

# Timothy J Rupert

## List of Publications by Year in descending order

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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	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
2	Growth and structural transitions of core-shell nanorods in nanocrystalline Al-Ni-Y. Scripta Materialia, 2022, 211, 114502.	5.2	6
3	Multi-principal element grain boundaries: Stabilizing nanocrystalline grains with thick amorphous complexions. Journal of Materials Research, 2022, 37, 554-566.	2.6	6
4	Visualization and validation of twin nucleation and early-stage growth in magnesium. Nature Communications, 2022, 13, 20.	12.8	23
5	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.	2.2	2
6	Processing-dependent stabilization of a dissimilar rare-earth boride in high-entropy (Ti <sub>0.2</sub> Zr <sub>0.2</sub> Hf <sub>0.2</sub> Ta <sub>0.2</sub> Er <sub>0.2</sub> )B <sub>2</sub> with enhanced hardness and grain boundary segregation. Journal of the European Ceramic Society, 2022, 42, 5164-5171.	5.7	11
7	Accommodation and formation of $\langle \text{mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" altimg="si22.svg" \rangle \langle \text{mml:mrow} \rangle \langle \text{mml:mo} \rangle \{ \langle \text{mml:mo} \rangle \langle \text{mml:mover accent="true" \rangle} \langle \text{mml:mn} \rangle 1 \langle \text{mml:mn} \rangle \langle \text{mml:mo} \rangle \tilde{\langle \text{mml:mo} \rangle} \langle \text{mml:mover} \rangle \langle \text{mml:mn} \rangle 012 \langle \text{mml:mn} \rangle \langle \text{mml:mo} \rangle \} \langle \text{mml:mo} \rangle \langle \text{mml:mn} \rangle 26 \langle \text{mml:mn} \rangle \langle \text{mml:mo} \rangle \langle \text{mml:mover} \rangle \langle \text{mml:mn} \rangle 116514$ twins in Mg-Y alloys. Acta Materialia, 2021, 204, 116514.	7.9	26
8	Alloying induces directionally-dependent mobility and alters migration mechanisms of faceted grain boundaries. Scripta Materialia, 2021, 194, 113643.	5.2	4
9	Dislocation-induced Y segregation at basal-prismatic interfaces in Mg. Computational Materials Science, 2021, 188, 110241.	3.0	8
10	Critical cooling rates for amorphous-to-ordered complexion transitions in Cu-rich nanocrystalline alloys. Acta Materialia, 2021, 206, 116650.	7.9	16
11	Amorphous complexions alter the tensile failure of nanocrystalline Cu-Zr alloys. Materialia, 2021, 17, 101134.	2.7	7
12	Current trends in nanomechanical testing research. Journal of Materials Research, 2021, 36, 2133-2136.	2.6	5
13	Manipulating deformation mechanisms with Y alloying of Mg. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2021, 817, 141373.	5.6	15
14	Disordered interfaces enable high temperature thermal stability and strength in a nanocrystalline aluminum alloy. Acta Materialia, 2021, 215, 116973.	7.9	27
15	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
16	Bulk high-entropy hexaborides. Journal of the European Ceramic Society, 2021, 41, 5775-5781.	5.7	22
17	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
18	Segregation competition and complexion coexistence within a polycrystalline grain boundary network. Acta Materialia, 2021, 218, 117213.	7.9	18

