Timothyâ€J Rupert

List of Publications by Year
in descending order

87 papers	3,088 citations	201674 27 h-index	168389 53 g-index
87 all docs	87 docs citations	87 times ranked	2214 citing authors

#	Article	IF	Citations
1	Sliding wear of nanocrystalline Niâ€"W: Structural evolution and the apparent breakdown of Archard scaling. Acta Materialia, 2010, 58, 4137-4148.	7.9	282
2	A high-entropy alloy with hierarchical nanoprecipitates and ultrahigh strength. Science Advances, 2018, 4, eaat8712.	10.3	247
3	Manipulating the interfacial structure of nanomaterials to achieve a unique combination of strength and ductility. Nature Communications, 2016, 7, 10802.	12.8	210
4	Enhanced solid solution effects on the strength of nanocrystalline alloys. Acta Materialia, 2011, 59, 1619-1631.	7.9	200
5	Grain boundary relaxation strengthening of nanocrystalline Niâ€"W alloys. Journal of Materials Research, 2012, 27, 1285-1294.	2.6	146
6	Amorphous intergranular films as toughening structural features. Acta Materialia, 2015, 89, 205-214.	7.9	105
7	Grain Boundary Complexion Transitions. Annual Review of Materials Research, 2020, 50, 465-492.	9.3	96
8	High-Temperature Stability and Grain Boundary Complexion Formation in a Nanocrystalline Cu-Zr Alloy. Jom, 2015, 67, 2788-2801.	1.9	79
9	Materials selection rules for amorphous complexion formation in binary metallic alloys. Acta Materialia, 2017, 140, 196-205.	7.9	76
10	Grain boundary complexions and the strength of nanocrystalline metals: Dislocation emission and propagation. Acta Materialia, 2018, 151, 100-111.	7.9	75
11	Strain localization in a nanocrystalline metal: Atomic mechanisms and the effect of testing conditions. Journal of Applied Physics, 2013, 114, .	2.5	72
12	Uncovering the influence of common nonmetallic impurities on the stability and strength of a Î£5 (310) grain boundary in Cu. Acta Materialia, 2018, 148, 110-122.	7.9	63
13	Effect of grain boundary character on segregation-induced structural transitions. Physical Review B, 2016, 93, .	3.2	62
14	The role of complexions in metallic nano-grain stability and deformation. Current Opinion in Solid State and Materials Science, 2016, 20, 257-267.	11.5	60
15	Abrasive wear response of nanocrystalline Niâ€"W alloys across the Hallâ€"Petchbreakdown. Wear, 2013, 298-299, 120-126.	3.1	59
16	Mechanically driven grain boundary relaxation: a mechanism for cyclic hardening in nanocrystalline Ni. Philosophical Magazine Letters, 2012, 92, 20-28.	1.2	53
17	Nanocrystalline Al-Mg with extreme strength due to grain boundary doping. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2017, 696, 400-406.	5.6	52
18	Amorphous complexions enable a new region of high temperature stability in nanocrystalline Ni-W. Scripta Materialia, 2018, 154, 49-53.	5.2	51

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19	Combined effects of nonmetallic impurities and planned metallic dopants on grain boundary energy and strength. Acta Materialia, 2019, 166, 113-125.	7.9	49
20	Thick amorphous complexion formation and extreme thermal stability in ternary nanocrystalline Cu-Zr-Hf alloys. Acta Materialia, 2019, 179, 172-182.	7.9	46
21	Damage nucleation from repeated dislocation absorption at a grain boundary. Computational Materials Science, 2014, 93, 206-209.	3.0	45
22	Plasticity-induced restructuring of a nanocrystalline grain boundary network. Acta Materialia, 2016, 120, 1-13.	7.9	44
23	Tracking Microstructure of Crystalline Materials: A Post-Processing Algorithm for Atomistic Simulations. Jom, 2014, 66, 417-428.	1.9	41
24	The formation and characterization of large twin related domains. Acta Materialia, 2017, 129, 500-509.	7.9	40
25	Nanocrystalline grain boundary engineering: Increasing Î£3 boundary fraction in pure Ni with thermomechanical treatments. Acta Materialia, 2015, 86, 43-54.	7.9	33
26	Emergence of localized plasticity and failure through shear banding during microcompression of a nanocrystalline alloy. Acta Materialia, 2014, 65, 326-337.	7.9	32
27	Solid solution strengthening and softening due to collective nanocrystalline deformation physics. Scripta Materialia, 2014, 81, 44-47.	5.2	31
28	Reversed compressive yield anisotropy in magnesium with microlaminated structure. Acta Materialia, 2018, 146, 12-24.	7.9	27
29	Heavy ion irradiation effects on GaN/AlGaN high electron mobility transistor failure at off-state. Microelectronics Reliability, 2019, 102, 113493.	1.7	27
30	Toughening magnesium with gradient twin meshes. Acta Materialia, 2020, 195, 468-481.	7.9	27
31	Disordered interfaces enable high temperature thermal stability and strength in a nanocrystalline aluminum alloy. Acta Materialia, 2021, 215, 116973.	7.9	27
32	Amorphous intergranular films act as ultra-efficient point defect sinks during collision cascades. Scripta Materialia, 2016, 110, 37-40.	5.2	26
33	Formation of ordered and disordered interfacial films in immiscible metal alloys. Scripta Materialia, 2017, 130, 91-95.	5.2	26
34	Disconnection-mediated twin embryo growth in Mg. Acta Materialia, 2020, 194, 437-451.	7.9	26
35	Accommodation and formation of <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" altimg="si22.svg"><mml:mrow><mml:mo>{</mml:mo><mml:mover accent="true"><mml:mn>1</mml:mn><mml:mo>Â¯</mml:mo></mml:mover><mml:mn>012</mml:mn><mml:mo>}</mml:mo></mm twins in Mg-Y alloys. Acta Materialia, 2021, 204, 116514.	7.9	26
36	Quantitative tracking of grain structure evolution in a nanocrystalline metal during cyclic loading. Modelling and Simulation in Materials Science and Engineering, 2015, 23, 025005.	2.0	25

