The Hallâ€“Petch breakdown in nanocrystalline metals deformation

Acta Materialia

55, 5948-5958

DOI: 10.1016/j.actamat.2007.07.020

Citation Report

#	Article	IF	Citations
1	Preparation of Aluminum Coatings Containing Homogenous Nanocrystalline Microstructures Using the Cold Spray Process. Journal of Thermal Spray Technology, 2008, 17, 352-359.	3.1	63
2	Quasicontinuum study of incipient plasticity under nanoscale contact in nanocrystalline aluminum. Acta Materialia, 2008, 56, 6013-6026.	7.9	48
3	Microstructure and mechanical behaviour of nano-eutectic Fe83B17alloy prepared by a self-propagating high temperature synthesis combining rapid solidification. Journal Physics D: Applied Physics, 2008, 41, 235401.	2.8	8
4	High-strength Cuâ€“Zr binary alloy with an ultrafine eutectic microstructure. Journal of Materials Research, 2008, 23, 1987-1994.	2.6	13
5	The Hallâ€“Petch breakdown at high strain rates: Optimizing nanocrystalline grain size for impact applications. Applied Physics Letters, 2008, 93, .	3.3	77
6	Limits of hardness at the nanoscale: Molecular dynamics simulations. Physical Review B, 2008, 78, .	3.2	49
7	Deformation Crossover: From Nano- to Mesoscale. Physical Review Letters, 2009, 103, 035502.	7.8	51
8	The Effect of Grain Size and Strain Rate on the Tensile Ductility of Bulk Nanostructured Metals and Alloys. Materials Science Forum, 2009, 633-634, 393-410.	0.3	0
9	Surface-effect territory in small volume creep deformation. Journal of Materials Research, 2009, 24, 3277-3285.	2.6	17
10	Indentation size effects on the creep behavior of nanocrystalline tetragonal Ta films. Scripta Materialia, 2009, 60, 415-418.	5.2	48
11	Hot nanoindentation of nanocrystalline Niâ€“W alloys. Scripta Materialia, 2009, 61, 1056-1059.	5.2	21
12	Nano- and micro-scale free volume in ultrafine grained Cuâ€“1wt.%Pb alloy deformed by equal channel angular pressing. Acta Materialia, 2009, 57, 5706-5717.	7.9	83
13	Dry-sliding Tribological Properties of Nano-Eutectic Fe83B17 Alloy. Tribology Letters, 2009, 34, 185-191.	2.6	19
14	Grain size, strain rate, and temperature dependence of flow stress in ultra-fine grained and nanocrystalline Cu and Al: Synthesis, experiment, and constitutive modeling. International Journal of Plasticity, 2009, 25, 715-732.	8.8	174
15	Mechanics of very fine-grained nanocrystalline materials with contributions from grain interior, GB zone, and grain-boundary sliding. International Journal of Plasticity, 2009, 25, 2410-2434.	8.8	86
16	In situ transmission electron microscopic observations of deformation and fracture processes in nanocrystalline palladium and Pd90Au10. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2009, 525, 102-106.	5.6	28
17	The influence of grain morphology on indentation deformation characteristic of metallic nano-multilayers. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2009, 526, 166-170.	5.6	13
18	Grain boundary shearâ€“migration couplingâ€”I. In situ TEM straining experiments in Al polycrystals. Acta Materialia, 2009, 57, 2198-2209.	7.9	179

#	Article	IF	Citations
19	Grain boundary segregation and thermodynamically stable binary nanocrystalline alloys. Physical Review B, 2009, 79, .	3.2	259
20	Strain rates in molecular dynamics simulations of nanocrystalline metals. Philosophical Magazine, 2009, 89, 3465-3475.	1.6	64
21	Work hardening and inherent plastic instability of nanocrystalline metals. Physica Status Solidi - Rapid Research Letters, 2010, 4, 130-132.	2.4	17
22	Dependence of strain rate sensitivity upon deformed microstructures in nanocrystalline Cu. Acta Materialia, 2010, 58, 5196-5205.	7.9	66
23	The origin of the ultrahigh strength and good ductility in nanotwinned copper. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2010, 527, 4270-4274.	5.6	23
24	Elevated temperature deformation behavior of spark plasma sintered nanometric nickel with varied grain size distributions. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2010, 528, 663-671.	5.6	23
25	Sliding wear of nanocrystalline Niâ€“W: Structural evolution and the apparent breakdown of Archard scaling. Acta Materialia, 2010, 58, 4137-4148.	7.9	282
26	Enhanced mechanical properties due to structural changes induced by devitrification in Feâ€“Coâ€“Bâ€“Siâ€“Nb bulk metallic glass. Acta Materialia, 2010, 58, 6256-6266.	7.9	88
27	Multiscale Modeling of Contact-Induced Plasticity in Nanocrystalline Metals. Challenges and Advances in Computational Chemistry and Physics, 2010, , 151-172.	0.6	1
28	Deformation kinetics of Zr-based bulk metallic glassesâ€”Temperature and strain rate influences on shear banding. Journal of Alloys and Compounds, 2010, 495, 341-344.	5.5	6
29	Strength and plasticity of nanocrystalline materials and nanosized crystals. Physics-Uspekhi, 2011, 54, 1091-1116.	2.2	36
30	Catastrophic vs Gradual Collapse of Thin-Walled Nanocrystalline Ni Hollow Cylinders As Building Blocks of Microlattice Structures. Nano Letters, 2011, 11, 4118-4125.	9.1	34
31	Compressive yield strength of the nanocrystalline Cu with Al2O3 dispersoid. Journal of Alloys and Compounds, 2011, 509, 2355-2359.	5.5	20
32	The deformation and fracture behavior of an electrodeposited nanocrystalline Ni under compression. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2011, 528, 7878-7886.	5.6	8
33	Size-induced weakening and grain boundary-assisted deformation in 60 nm grained Ni nanopillars. Scripta Materialia, 2011, 64, 77-80.	5.2	174
34	Yield point phenomenon during strain rate change in nanocrystalline Niâ€“Fe. Scripta Materialia, 2011, 65, 217-220.	5.2	14
35	Size effects in the hardness of fcc metals on micro- and nanoscales. Technical Physics, 2011, 56, 642-645.	0.7	8
36	Ultralight Metallic Microlattices. Science, 2011, 334, 962-965.	12.6	1,389