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19	In situ mechanical testing of an Al matrix composite to investigate compressive plasticity and failure on multiple length scales. <i>Journal of Materials Science</i> , 2021, 56, 8259-8275.	3.7	1
20	Bulk nanocrystalline Al alloys with hierarchical reinforcement structures via grain boundary segregation and complexion formation. <i>Acta Materialia</i> , 2021, 221, 117394.	7.9	22
21	Emergence of near-boundary segregation zones in face-centered cubic multiprincipal element alloys. <i>Physical Review Materials</i> , 2021, 5, .	2.4	7
22	Prediction of a wide variety of linear complexions in face centered cubic alloys. <i>Acta Materialia</i> , 2020, 185, 129-141.	7.9	11
23	Influence and comparison of contaminate partitioning on nanocrystalline stability in sputter-deposited and ball-milled Cu-Zr alloys. <i>Journal of Materials Science</i> , 2020, 55, 16758-16779.	3.7	11
24	Interdependent Linear Complexion Structure and Dislocation Mechanics in Fe-Ni. <i>Crystals</i> , 2020, 10, 1128.	2.2	4
25	Embracing the Chaos: Alloying Adds Stochasticity to Twin Embryo Growth. <i>Physical Review Letters</i> , 2020, 125, 205503.	7.8	13
26	Emergence of directionally-anisotropic mobility in a faceted $\langle 111 \rangle$ tilt grain boundary in Cu. <i>Modelling and Simulation in Materials Science and Engineering</i> , 2020, 28, 055008.	2.0	4
27	Toughening magnesium with gradient twin meshes. <i>Acta Materialia</i> , 2020, 195, 468-481.	7.9	27
28	Disconnection-mediated twin embryo growth in Mg. <i>Acta Materialia</i> , 2020, 194, 437-451.	7.9	26
29	Amorphous intergranular films mitigate radiation damage in nanocrystalline Cu-Zr. <i>Acta Materialia</i> , 2020, 186, 341-354.	7.9	20
30	Solid-state dewetting instability in thermally-stable nanocrystalline binary alloys. <i>Materialia</i> , 2020, 9, 100618.	2.7	3
31	Grain Boundary Complexion Transitions. <i>Annual Review of Materials Research</i> , 2020, 50, 465-492.	9.3	96
32	Revealing the deformation mechanisms for room-temperature compressive superplasticity in nanocrystalline magnesium. <i>Materialia</i> , 2020, 11, 100731.	2.7	9
33	Shuffling mode competition leads to directionally anisotropic mobility of faceted $\langle 111 \rangle$ boundaries in fcc metals. <i>Physical Review Materials</i> , 2020, 4, .	2.4	6
34	Rejuvenation of Disorder-Containing Materials. <i>Structural Integrity</i> , 2019, , 360-361.	1.4	0
35	Amorphous Intergranular Films Enable the Creation of Bulk Nanocrystalline Cu-Zr with Full Density. <i>Advanced Engineering Materials</i> , 2019, 21, 1900333.	3.5	7
36	Heavy ion irradiation effects on GaN/AlGaN high electron mobility transistor failure at off-state. <i>Microelectronics Reliability</i> , 2019, 102, 113493.	1.7	27

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37	Thick amorphous complexion formation and extreme thermal stability in ternary nanocrystalline Cu-Zr-Hf alloys. <i>Acta Materialia</i> , 2019, 179, 172-182.	7.9	46
38	Twin formation from a twin boundary in Mg during in-situ nanomechanical testing. <i>Materials Science &amp; Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2019, 759, 142-153.	5.6	23
39	In Situ High-Cycle Fatigue Reveals Importance of Grain Boundary Structure in Nanocrystalline Cu-Zr. <i>Jom</i> , 2019, 71, 1221-1232.	1.9	10
40	Linear Complexions: Metastable Phase Formation and Coexistence at Dislocations. <i>Physical Review Letters</i> , 2019, 122, 126102.	7.8	13
41	Combined effects of nonmetallic impurities and planned metallic dopants on grain boundary energy and strength. <i>Acta Materialia</i> , 2019, 166, 113-125.	7.9	49
42	Pronounced grain boundary network evolution in nanocrystalline Cu subjected to large cyclic strains. <i>Journal of Materials Research</i> , 2019, 34, 35-47.	2.6	3
43	Atomistic modeling of interfacial segregation and structural transitions in ternary alloys. <i>Journal of Materials Science</i> , 2019, 54, 3975-3993.	3.7	21
44	Identifying interatomic potentials for the accurate modeling of interfacial segregation and structural transitions. <i>Computational Materials Science</i> , 2018, 148, 10-20.	3.0	15
45	Grain boundary complexions and the strength of nanocrystalline metals: Dislocation emission and propagation. <i>Acta Materialia</i> , 2018, 151, 100-111.	7.9	75
46	Uncovering the influence of common nonmetallic impurities on the stability and strength of a $\Sigma$ 5 (310) grain boundary in Cu. <i>Acta Materialia</i> , 2018, 148, 110-122.	7.9	63
47	Reversed compressive yield anisotropy in magnesium with microlaminated structure. <i>Acta Materialia</i> , 2018, 146, 12-24.	7.9	27
48	Concurrent transitions in wear rate and surface microstructure in nanocrystalline Ni-W. <i>Materialia</i> , 2018, 4, 38-46.	2.7	2
49	A high-entropy alloy with hierarchical nanoprecipitates and ultrahigh strength. <i>Science Advances</i> , 2018, 4, eaat8712.	10.3	247
50	Dislocation-assisted linear complexion formation driven by segregation. <i>Scripta Materialia</i> , 2018, 154, 25-29.	5.2	11
51	Amorphous complexions enable a new region of high temperature stability in nanocrystalline Ni-W. <i>Scripta Materialia</i> , 2018, 154, 49-53.	5.2	51
52	Femtosecond laser rejuvenation of nanocrystalline metals. <i>Acta Materialia</i> , 2018, 156, 183-195.	7.9	14
53	Spatial variation of short-range order in amorphous intergranular complexions. <i>Computational Materials Science</i> , 2017, 131, 62-68.	3.0	10
54	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.	1.8	20