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37	Twin formation from a twin boundary in Mg during in-situ nanomechanical testing. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2019, 759, 142-153.	5.6	23
38	Synergic grain boundary segregation and precipitation in W- and W-Mo-containing high-entropy borides. Journal of the European Ceramic Society, 2021, 41, 5380-5387.	5.7	23
39	Visualization and validation of twin nucleation and early-stage growth in magnesium. Nature Communications, 2022, 13, 20.	12.8	23
40	Bulk high-entropy hexaborides. Journal of the European Ceramic Society, 2021, 41, 5775-5781.	5.7	22
41	Bulk nanocrystalline Al alloys with hierarchical reinforcement structures via grain boundary segregation and complexion formation. Acta Materialia, 2021, 221, 117394.	7.9	22
42	Atomistic modeling of interfacial segregation and structural transitions in ternary alloys. Journal of Materials Science, 2019, 54, 3975-3993.	3.7	21
43	Effect of growth temperature on the synthesis of carbon nanotube arrays and amorphous carbon for thermal applications. Physica Status Solidi (A) Applications and Materials Science, 2017, 214, 1600852.	1.8	20
44	Amorphous intergranular films mitigate radiation damage in nanocrystalline Cu-Zr. Acta Materialia, 2020, 186, 341-354.	7.9	20
45	Segregation competition and complexion coexistence within a polycrystalline grain boundary network. Acta Materialia, 2021, 218, 117213.	7.9	18
46	Room Temperature Deformation-induced Solute Segregation and its Impact on Twin Boundary Mobility in a Mg-Y Alloy. Scripta Materialia, 2022, 209, 114375.	5.2	18
47	Critical cooling rates for amorphous-to-ordered complexion transitions in Cu-rich nanocrystalline alloys. Acta Materialia, 2021, 206, 116650.	7.9	16
48	Disruption of Thermally-Stable Nanoscale Grain Structures by Strain Localization. Scientific Reports, 2015, 5, 10663.	3.3	15
49	Identifying interatomic potentials for the accurate modeling of interfacial segregation and structural transitions. Computational Materials Science, 2018, 148, 10-20.	3.0	15
50	Manipulating deformation mechanisms with Y alloying of Mg. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2021, 817, 141373.	5.6	15
51	Grain Boundary Character Distributions in Nanocrystalline Metals Produced by Different Processing Routes. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2016, 47, 1389-1403.	2.2	14
52	Femtosecond laser rejuvenation of nanocrystalline metals. Acta Materialia, 2018, 156, 183-195.	7.9	14
53	Linear Complexions: Metastable Phase Formation and Coexistence at Dislocations. Physical Review Letters, 2019, 122, 126102.	7.8	13
54	Embracing the Chaos: Alloying Adds Stochasticity to Twin Embryo Growth. Physical Review Letters, 2020, 125, 205503.	7.8	13