#	Article	IF	Citations
37	Enhanced solid solution effects on the strength of nanocrystalline alloys. Acta Materialia, 2011, 59, 1619-1631.	7.9	200
38	Constitutive modeling of strain rate effects in nanocrystalline and ultrafine grained polycrystals. International Journal of Solids and Structures, 2011, 48, 1610-1616.	2.7	10
39	Shear softening of grain boundaries in nanocrystalline Pd. Acta Materialia, 2011, 59, 1523-1529.	7.9	33
40	Strain rate sensitivity of unequal grained nano-multilayers. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2011, 528, 5908-5913.	5.6	16
41	High hardness in a nanocrystalline Mg97Y2Zn1 alloy. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2011, 528, 7494-7499.	5.6	18
42	Shear banding deformation in Cu/Ta nano-multilayers. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2011, 528, 7290-7294.	5.6	31
43	Mechanics of a nanocrystalline coating and grain-size dependence of its plastic strength. Mechanics of Materials, 2011, 43, 496-504.	3.2	16
44	Plasticity in small-sized metallic systems: Intrinsic versus extrinsic size effect. Progress in Materials Science, 2011, 56, 654-724.	32.8	1,508
45	The inverse Hallâ€“Petch effect in nanocrystalline ZrN coatings. Surface and Coatings Technology, 2011, 205, 3692-3697.	4.8	97
46	Effects of ultrafine nanograins on the fracture toughness of nanocrystalline materials. Journal of Materials Research, 2011, 26, 1734-1741.	2.6	10
47	Relationship between hardness and dislocation processes in a nanocrystalline metal at the atomic scale. Physical Review B, 2011, 83, .	3.2	31
48	Analyzing mechanical properties of a nanocrystalline Feâ€“Ni coating by nanoindentation. Journal of Materials Research, 2011, 26, 2533-2542.	2.6	3
49	Strengthening mechanisms in nanocrystalline metals. , 2011, , 299-328.		16
50	Common Mechanism for Superplastic Deformation in Different Classes of Materials. Materials Science Forum, 0, 735, 26-30.	0.3	1
51	Grain boundary relaxation strengthening of nanocrystalline Niâ€“W alloys. Journal of Materials Research, 2012, 27, 1285-1294.	2.6	146
52	A mechanism for the deformation of disordered states of matter. Current Opinion in Solid State and Materials Science, 2012, 16, 243-253.	11.5	15
53	Annealing-Induced {011}-Specific Cyclic Twins in Tetragonal Zirconia Nanoparticles. Journal of Physical Chemistry C, 2012, 116, 21052-21058.	3.1	14
54	Microâ€‹Nanostructured Mechanical Metamaterials. Advanced Materials, 2012, 24, 4782-4810.	21.0	435