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55	The formation and characterization of large twin related domains. <i>Acta Materialia</i> , 2017, 129, 500-509.	7.9	40
56	Nanocrystalline Al-Mg with extreme strength due to grain boundary doping. <i>Materials Science &amp; Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2017, 696, 400-406.	5.6	52
57	Formation of ordered and disordered interfacial films in immiscible metal alloys. <i>Scripta Materialia</i> , 2017, 130, 91-95.	5.2	26
58	Materials selection rules for amorphous complexion formation in binary metallic alloys. <i>Acta Materialia</i> , 2017, 140, 196-205.	7.9	76
59	Forces to pierce cuticle of tarsi and material properties determined by nanoindentation: The Achilles' heel of bed bugs. <i>Biology Open</i> , 2017, 6, 1541-1551.	1.2	7
60	Mechanisms of near-surface structural evolution in nanocrystalline materials during sliding contact. <i>Physical Review Materials</i> , 2017, 1, .	2.4	7
61	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.	11.5	60
62	Plasticity-induced restructuring of a nanocrystalline grain boundary network. <i>Acta Materialia</i> , 2016, 120, 1-13.	7.9	44
63	Effect of grain boundary character on segregation-induced structural transitions. <i>Physical Review B</i> , 2016, 93, .	3.2	62
64	Manipulating the interfacial structure of nanomaterials to achieve a unique combination of strength and ductility. <i>Nature Communications</i> , 2016, 7, 10802.	12.8	210
65	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.	2.2	14
66	Amorphous intergranular films act as ultra-efficient point defect sinks during collision cascades. <i>Scripta Materialia</i> , 2016, 110, 37-40.	5.2	26
67	Disruption of Thermally-Stable Nanoscale Grain Structures by Strain Localization. <i>Scientific Reports</i> , 2015, 5, 10663.	3.3	15
68	Modelling wrinkling interactions produced by patterned defects in metal thin films. <i>Extreme Mechanics Letters</i> , 2015, 4, 175-185.	4.1	10
69	Nanocrystalline grain boundary engineering: Increasing $\Sigma$ 3 boundary fraction in pure Ni with thermomechanical treatments. <i>Acta Materialia</i> , 2015, 86, 43-54.	7.9	33
70	Quantitative tracking of grain structure evolution in a nanocrystalline metal during cyclic loading. <i>Modelling and Simulation in Materials Science and Engineering</i> , 2015, 23, 025005.	2.0	25
71	Amorphous intergranular films as toughening structural features. <i>Acta Materialia</i> , 2015, 89, 205-214.	7.9	105
72	High-Temperature Stability and Grain Boundary Complexion Formation in a Nanocrystalline Cu-Zr Alloy. <i>Jom</i> , 2015, 67, 2788-2801.	1.9	79

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73	Damage nucleation from repeated dislocation absorption at a grain boundary. Computational Materials Science, 2014, 93, 206-209.	3.0	45
74	Emergence of localized plasticity and failure through shear banding during microcompression of a nanocrystalline alloy. Acta Materialia, 2014, 65, 326-337.	7.9	32
75	Tracking Microstructure of Crystalline Materials: A Post-Processing Algorithm for Atomistic Simulations. Jom, 2014, 66, 417-428.	1.9	41
76	Solid solution strengthening and softening due to collective nanocrystalline deformation physics. Scripta Materialia, 2014, 81, 44-47.	5.2	31
77	Abrasive wear response of nanocrystalline Ni-W alloys across the Hall-Petch breakdown. Wear, 2013, 298-299, 120-126.	3.1	59
78	Strain localization in a nanocrystalline metal: Atomic mechanisms and the effect of testing conditions. Journal of Applied Physics, 2013, 114, .	2.5	72
79	Mechanically driven grain boundary relaxation: a mechanism for cyclic hardening in nanocrystalline Ni. Philosophical Magazine Letters, 2012, 92, 20-28.	1.2	53
80	Grain boundary relaxation strengthening of nanocrystalline Ni-W alloys. Journal of Materials Research, 2012, 27, 1285-1294.	2.6	146
81	Enhanced solid solution effects on the strength of nanocrystalline alloys. Acta Materialia, 2011, 59, 1619-1631.	7.9	200
82	Sliding wear of nanocrystalline Ni-W: Structural evolution and the apparent breakdown of Archard scaling. Acta Materialia, 2010, 58, 4137-4148.	7.9	282
83	Disconnection-Mediated Twin Embryo Growth in Mg. SSRN Electronic Journal, 0, , .	0.4	0
84	Thick Amorphous Complexion Formation and Extreme Thermal Stability in Ternary Nanocrystalline Cu-Zr-Hf Alloys. SSRN Electronic Journal, 0, , .	0.4	0
85	Comparison of Solute Partitioning between Nanocrystalline Sputtered Thin Films and Ball Milled Cu-Zr. SSRN Electronic Journal, 0, , .	0.4	0
86	Discovery of a Wide Variety of Linear Complexions in Face Centered Cubic Alloys. SSRN Electronic Journal, 0, , .	0.4	1
87	Amorphous Intergranular Films Mitigate Radiation Damage in Nanocrystalline Cu-Zr. SSRN Electronic Journal, 0, , .	0.4	0