2022, 55, 37-45.	14.2	4
6	Achieving room-temperature M2-phase VO2 nanowires for superior thermal actuation. Nano Research, 2021, 14, 4146-4153.	10.4	10
7	Tensionâ€“compression asymmetry in amorphous silicon. Nature Materials, 2021, 20, 1371-1377.	27.5	36
8	Hydrogen enhanced cracking via dynamic formation of grain boundary inside aluminium crystal. Corrosion Science, 2021, 183, 109307.	6.6	12
9	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
10	Peristalsis-like migration of carbon-metabolizing catalytic nanoparticles. Extreme Mechanics Letters, 2021, 49, 101463.	4.1	1
11	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
12	Carbon-nanotube-templated carbon nanofibers with improved mechanical performance. Journal of Applied Physics, 2021, 129, 044303.	2.5	5
13	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
14	Tunable Anelasticity in Amorphous Si Nanowires. Nano Letters, 2020, 20, 449-455.	9.1	5
15	Exceptional plasticity in the bulk single-crystalline van der Waals semiconductor InSe. Science, 2020, 369, 542-545.	12.6	163
16	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
17	Phase transition enhanced superior elasticity in freestanding single-crystalline multiferroic BiFeO ₃ membranes. Science Advances, 2020, 6, .	10.3	73
18	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

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19	Effect of Hydrogen Charging on Pop-in Behavior of a Zr-Based Metallic Glass. Metals, 2020, 10, 22.	2.3	10
20	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
21	Deformation mechanism maps for sub-micron sized aluminum. Acta Materialia, 2020, 188, 570-578.	7.9	11
22	Raftingâ€Enabled Recovery Avoids Recrystallization in 3Dâ€Printingâ€Repaired Singleâ€Crystal Superalloys. Advanced Materials, 2020, 32, e1907164.	21.0	28
23	10.1063/1.5143598.2. , 2020, , .		0
24	Large plasticity in magnesium mediated by pyramidal dislocations. Science, 2019, 365, 73-75.	12.6	264
25	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
26	Controlled growth of single-crystalline metal nanowires via thermomigration across a nanoscale junction. Nature Communications, 2019, 10, 4478.	12.8	16
27	Insights into fundamental deformation processes from advanced in situ transmission electron microscopy. MRS Bulletin, 2019, 44, 443-449.	3.5	16
28	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
29	Ceramic nanowelding. Nature Communications, 2018, 9, 96.	12.8	24
30	Cracking behavior of helium-irradiated small-volume copper. Scripta Materialia, 2018, 147, 1-5.	5.2	20
31	Turning a native or corroded Mg alloy surface into an anti-corrosion coating in excited CO2. Nature Communications, 2018, 9, 4058.	12.8	76
32	Atypical Defect Motions in Brittle Layered Sodium Titanate Nanowires. Journal of Physical Chemistry Letters, 2018, 9, 6052-6059.	4.6	5
33	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
34	Effect of hydrogen on the integrity of aluminiumâ€“oxide interface at elevated temperatures. Nature Communications, 2017, 8, 14564.	12.8	39
35	Helium Nanobubbles Enhance Superelasticity and Retard Shear Localization in Small-Volume Shape Memory Alloy. Nano Letters, 2017, 17, 3725-3730.	9.1	24
36	In Situ Study of Deformation Twinning and Detwinning in Helium Irradiated Smallâ€Volume Copper. Advanced Engineering Materials, 2017, 19, 1700357.	3.5	9