#	Article	IF	Citations
55	Microstructural evolution and its influence on creep and stress relaxation in nanocrystalline Ni. Acta Materialia, 2012, 60, 6742-6754.	7.9	49
56	Critical grain size for nanocrystalline-to-amorphous phase transition in Al solid solution. Philosophical Magazine Letters, 2012, 92, 235-244.	1.2	4
57	Size-Dependent Deformation of Nanocrystalline Pt Nanopillars. Nano Letters, 2012, 12, 6385-6392.	9.1	162
58	Exploring Deformation Mechanisms in Nanostructured Materials. Jom, 2012, 64, 1241-1252.	1.9	33
59	A General Method for Quantifying the Amorphous Phase in Nano Polycrystalline Materials. Modern Applied Science, 2012, 6, .	0.6	1
60	The effect of nanostructural hierarchy on the mechanical properties of aluminium alloys during deformation processes. Journal of Materials Science, 2012, 47, 6872-6881.	3.7	7
61	The chemistry and structure of nickelâ€“tungsten coatings obtained by pulse galvanostatic electrodeposition. Electrochimica Acta, 2012, 72, 87-93.	5.2	35
62	Nanocrystalline metals go ductile under shear deformation. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2012, 546, 248-257.	5.6	16
63	The effects of the finest grains on the mechanical behaviours of nanocrystalline materials. Journal of Nanoparticle Research, 2012, 14, 1.	1.9	11
64	A micromechanical approach to the stressâ€“strain relations, strain-rate sensitivity and activation volume of nanocrystalline materials. International Journal of Mechanics and Materials in Design, 2013, 9, 141-152.	3.0	17
65	Following the deformation behavior of nanocrystalline Pd films on polyimide substrates using in situ synchrotron XRD. Mechanics of Materials, 2013, 67, 65-73.	3.2	14
66	Alloys on the Nanoscale. , 2013, , 409-472.		1
67	Microstructure and deformation mechanisms in nanocrystalline Niâ€“Fe. Part I. Microstructure. Acta Materialia, 2013, 61, 5835-5845.	7.9	24
68	Activation volume and strain rate sensitivity in plastic deformation of nanocrystalline Ti. Surface and Coatings Technology, 2013, 228, S254-S256.	4.8	29
69	Frictional performance and near-surface evolution of nanocrystalline Niâ€“Fe as governed by contact stress and sliding velocity. Wear, 2013, 297, 860-871.	3.1	77
70	Abrasive wear response of nanocrystalline Niâ€“W alloys across the Hallâ€“Petchbreakdown. Wear, 2013, 298-299, 120-126.	3.1	59
71	Functionally graded vacuum plasma sprayed and magnetron sputtered tungsten/EUROFER97 interlayers for joints in helium-cooled divertor components. Journal of Nuclear Materials, 2013, 436, 29-39.	2.7	42
72	Microstructure and deformation mechanisms in nanocrystalline Niâ€“Fe. Part II. In situ testing during X-ray diffraction. Acta Materialia, 2013, 61, 5846-5856.	7.9	17

#	Article	IF	Citations
73	Structural, magnetic, and mechanical properties of electrodeposited cobaltâ€“tungsten alloys: Intrinsic and extrinsic interdependencies. Electrochimica Acta, 2013, 104, 94-103.	5.2	81
74	Extreme Extensibility of Copper Foil under Compound Forming Conditions. Scientific Reports, 2013, 3, 3556.	3.3	24
75	Nanoindentation behavior of nanotwinned Cu: Influence of indenter angle on hardness, strain rate sensitivity and activation volume. Acta Materialia, 2013, 61, 7313-7323.	7.9	75
76	Deformation mechanisms in nanocrystalline metals: Insights from in-situ diffraction and crystal plasticity modelling. Thin Solid Films, 2013, 530, 20-24.	1.8	17
77	The microstructural evolution and thermal stability of nanocrystalline ball-milled Niâ€“15 at.% W powder. Journal of Materials Research, 2013, 28, 873-886.	2.6	6
78	Physics and model of strengthening by parallel stacking faults. Applied Physics Letters, 2013, 103, .	3.3	81
79	The effect of solute segregation on strain localization in nanocrystalline thin films: Dislocation glide vs. grain-boundary mediated plasticity. Applied Physics Letters, 2013, 102, .	3.3	15
80	Strain localization in a nanocrystalline metal: Atomic mechanisms and the effect of testing conditions. Journal of Applied Physics, 2013, 114, .	2.5	72
81	Strain Rate Dependent Shear Banding Deformation in Al/W Nanomultilayers. Integrated Ferroelectrics, 2013, 146, 168-176.	0.7	4
82	Effect of the structural factor on the inverse Hall-Petch dependence in nanocrystals. Bulletin of the Russian Academy of Sciences: Physics, 2014, 78, 1179-1182.	0.6	0
83	First Direct In Situ Observation of Grain Boundary Sliding in Ultrafine Grained Noble Metal. Advanced Engineering Materials, 2014, 16, 517-521.	3.5	13
84	Robust scaling of strength and elastic constants and universal cooperativity in disordered colloidal micropillars. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 18167-18172.	7.1	8
85	Mechanical Properties of Nanostructured Metals. , 2014, , 495-553.		6
86	Uniting superhardness and damage-tolerance in a nanosandwich-structured Tiâ€“Bâ€“N coating. Scripta Materialia, 2014, 74, 88-91.	5.2	16
87	Emergence of localized plasticity and failure through shear banding during microcompression of a nanocrystalline alloy. Acta Materialia, 2014, 65, 326-337.	7.9	32
88	The dominant deformation mechanism of nanocrystalline materials with the finest grains: grain boundary sliding or grain boundary migration?. Journal of Nanoparticle Research, 2014, 16, 1.	1.9	4
89	Specimen- and grain-size dependence of compression deformation behavior in nanocrystalline copper. International Journal of Plasticity, 2014, 56, 173-183.	8.8	62
90	Microstructure and mechanical properties of a Mo-toughened Mo3Si-based in situ nanocomposite. Vacuum, 2014, 109, 112-119.	3.5	13