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55	Dislocation-assisted linear complexion formation driven by segregation. Scripta Materialia, 2018, 154, 25-29.	5.2	11
56	Prediction of a wide variety of linear complexions in face centered cubic alloys. Acta Materialia, 2020, 185, 129-141.	7.9	11
57	Influence and comparison of contaminate partitioning on nanocrystalline stability in sputter-deposited and ball-milled Cuâ€“Zr alloys. Journal of Materials Science, 2020, 55, 16758-16779.	3.7	11
58	Processing-dependent stabilization of a dissimilar rare-earth boride in high-entropy (Ti0.2Zr0.2Hf0.2Ta0.2Er0.2)B2 with enhanced hardness and grain boundary segregation. Journal of the European Ceramic Society, 2022, 42, 5164-5171.	5.7	11
59	Modelling wrinkling interactions produced by patterned defects in metal thin films. Extreme Mechanics Letters, 2015, 4, 175-185.	4.1	10
60	Spatial variation of short-range order in amorphous intergranular complexions. Computational Materials Science, 2017, 131, 62-68.	3.0	10
61	In Situ High-Cycle Fatigue Reveals Importance of Grain Boundary Structure in Nanocrystalline Cu-Zr. Jom, 2019, 71, 1221-1232.	1.9	10
62	Revealing the deformation mechanisms for room-temperature compressive superplasticity in nanocrystalline magnesium. Materialia, 2020, 11, 100731.	2.7	9
63	Dislocation-induced Y segregation at basal-prismatic interfaces in Mg. Computational Materials Science, 2021, 188, 110241.	3.0	8
64	Forces to pierce cuticle of tarsi and material properties determined by nanoindentation: The Achillesâ€™ heel of bed bugs. Biology Open, 2017, 6, 1541-1551.	1.2	7
65	Amorphous Intergranular Films Enable the Creation of Bulk Nanocrystalline Cuâ€“Zr with Full Density. Advanced Engineering Materials, 2019, 21, 1900333.	3.5	7
66	Amorphous complexions alter the tensile failure of nanocrystalline Cu-Zr alloys. Materialia, 2021, 17, 101134.	2.7	7
67	Mechanisms of near-surface structural evolution in nanocrystalline materials during sliding contact. Physical Review Materials, 2017, 1, .	2.4	7
68	Emergence of near-boundary segregation zones in face-centered cubic multiprincipal element alloys. Physical Review Materials, 2021, 5, .	2.4	7
69	Shuffling mode competition leads to directionally anisotropic mobility of faceted Î£11 boundaries in fcc metals. Physical Review Materials, 2020, 4, .	2.4	6
70	Growth and structural transitions of core-shell nanorods in nanocrystalline Al-Ni-Y. Scripta Materialia, 2022, 211, 114502.	5.2	6
71	Multi-principal element grain boundaries: Stabilizing nanocrystalline grains with thick amorphous complexions. Journal of Materials Research, 2022, 37, 554-566.	2.6	6
72	Current trends in nanomechanical testing research. Journal of Materials Research, 2021, 36, 2133-2136.	2.6	5

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73	Interdependent Linear Complexion Structure and Dislocation Mechanics in Fe-Ni. Crystals, 2020, 10, 1128.	2.2	4
74	Emergence of directionally-anisotropic mobility in a faceted Æ©11 âŸ¨110âŸ© tilt grain boundary in Cu. Modelling and Simulation in Materials Science and Engineering, 2020, 28, 055008.	2.0	4
75	Alloying induces directionally-dependent mobility and alters migration mechanisms of faceted grain boundaries. Scripta Materialia, 2021, 194, 113643.	5.2	4
76	Microstructure, mechanical properties, and ionic conductivity of a solid-state electrolyte prepared using binderless laser powder bed fusion. Journal of Materials Research, 2021, 36, 4565-4577.	2.6	4
77	Pronounced grain boundary network evolution in nanocrystalline Cu subjected to large cyclic strains. Journal of Materials Research, 2019, 34, 35-47.	2.6	3
78	Solid-state dewetting instability in thermally-stable nanocrystalline binary alloys. Materialia, 2020, 9, 100618.	2.7	3
79	Concurrent transitions in wear rate and surface microstructure in nanocrystalline Ni-W. Materialia, 2018, 4, 38-46.	2.7	2
80	Amorphous Intergranular Film Effect on the Texture and Structural Evolution During Cold-Rolling of Nanocrystalline Niâ€"Zr Alloys. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2022, 53, 1025-1034.	2.2	2
81	In situ mechanical testing of an Al matrix composite to investigate compressive plasticity and failure on multiple length scales. Journal of Materials Science, 2021, 56, 8259-8275.	3.7	1
82	Discovery of a Wide Variety of Linear Complexions in Face Centered Cubic Alloys. SSRN Electronic Journal, 0, , .	0.4	1
83	Rejuvenation of Disorder-Containing Materials. Structural Integrity, 2019, , 360-361.	1.4	0
84	Disconnection-Mediated Twin Embryo Growth in Mg. SSRN Electronic Journal, 0, , .	0.4	0
85	Thick Amorphous Complexion Formation and Extreme Thermal Stability in Ternary Nanocrystalline Cu-Zr-Hf Alloys. SSRN Electronic Journal, 0, , .	0.4	0
86	Comparison of Solute Partitioning between Nanocrystalline Sputtered Thin Films and Ball Milled Cu-Zr. SSRN Electronic Journal, 0, , .	0.4	0
87	Amorphous Intergranular Films Mitigate Radiation Damage in Nanocrystalline Cu-Zr. SSRN Electronic Journal, 0, , .	0.4	0