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37	The Mechanical Properties of Nanowires. Advanced Science, 2017, 4, 1600332.	11.2	152
38	Sliding of coherent twin boundaries. Nature Communications, 2017, 8, 1108.	12.8	44
39	Inflating hollow nanocrystals through a repeated Kirkendall cavitation process. Nature Communications, 2017, 8, 1261.	12.8	135
40	Deformation of small-volume Al-4Cu alloy under electron beam irradiation. Acta Materialia, 2017, 141, 183-192.	7.9	20
41	Helium Ion Microscope Fabrication Causing Changes in the Structure and Mechanical Behavior of Silicon Micropillars. Small, 2017, 13, 1601753.	10.0	9
42	Nanoscratching of copper surface by CeO2. Acta Materialia, 2017, 124, 343-350.	7.9	47
43	New Attempts on Preparing Tungsten FIB Sample. Microscopy and Microanalysis, 2016, 22, 174-175.	0.4	1
44	Strongly correlated breeding of high-speed dislocations. Acta Materialia, 2016, 119, 229-241.	7.9	21
45	In situ TEM study of deformation-induced crystalline-to-amorphous transition in silicon. NPG Asia Materials, 2016, 8, e291-e291.	7.9	60
46	Surface Rebound of Relativistic Dislocations Directly and Efficiently Initiates Deformation Twinning. Physical Review Letters, 2016, 117, 165501.	7.8	6
47	Nanobubble Fragmentation and Bubble-Free-Channel Shear Localization in Helium-Irradiated Submicron-Sized Copper. Physical Review Letters, 2016, 117, 215501.	7.8	61
48	Hydrogenated vacancies lock dislocations in aluminium. Nature Communications, 2016, 7, 13341.	12.8	131
49	Radiation-Induced Helium Nanobubbles Enhance Ductility in Submicron-Sized Single-Crystalline Copper. Nano Letters, 2016, 16, 4118-4124.	9.1	102
50	Mechanical Behavior of Micronanoscaled Metallic Glasses. Materials Research Letters, 2016, 4, 63-74.	8.7	24
51	Non-Dislocation Based Room Temperature Plastic Deformation Mechanism in Magnesium. , 2016, , 199-201.		0
52	Ultrafast shape change and joining of small-volume materials using nanoscale electrical discharge. Nano Research, 2015, 8, 2143-2151.	10.4	15
53	Terrace-like morphology of the boundary created through basal-prismatic transformation in magnesium. Scripta Materialia, 2015, 100, 86-89.	5.2	55
54	In situ study of the initiation of hydrogen bubbles at the aluminium metal/oxide interface. Nature Materials, 2015, 14, 899-903.	27.5	134

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55	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
56	In situ study of the mechanical properties of airborne haze particles. Science China Technological Sciences, 2015, 58, 2046-2051.	4.0	6
57	Growth Conditions Control the Elastic and Electrical Properties of ZnO Nanowires. Nano Letters, 2015, 15, 7886-7892.	9.1	53
58	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
59	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
60	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
61	Twinning-like lattice reorientation without a crystallographic twinning plane. Nature Communications, 2014, 5, 3297.	12.8	154
62	Elastic strain engineering for unprecedented materials properties. MRS Bulletin, 2014, 39, 108-114.	3.5	214
63	An index for deformation controllability of small-volume materials. Science China Technological Sciences, 2014, 57, 663-670.	4.0	10
64	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
65	Ductile necking behavior of nanoscale metallic glasses under uniaxial tension at room temperature. Acta Materialia, 2013, 61, 4823-4830.	7.9	73
66	Visualizing size-dependent deformation mechanism transition in Sn. Scientific Reports, 2013, 3, 2113.	3.3	57
67	Sample size effects on the large strain bursts in submicron aluminum pillars. Applied Physics Letters, 2012, 100, .	3.3	67
68	Approaching the ideal elastic limit of metallic glasses. Nature Communications, 2012, 3, 609.	12.8	345
69	In Situ TEM Investigation of the Mechanical Behavior of Micronanoscaled Metal Pillars. Jom, 2012, 64, 1229-1234.	1.9	20
70	Pristine-to-pristine regime of plastic deformation in submicron-sized single crystal gold particles. Acta Materialia, 2012, 60, 1368-1377.	7.9	33
71	A new regime for mechanical annealing and strong sample-size strengthening in body centred cubic molybdenum. Nature Communications, 2011, 2, 547.	12.8	84
72	Strong crystal size effect on deformation twinning. Nature, 2010, 463, 335-338.	27.8	553

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73	Electron-beam-assisted superplastic shaping of nanoscale amorphous silica. Nature Communications, 2010, 1, 24.	12.8	280
74	Inter- and Intra-Agglomerate Fracture in Nanocrystalline Nickel. Physical Review Letters, 2008, 100, 105502.	7.8	31
75	Large lattice strain in individual grains of deformed nanocrystalline Ni. Applied Physics Letters, 2008, 92, .	3.3	9
76	A New Perspective on Mechanical Testing:In SituCompression in the TEM. Microscopy Today, 2008, 16, 34-37.	0.3	2
77	In situ nanoindentation in the TEM. Materials Today, 2007, 10, 59-60.	14.2	53
78	The mechanical behavior of nanoporous gold thin films. Jom, 2007, 59, 54-58.	1.9	78
79	A new view of the onset of plasticity during the nanoindentation of aluminium. Nature Materials, 2006, 5, 697-702.	27.5	398
80	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
81	Grain Boundary-Mediated Plasticity in Nanocrystalline Nickel. Science, 2004, 305, 654-657.	12.6	803