#	Article	IF	Citations
91	Loading Rate-Dependent Mechanical Properties of Bulk Two-Phase Nanocrystalline Al-Pb Alloys Studied by Nanoindentation. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2014, 45, 5249-5258.	2.2	9
92	Physical Metallurgy of Nanocrystalline Metals. , 2014, , 2707-2805.		7
93	Fabrication and Deformation of Metallic Glass Microâ€Lattices. Advanced Engineering Materials, 2014, 16, 889-896.	3.5	50
94	Fabrication of bulk nanocrystalline Feâ€“Ni alloys with high strength and high ductility by an electrodeposition. Materials Letters, 2014, 116, 71-74.	2.6	44
95	Variation of the deformation mechanisms in a nanocrystalline Pdâ€“10at.% Au alloy at room and cryogenic temperatures. International Journal of Plasticity, 2014, 60, 40-57.	8.8	14
96	Solid solution strengthening and softening due to collective nanocrystalline deformation physics. Scripta Materialia, 2014, 81, 44-47.	5.2	31
97	Disruption of Thermally-Stable Nanoscale Grain Structures by Strain Localization. Scientific Reports, 2015, 5, 10663.	3.3	15
98	Altering strength and plastic deformation behavior via alloying and laminated structure in nanocrystalline metals. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2015, 640, 24-32.	5.6	5
99	Effect of a high angle grain boundary on deformation behavior of Al nanopillars. Scripta Materialia, 2015, 107, 5-9.	5.2	35
100	Non-Monotonous Mechanical Behavior at the Nanoscale: Elastic and Plastic Properties. Strength of Materials, 2015, 47, 642-651.	0.5	1
101	Grain size effect on indentation of nanocrystalline copper. Applied Surface Science, 2015, 353, 494-498.	6.1	47
102	Strengthening and weakening by repeated dynamic impact in microcrystals and nanocrystals. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2015, 639, 97-102.	5.6	4
103	Electroplated Niâ€“B films and Niâ€“B metal matrix diamond nanocomposite coatings. Surface and Coatings Technology, 2015, 272, 291-297.	4.8	46
104	Dynamic recovery in nanocrystalline Ni. Acta Materialia, 2015, 91, 91-100.	7.9	49
105	Comparison of In Situ Micromechanical Strain-Rate Sensitivity Measurement Techniques. Jom, 2015, 67, 1684-1693.	1.9	35
106	Optimization of strength and ductility in nanotwinned ultra-fine grained Ag: Twin density and grain orientations. Acta Materialia, 2015, 96, 378-389.	7.9	50
107	Effect of grain size on slip activity in pure magnesium polycrystals. Acta Materialia, 2015, 84, 443-456.	7.9	187
108	The ultra-small strongest grain size in nanocrystalline Ni nanowires. Scripta Materialia, 2015, 94, 9-12.	5.2	15

#	Article	IF	Citations
109	Strain rate sensitivity of Al-based composites reinforced with MnO2 additions. Journal of Alloys and Compounds, 2015, 619, 652-658.	5.5	7
110	Six decades of the Hallâ€“Petch effect â€“ a survey of grain-size strengthening studies on pure metals. International Materials Reviews, 2016, 61, 495-512.	19.3	602
111	Fourth-order strain-gradient phase mixture model for nanocrystalline fcc materials. Modelling and Simulation in Materials Science and Engineering, 2016, 24, 085016.	2.0	4
112	A stabilized, high stress self-biasing shape memory alloy actuator. Smart Materials and Structures, 2016, 25, 095027.	3.5	10
113	Solid solution effects on hardness and strain rate sensitivity of nanocrystalline NiFe alloy. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2016, 676, 501-505.	5.6	21
114	Mechanical properties of in situ consolidated nanocrystalline multi-phase Alâ€“Pbâ€“W alloy studied by nanoindentation. Philosophical Magazine, 2016, 96, 3671-3685.	1.6	4
115	Internal Length Gradient (ILG) Material Mechanics Across Scales and Disciplines. Advances in Applied Mechanics, 2016, 49, 1-110.	2.3	98
116	Mechanistic coupling of dislocation and shear transformation zone plasticity in crystalline-amorphous nanolaminates. Acta Materialia, 2016, 117, 293-305.	7.9	55
117	Grain size effect on stress hysteresis of nanocrystalline NiTi alloys. Journal of Alloys and Compounds, 2016, 688, 62-68.	5.5	73
118	Multiscale Materials Modeling for Nanomechanics. Springer Series in Materials Science, 2016, , .	0.6	20
119	A Multiple-Mechanism-Based Model for Prediction of Yield Strength in Bicrystals. International Journal of Applied Mechanics, 2016, 08, 1650046.	2.2	0
120	Stabilizing nanostructures in metals using grain and twin boundary architectures. Nature Reviews Materials, 2016, 1, .	48.7	671
121	Effects of grain size and temperature on mechanical response of nanocrystalline copper. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2016, 671, 1-6.	5.6	35
122	Mechanical and high temperature wear properties of extruded Al composite reinforced with Al 13 Fe 4 CMA nanoparticles. Materials and Design, 2016, 90, 532-544.	7.0	36
123	Grain and interface boundaries governed strengthening mechanisms in metallic multilayers. Journal of Alloys and Compounds, 2017, 698, 906-912.	5.5	34
124	Molecular dynamics simulations of tensionâ€“compression asymmetry in nanocrystalline copper. Physics Letters, Section A: General, Atomic and Solid State Physics, 2017, 381, 1163-1168.	2.1	39
125	Constitutive response of calciumâ€“silicateâ€“hydrate layers under combined loading. Journal of the American Ceramic Society, 2017, 100, 713-723.	3.8	15
126	Micro extrusion of ultrafine grained titanium prepared by ECAP. Journal Wuhan University of Technology, Materials Science Edition, 2017, 32, 437-443.	1.0	7

