

Timothy J Rupert

List of Publications by Year in descending order

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87
papers

3,088
citations

201385

27
h-index

168136

53
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87
all docs

87
docs citations

87
times ranked

2214
citing authors

#	ARTICLE	IF	CITATIONS
1	Sliding wear of nanocrystalline Ni-W: Structural evolution and the apparent breakdown of Archard scaling. <i>Acta Materialia</i> , 2010, 58, 4137-4148.	3.8	282
2	A high-entropy alloy with hierarchical nanoprecipitates and ultrahigh strength. <i>Science Advances</i> , 2018, 4, eaat8712.	4.7	247
3	Manipulating the interfacial structure of nanomaterials to achieve a unique combination of strength and ductility. <i>Nature Communications</i> , 2016, 7, 10802.	5.8	210
4	Enhanced solid solution effects on the strength of nanocrystalline alloys. <i>Acta Materialia</i> , 2011, 59, 1619-1631.	3.8	200
5	Grain boundary relaxation strengthening of nanocrystalline Ni-W alloys. <i>Journal of Materials Research</i> , 2012, 27, 1285-1294.	1.2	146
6	Amorphous intergranular films as toughening structural features. <i>Acta Materialia</i> , 2015, 89, 205-214.	3.8	105
7	Grain Boundary Complexion Transitions. <i>Annual Review of Materials Research</i> , 2020, 50, 465-492.	4.3	96
8	High-Temperature Stability and Grain Boundary Complexion Formation in a Nanocrystalline Cu-Zr Alloy. <i>Jom</i> , 2015, 67, 2788-2801.	0.9	79
9	Materials selection rules for amorphous complexion formation in binary metallic alloys. <i>Acta Materialia</i> , 2017, 140, 196-205.	3.8	76
10	Grain boundary complexions and the strength of nanocrystalline metals: Dislocation emission and propagation. <i>Acta Materialia</i> , 2018, 151, 100-111.	3.8	75
11	Strain localization in a nanocrystalline metal: Atomic mechanisms and the effect of testing conditions. <i>Journal of Applied Physics</i> , 2013, 114, .	1.1	72
12	Uncovering the influence of common nonmetallic impurities on the stability and strength of a $\frac{1}{2}$ (310) grain boundary in Cu. <i>Acta Materialia</i> , 2018, 148, 110-122.	3.8	63
13	Effect of grain boundary character on segregation-induced structural transitions. <i>Physical Review B</i> , 2016, 93, .	1.1	62
14	The role of complexions in metallic nano-grain stability and deformation. <i>Current Opinion in Solid State and Materials Science</i> , 2016, 20, 257-267.	5.6	60
15	Abrasive wear response of nanocrystalline Ni-W alloys across the Hall-Petch breakdown. <i>Wear</i> , 2013, 298-299, 120-126.	1.5	59
16	Mechanically driven grain boundary relaxation: a mechanism for cyclic hardening in nanocrystalline Ni. <i>Philosophical Magazine Letters</i> , 2012, 92, 20-28.	0.5	53
17	Nanocrystalline Al-Mg with extreme strength due to grain boundary doping. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2017, 696, 400-406.	2.6	52
18	Amorphous complexions enable a new region of high temperature stability in nanocrystalline Ni-W. <i>Scripta Materialia</i> , 2018, 154, 49-53.	2.6	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.	3.8	49
20	Thick amorphous complexion formation and extreme thermal stability in ternary nanocrystalline Cu-Zr-Hf alloys. Acta Materialia, 2019, 179, 172-182.	3.8	46
21	Damage nucleation from repeated dislocation absorption at a grain boundary. Computational Materials Science, 2014, 93, 206-209.	1.4	45
22	Plasticity-induced restructuring of a nanocrystalline grain boundary network. Acta Materialia, 2016, 120, 1-13.	3.8	44
23	Tracking Microstructure of Crystalline Materials: A Post-Processing Algorithm for Atomistic Simulations. Jom, 2014, 66, 417-428.	0.9	41
24	The formation and characterization of large twin related domains. Acta Materialia, 2017, 129, 500-509.	3.8	40
25	Nanocrystalline grain boundary engineering: Increasing $\Sigma 3$ boundary fraction in pure Ni with thermomechanical treatments. Acta Materialia, 2015, 86, 43-54.	3.8	33
26	Emergence of localized plasticity and failure through shear banding during microcompression of a nanocrystalline alloy. Acta Materialia, 2014, 65, 326-337.	3.8	32
27	Solid solution strengthening and softening due to collective nanocrystalline deformation physics. Scripta Materialia, 2014, 81, 44-47.	2.6	31
28	Reversed compressive yield anisotropy in magnesium with microlaminated structure. Acta Materialia, 2018, 146, 12-24.	3.8	27
29	Heavy ion irradiation effects on GaN/AlGaN high electron mobility transistor failure at off-state. Microelectronics Reliability, 2019, 102, 113493.	0.9	27
30	Toughening magnesium with gradient twin meshes. Acta Materialia, 2020, 195, 468-481.	3.8	27
31	Disordered interfaces enable high temperature thermal stability and strength in a nanocrystalline aluminum alloy. Acta Materialia, 2021, 215, 116973.	3.8	27
32	Amorphous intergranular films act as ultra-efficient point defect sinks during collision cascades. Scripta Materialia, 2016, 110, 37-40.	2.6	26
33	Formation of ordered and disordered interfacial films in immiscible metal alloys. Scripta Materialia, 2017, 130, 91-95.	2.6	26
34	Disconnection-mediated twin embryo growth in Mg. Acta Materialia, 2020, 194, 437-451.	3.8	26
35	Accommodation and formation of $\Sigma 1$ twins in Mg-Y alloys. Acta Materialia, 2021, 204, 116514.	3.8	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.	0.8	25