#	Article	IF	Citations
127	Stress-assisted grain growth in nanocrystalline metals: Grain boundary mediated mechanisms and stabilization through alloying. Acta Materialia, 2017, 131, 39-47.	7.9	70
128	Atomistic simulation study of tensile deformation in nanocrystalline and single-crystal Au. Journal of Molecular Modeling, 2017, 23, 114.	1.8	8
129	Linking microstructural evolution and macro-scale friction behavior in metals. Journal of Materials Science, 2017, 52, 2780-2799.	3.7	75
130	Engineering Applications. Experimental Methods in the Physical Sciences, 2017, , 683-737.	0.1	3
131	Microstructure development of ultra fine grained Mg-22 wt%Gd alloy prepared by high pressure torsion. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2017, 704, 181-191.	5.6	16
132	Shock wave propagation and spall failure of nanocrystalline Cu/Ta alloys: Effect of Ta in solid-solution. Journal of Applied Physics, 2017, 122, .	2.5	29
133	Fabrication and mechanical characterization of rare earth permanent magnet SmCo5 films. Journal of Alloys and Compounds, 2017, 694, 726-732.	5.5	12
134	Competing Grain Boundary and Interior Deformation Mechanisms with Varying Sizes. , 2018, , 1-16.		1
135	Molecular Dynamics Simulations of Nanopolycrystals. , 2018, , 1-30.		0
136	Softening due to Grain Boundary Cavity Formation and its Competition with Hardening in Helium Implanted Nanocrystalline Tungsten. Scientific Reports, 2018, 8, 2897.	3.3	35
137	Intersectant coherent twin boundaries governed strong strain hardening behavior in nanocrystalline Cu. International Journal of Plasticity, 2018, 103, 81-94.	8.8	23
138	Highâ€Strength Nanotwinned Al Alloys with 9R Phase. Advanced Materials, 2018, 30, 1704629.	21.0	93
139	Design of crystalline-amorphous nanolaminates using deformation mechanism maps. Acta Materialia, 2018, 153, 314-326.	7.9	35
140	Dislocation interactions at reduced strain rates in atomistic simulations of nanocrystalline Al. Acta Materialia, 2018, 144, 68-79.	7.9	21
141	Ultra-strong nanotwinned Alâ€“Ni solid solution alloys with significant plasticity. Nanoscale, 2018, 10, 22025-22034.	5.6	30
142	Compression-Induced Polycrystal-Glass Transition in Binary Crystals. Physical Review X, 2018, 8, .	8.9	11
143	Concurrent transitions in wear rate and surface microstructure in nanocrystalline Ni-W. Materialia, 2018, 4, 38-46.	2.7	2
144	Spatial heterogeneity as the structure feature for structureâ€“property relationship of metallic glasses. Nature Communications, 2018, 9, 3965.	12.8	115

#	Article	IF	Citations
145	From metallic glasses to nanocrystals: Molecular dynamics simulations on the crossover from glass-like to grain-boundary-mediated deformation behaviour. Acta Materialia, 2018, 156, 205-214.	7.9	38
146	Effect of coating thickness and annealing temperature on ZrN coating failure of U-Mo particles under heat treatment. Journal of Nuclear Materials, 2018, 507, 347-359.	2.7	6
147	Size effect for achieving high mechanical performance body-centered cubic metals and alloys. Science China Materials, 2018, 61, 1495-1516.	6.3	14
148	Understanding yielding and the unusual ductile-brittle-ductile transition in Fe-based amorphous nanocrystalline alloy: A combined micromechanical and thermodynamic study. Journal of the Mechanics and Physics of Solids, 2019, 132, 103681.	4.8	17
149	Influence of Nd addition on microstructures and mechanical properties of a hot-extruded Mgâ^'6.0Znâ^'0.5Zr (wt.%) alloy. Journal of Alloys and Compounds, 2019, 806, 1166-1179.	5.5	48
150	Amorphous Intergranular Films Enable the Creation of Bulk Nanocrystalline Cuâ€“Zr with Full Density. Advanced Engineering Materials, 2019, 21, 1900333.	3.5	7
151	Molecular Dynamics Simulations of Nanopolycrystals. , 2019, , 301-330.		1
152	Competing Grain Boundary and Interior Deformation Mechanisms with Varying Sizes. , 2019, , 1239-1254.		1
153	High temperature thermal and mechanical stability of high-strength nanotwinned Al alloys. Acta Materialia, 2019, 165, 142-152.	7.9	45
154	Incipient plasticity and voids nucleation of nanocrystalline gold nanofilms using molecular dynamics simulation. Current Applied Physics, 2019, 19, 332-340.	2.4	11
155	Understanding the strain rate sensitivity of nanocrystalline copper using molecular dynamics simulations. Computational Materials Science, 2020, 172, 109294.	3.0	30
156	Nanoindentation response of nanocrystalline copper via molecular dynamics: Grain-size effect. Materials Chemistry and Physics, 2020, 241, 122391.	4.0	41
157	Pulse electrodeposition and characterization of graphene oxide particle-reinforced Niâ€“W alloy matrix nanocomposite coatings. Journal of Applied Electrochemistry, 2020, 50, 265-279.	2.9	22
158	The Hallâ€“Petch and inverse Hallâ€“Petch relations and the hardness of nanocrystalline metals. Journal of Materials Science, 2020, 55, 2661-2681.	3.7	260
159	On the Hardness and Strain Rate Sensitivity of Electrodeposited Nanocrystalline Niâ€“18Âwt% Co Alloy Studied by Nanoindentation. Transactions of the Indian Institute of Metals, 2020, 73, 457-464.	1.5	1
160	On the grain size dependence of shock responses in nanocrystalline sic ceramics at high strain rates. Acta Materialia, 2020, 200, 632-651.	7.9	32
161	Towards revealing key factors in mechanical instability of bioabsorbable Zn-based alloys for intended vascular stenting. Acta Biomaterialia, 2020, 105, 319-335.	8.3	62
162	Building on Gleiter: The Foundations and Future of Deformation Processing of Nanocrystalline Metals. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2020, 51, 6020-6044.	2.2	10

#	Article	IF	Citations
163	On the mechanistic origins of maximum strength in nanocrystalline metals. Npj Computational Materials, 2020, 6, .	8.7	28
164	Dominant factors for fracture at the micro-scale in electrodeposited nickel alloys. Sensors and Actuators A: Physical, 2020, 314, 112239.	4.1	5
165	Design of super-strong and thermally stable nanotwinned Al alloys via solute synergy. Nanoscale, 2020, 12, 20491-20505.	5.6	12
166	Heterogeneous solute segregation suppresses strain localization in nanocrystalline Ag-Ni alloys. Acta Materialia, 2020, 200, 91-100.	7.9	15
167	Deadlocked Order and Disorder in the Strongest Metals. Physics Magazine, 2020, 13, .	0.1	2
168	Ductility limit diagrams for superplasticity and forging of high temperature polycrystalline materials. Acta Materialia, 2020, 194, 378-386.	7.9	17
169	Strong and plastic metallic composites with nanolayered architectures. Acta Materialia, 2020, 195, 240-251.	7.9	31
170	Fine-grain-embedded dislocation-cell structures for high strength and ductility in additively manufactured steels. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2020, 790, 139736.	5.6	27
171	Ultra-strong nanostructured CrMnFeCoNi high entropy alloys. Materials and Design, 2020, 194, 108895.	7.0	55
172	Rethinking scaling laws in the high-cycle fatigue response of nanostructured and coarse-grained metals. International Journal of Fatigue, 2020, 134, 105472.	5.7	9
173	Pulsed electrodeposition, mechanical properties and wear mechanism in Ni-W/SiC nanocomposite coatings used for automotive applications. Applied Surface Science, 2020, 527, 146896.	6.1	63
174	Understanding the Antipathogenic Performance of Nanostructured and Conventional Copper Cold Spray Material Consolidations and Coated Surfaces. Crystals, 2020, 10, 504.	2.2	15
175	Grain-Size-Dependent Grain Boundary Deformation during Yielding in Nanocrystalline Materials Using Atomistic Simulations. Jom, 2020, 72, 1745-1754.	1.9	10
176	Suppression of shear localization in nanocrystalline Alâ€“Niâ€“Ce via segregation engineering. Acta Materialia, 2020, 188, 63-78.	7.9	18
177	High-strength and tunable plasticity in sputtered Alâ€“Cr alloys with multistage phase transformations. International Journal of Plasticity, 2021, 137, 102915.	8.8	9
178	Segregation behavior of alloying elements at Ni Î£5 [001](210) symmetrical tilt grain boundary in nickel-based superalloys and their stabilization and strengthening mechanisms for the grain boundary. Materials Chemistry and Physics, 2021, 258, 123977.	4.0	17
179	In-situ TEM annealing of amorphous Fe-24at.%W coatings and the effect of crystallization on hardness. Journal of Materials Science, 2021, 56, 4006-4012.	3.7	2
180	Self-toughened high entropy alloy with a body-centred cubic structure. Nanoscale, 2021, 13, 3602-3612.	5.6	8