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37	Twin formation from a twin boundary in Mg during in-situ nanomechanical testing. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2019, 759, 142-153.	2.6	23
38	Synergic grain boundary segregation and precipitation in W- and W-Mo-containing high-entropy borides. <i>Journal of the European Ceramic Society</i> , 2021, 41, 5380-5387.	2.8	23
39	Visualization and validation of twin nucleation and early-stage growth in magnesium. <i>Nature Communications</i> , 2022, 13, 20.	5.8	23
40	Bulk high-entropy hexaborides. <i>Journal of the European Ceramic Society</i> , 2021, 41, 5775-5781.	2.8	22
41	Bulk nanocrystalline Al alloys with hierarchical reinforcement structures via grain boundary segregation and complexion formation. <i>Acta Materialia</i> , 2021, 221, 117394.	3.8	22
42	Atomistic modeling of interfacial segregation and structural transitions in ternary alloys. <i>Journal of Materials Science</i> , 2019, 54, 3975-3993.	1.7	21
43	Effect of growth temperature on the synthesis of carbon nanotube arrays and amorphous carbon for thermal applications. <i>Physica Status Solidi (A) Applications and Materials Science</i> , 2017, 214, 1600852.	0.8	20
44	Amorphous intergranular films mitigate radiation damage in nanocrystalline Cu-Zr. <i>Acta Materialia</i> , 2020, 186, 341-354.	3.8	20
45	Segregation competition and complexion coexistence within a polycrystalline grain boundary network. <i>Acta Materialia</i> , 2021, 218, 117213.	3.8	18
46	Room Temperature Deformation-induced Solute Segregation and its Impact on Twin Boundary Mobility in a Mg-Y Alloy. <i>Scripta Materialia</i> , 2022, 209, 114375.	2.6	18
47	Critical cooling rates for amorphous-to-ordered complexion transitions in Cu-rich nanocrystalline alloys. <i>Acta Materialia</i> , 2021, 206, 116650.	3.8	16
48	Disruption of Thermally-Stable Nanoscale Grain Structures by Strain Localization. <i>Scientific Reports</i> , 2015, 5, 10663.	1.6	15
49	Identifying interatomic potentials for the accurate modeling of interfacial segregation and structural transitions. <i>Computational Materials Science</i> , 2018, 148, 10-20.	1.4	15
50	Manipulating deformation mechanisms with Y alloying of Mg. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2021, 817, 141373.	2.6	15
51	Grain Boundary Character Distributions in Nanocrystalline Metals Produced by Different Processing Routes. <i>Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science</i> , 2016, 47, 1389-1403.	1.1	14
52	Femtosecond laser rejuvenation of nanocrystalline metals. <i>Acta Materialia</i> , 2018, 156, 183-195.	3.8	14
53	Linear Complexions: Metastable Phase Formation and Coexistence at Dislocations. <i>Physical Review Letters</i> , 2019, 122, 126102.	2.9	13
54	Embracing the Chaos: Alloying Adds Stochasticity to Twin Embryo Growth. <i>Physical Review Letters</i> , 2020, 125, 205503.	2.9	13