#	Article	IF	Citations
181	First-principles calculations for understanding microstructures and mechanical properties of co-sputtered Al alloys. Nanoscale, 2021, 13, 14987-15001.	5.6	11
182	Constitutive modeling of size-dependent deformation behavior in nano-dual-phase glass-crystal alloys. International Journal of Plasticity, 2021, 137, 102918.	8.8	10
183	Investigation on cross-scale indentation scaling relationships of elasticâ€“plastic solids. Acta Mechanica, 2021, 232, 1479-1496.	2.1	5
184	Stability of nanocrystalline metals: The role of grain-boundary chemistry and structure. MRS Bulletin, 2021, 46, 225-235.	3.5	48
185	Pulse Electrodeposited Ni-26 at. %Moâ€”A Crossover from Nanocrystalline to Amorphous. Nanomaterials, 2021, 11, 681.	4.1	1
186	Strain rate-dependent hardness and deformation behavior in the nanocrystalline/amorphous Ti2AlNb film. Surface and Coatings Technology, 2021, 412, 127040.	4.8	6
187	Thermodynamic stabilization of nanocrystalline aluminum. Journal of Materials Science, 2021, 56, 14611-14623.	3.7	12
188	Amorphous complexions alter the tensile failure of nanocrystalline Cu-Zr alloys. Materialia, 2021, 17, 101134.	2.7	7
189	Breakdown of the Hall-Petch relationship in extremely fine nanograined body-centered cubic Mo alloys. Acta Materialia, 2021, 213, 116950.	7.9	30
190	Additive manufacturing of high-strength multiphase nanostructures in the binary Niâ€“Nb system for the discovery of new types of superalloys. Journal of Materials Research, 2021, 36, 3167-3181.	2.6	5
191	Friction of Metals: A Review of Microstructural Evolution and Nanoscale Phenomena in Shearing Contacts. Tribology Letters, 2021, 69, 1.	2.6	11
192	Shear-strain induced structural relaxation of Cu Î£3 [110](112) symmetric tilt grain boundary: The role of foreign atoms and temperature. Current Applied Physics, 2021, 28, 19-25.	2.4	1
193	Multi-principal element alloys from the CrCoNi family: outlook and perspectives. Journal of Materials Research and Technology, 2021, 15, 3461-3480.	5.8	29
194	Grain boundary relaxation in doped nano-grained aluminum. Materials Today Communications, 2021, 29, 102808.	1.9	5
195	Shear instability in heterogeneous nanolayered Cu/Zr composites. Journal of Materials Science and Technology, 2022, 105, 81-91.	10.7	9
198	Quantized Crystal Plasticity Modeling of Nanocrystalline Metals. Springer Series in Materials Science, 2016, , 413-440.	0.6	3
199	Nanocrystalline gold with small size: inverse Hallâ€“Petch between mixed regime and super-soft regime. Philosophical Magazine, 2020, 100, 2335-2351.	1.6	21
200	Origin of tension-compression asymmetry in ultrafine-grained fcc metals. Physical Review Materials, 2017, 1, .	2.4	6

#	Article	IF	Citations
201	Shear banding mechanism in compressed nanocrystalline ceramic nanopillars. Physical Review Materials, 2019, 3, .	2.4	6
202	Elastostatic loading of metallic glass-crystal nanocomposites: Relationship of creep rate and interface energy. Physical Review Materials, 2019, 3, .	2.4	6
204	Effect of Inoculation on Phase Formation and Indentation Hardness Behaviour of Zr_{47.5}Cu_{45.5}Al<SUB>5&l and Zr₆₅Cu₁₅Al<SUB>10</ Bulk Metallic Glass Matrix Composites. Engineering, 2018, 10, 530-559.	0.8	4
206	XTRONICÂ®: Enabler of Improved Performance with Reduced Precious Metal Usage in Microelectronics. International Symposium on Microelectronics, 2012, 2012, 000101-000108.	0.0	0
207	High Strength Alâ€“La, Alâ€“Ce, and Alâ€“Ni Eutectic Aluminum Alloys Obtained by High-Pressure Torsion. Materials, 2021, 14, 6404.	2.9	12
208	Nanoindentation testing and simulation of nanocrystalline materials. Procedia Structural Integrity, 2020, 28, 1644-1649.	0.8	6
209	Nanomechanical and microstructural characterization on the synergetic strengthening in selectively laser melted austenitic stainless steel. Scripta Materialia, 2022, 209, 114359.	5.2	7
210	Deformation behaviors and inverse Hall-Petch effect in nanoindentation of silicon: An atomistic simulation study with experimental validation. Journal of Manufacturing Processes, 2022, 74, 319-331.	5.9	4
211	High pressure-induced elimination of grain size softening in nanocrystalline metals: Grain boundary strengthening overwhelming reduction of intragranular dislocation storage ability. International Journal of Plasticity, 2022, 153, 103261.	8.8	15
212	Inhibiting the Inverse Hall-Petch Behavior in CoCuFeNiPd High-Entropy Alloys with Short-Range Ordering and Grain Boundary Segregation. SSRN Electronic Journal, 0, , .	0.4	0
213	Effects of Specimen Size, Strain Rate and Temperature on the Deformation Behaviors at Micro-/Mesoscale in Ultrafine-Grained Pure Zr. Transactions of the Indian Institute of Metals, 2022, 75, 2409-2417.	1.5	1
214	Bauschinger effect during alternating deformation. Izvestiya Vysshikh Uchebnykh Zavedenij Chernaya Metallurgiya, 2022, 65, 455-466.	0.3	0
215	Unravelling the Sizeâ€Đependent Mechanical Properties of Nanocrystalline Faceâ€Centeredâ€Cubic Metals: From the Dislocation Point of View. Advanced Engineering Materials, 2022, 24, .	3.5	2
216	Exploring the deformation behavior of nanotwinned Alâ€“Zr alloy via in situ compression. Journal of Applied Physics, 2022, 132, .	2.5	6
217	Rapid fabrication of ultra-fine grain intermetallic compound powder in milliseconds under ultrasonic vibrations. Intermetallics, 2022, 149, 107672.	3.9	0
218	Inhibiting the inverse Hall-Petch behavior in CoCuFeNiPd high-entropy alloys with short-range ordering and grain boundary segregation. Scripta Materialia, 2022, 221, 114950.	5.2	24
219	Mechanism for magnetic field induced structural relaxation and accompanying fracture toughness improvement of the thermal spraying coating. Materials and Design, 2022, 223, 111113.	7.0	6
220	Why big data and compute are not necessarily the path to big materials science. Communications Materials, 2022, 3, .	6.9	9