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55	Dislocation-assisted linear complex formation driven by segregation. Scripta Materialia, 2018, 154, 25-29.	2.6	11
56	Prediction of a wide variety of linear complexions in face centered cubic alloys. Acta Materialia, 2020, 185, 129-141.	3.8	11
57	Influence and comparison of contaminant partitioning on nanocrystalline stability in sputter-deposited and ball-milled Cu-Zr alloys. Journal of Materials Science, 2020, 55, 16758-16779.	1.7	11
58	Processing-dependent stabilization of a dissimilar rare-earth boride in high-entropy (Ti _{0.2} Zr _{0.2} Hf _{0.2} Ta _{0.2} Er _{0.2})B ₂ with enhanced hardness and grain boundary segregation. Journal of the European Ceramic Society, 2022, 42, 5164-5171.	2.8	11
59	Modelling wrinkling interactions produced by patterned defects in metal thin films. Extreme Mechanics Letters, 2015, 4, 175-185.	2.0	10
60	Spatial variation of short-range order in amorphous intergranular complexions. Computational Materials Science, 2017, 131, 62-68.	1.4	10
61	In Situ High-Cycle Fatigue Reveals Importance of Grain Boundary Structure in Nanocrystalline Cu-Zr. Jom, 2019, 71, 1221-1232.	0.9	10
62	Revealing the deformation mechanisms for room-temperature compressive superplasticity in nanocrystalline magnesium. Materialia, 2020, 11, 100731.	1.3	9
63	Dislocation-induced Y segregation at basal-prismatic interfaces in Mg. Computational Materials Science, 2021, 188, 110241.	1.4	8
64	Forces to pierce cuticle of tarsi and material properties determined by nanoindentation: The Achilles heel of bed bugs. Biology Open, 2017, 6, 1541-1551.	0.6	7
65	Amorphous Intergranular Films Enable the Creation of Bulk Nanocrystalline Cu-Zr with Full Density. Advanced Engineering Materials, 2019, 21, 1900333.	1.6	7
66	Amorphous complexions alter the tensile failure of nanocrystalline Cu-Zr alloys. Materialia, 2021, 17, 101134.	1.3	7
67	Mechanisms of near-surface structural evolution in nanocrystalline materials during sliding contact. Physical Review Materials, 2017, 1, .	0.9	7
68	Emergence of near-boundary segregation zones in face-centered cubic multiprincipal element alloys. Physical Review Materials, 2021, 5, .	0.9	7
69	Shuffling mode competition leads to directionally anisotropic mobility of faceted $\{111\}$ boundaries in fcc metals. Physical Review Materials, 2020, 4, .	0.9	6
70	Growth and structural transitions of core-shell nanorods in nanocrystalline Al-Ni-Y. Scripta Materialia, 2022, 211, 114502.	2.6	6
71	Multi-principal element grain boundaries: Stabilizing nanocrystalline grains with thick amorphous complexions. Journal of Materials Research, 2022, 37, 554-566.	1.2	6
72	Current trends in nanomechanical testing research. Journal of Materials Research, 2021, 36, 2133-2136.	1.2	5

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73	Interdependent Linear Complexion Structure and Dislocation Mechanics in Fe-Ni. Crystals, 2020, 10, 1128.	1.0	4
74	Emergence of directionally-anisotropic mobility in a faceted $\langle 111 \rangle$ tilt grain boundary in Cu. Modelling and Simulation in Materials Science and Engineering, 2020, 28, 055008.	0.8	4
75	Alloying induces directionally-dependent mobility and alters migration mechanisms of faceted grain boundaries. Scripta Materialia, 2021, 194, 113643.	2.6	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.	1.2	4
77	Pronounced grain boundary network evolution in nanocrystalline Cu subjected to large cyclic strains. Journal of Materials Research, 2019, 34, 35-47.	1.2	3
78	Solid-state dewetting instability in thermally-stable nanocrystalline binary alloys. Materialia, 2020, 9, 100618.	1.3	3
79	Concurrent transitions in wear rate and surface microstructure in nanocrystalline Ni-W. Materialia, 2018, 4, 38-46.	1.3	2
80	Amorphous Intergranular Film Effect on the Texture and Structural Evolution During Cold-Rolling of Nanocrystalline Ni-Zr Alloys. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2022, 53, 1025-1034.	1.1	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.	1.7	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.	0.8	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