#	Article	IF	Citations
221	Coupled effect of specimen size and grain size on the stress relaxation of micron-sized copper wires. Journal of Materials Science, 2022, 57, 18655-18668.	3.7	3
222	Concurrent AtC Multiscale Modeling of Material Coupled Thermo-Mechanical Behaviors: A Review. CivilEng, 2022, 3, 1013-1038.	1.4	0
223	Bauschinger Effect in Alternating Deformation. Steel in Translation, 2022, 52, 639-647.	0.3	3
224	A regime beyond the Hallâ€“Petch and inverse-Hallâ€“Petch regimes in ultrafine-grained solids. Communications Physics, 2022, 5, .	5.3	4
225	The effect of sample thickness on micro-mesoscale tensile properties of 304SS, HT-9, and CuCrZr. Journal of Nuclear Materials, 2023, 575, 154207.	2.7	2
226	Generalization of the Hall-Petch and inverse Hall-Petch behaviors by tuning amorphous regions in 2D solids. , 2023, 2, 20220058.		1
227	Effect of constrained inter-granular regions on the inverse Hall-petch phenomena. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2023, 875, 145125.	5.6	2
228	Consequences of solute partitioning on hardness in stabilized nanocrystalline alloys. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2023, 875, 145113.	5.6	2
229	Enhanced nanocrystalline stability of BCC iron via copper segregation. Progress in Natural Science: Materials International, 2023, 33, 185-192.	4.4	3
230	Structure Refinement and Bauschinger Effect in fcc and hcp Metals. Metals, 2023, 13, 1307.	2.3	0
231	Screening and manipulation by segregation of dopants in grain boundary of Silicon carbide: First-principles calculations. Ceramics International, 2023, , .	4.8	0
232	Atomic insight into mechanical behavior of AuPt alloys. International Journal of Mechanical Sciences, 2024, 263, 108778.	6.7	0
233	Anisotropic mechanical properties and deformation mechanisms of nanotwinned Ni and Ni alloys with extremely fine twin boundary spacings. Acta Materialia, 2023, 260, 119311.	7.9	4
234	Quantifying the Dislocation Cell Contribution to the Yield Strength of 316L Steel. Metals and Materials International, 2024, 30, 735-744.	3.4	1
235	The anisotropic grain size effect on the mechanical response of polycrystals: The role of columnar grain morphology in additively manufactured metals. Journal of Materials Science and Technology, 2024, 181, 240-256.	10.7	0
236	Design of self-stable nanocrystalline high-entropy alloy. Materials and Design, 2023, 236, 112482.	7.0	1
237	The effect of the volume fraction of nanocrystals on the brittleness of Fe-based amorphous/nanocrystalline alloys simulated by molecular dynamics. Journal of Non-Crystalline Solids, 2024, 625, 122735.	3.1	0
238	Plastic deformation-driven grain coarsening in nanocrystalline Gd2Zr2O7 ceramics by nanoindentation. Applied Physics Letters, 2023, 123, .	3.3	0

#	Article	IF	Citations
239	Reversing inverse Hall-Petch and direct computation of Hall-Petch coefficients. Acta Materialia, 2024, 265, 119627.	7.9	1
240	Phase Engineering of Nanostructural Metallic Materials: Classification, Structures, and Applications. Chemical Reviews, 2024, 124, 1247-1287.	47.7	2