

Kevin J Hemker

List of Publications by Year in descending order

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79
papers

4,003
citations

218381

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118652

62
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84
all docs

84
docs citations

84
times ranked

3671
citing authors

#	ARTICLE	IF	CITATIONS
1	Deformation Twinning in Nanocrystalline Aluminum. <i>Science</i> , 2003, 300, 1275-1277.	6.0	1,058
2	Shock-Induced Localized Amorphization in Boron Carbide. <i>Science</i> , 2003, 299, 1563-1566.	6.0	483
3	In situ TEM observations of fast grain-boundary motion in stressed nanocrystalline aluminum films. <i>Acta Materialia</i> , 2008, 56, 3380-3393.	3.8	372
4	Microstructural evolution of pure magnesium under high strain rate loading. <i>Acta Materialia</i> , 2015, 87, 56-67.	3.8	168
5	Characterizing deformed ultrafine-grained and nanocrystalline materials using transmission Kikuchi diffraction in a scanning electron microscope. <i>Acta Materialia</i> , 2014, 62, 69-80.	3.8	142
6	Modelling the flow stress anomaly in β -TiAl I. Experimental observations of dislocation mechanisms. <i>Philosophical Magazine A: Physics of Condensed Matter, Structure, Defects and Mechanical Properties</i> , 1995, 71, 1295-1312.	0.8	136
7	Mechanistic Insights for Low-Overpotential Electroreduction of CO_2 to CO on Copper Nanowires. <i>ACS Catalysis</i> , 2017, 7, 8578-8587.	5.5	106
8	Pyramidal Slip in c-axis compressed Mg single crystals. <i>Scripta Materialia</i> , 2016, 112, 75-78.	2.6	105
9	Microstructural characterization of boron-rich boron carbide. <i>Acta Materialia</i> , 2017, 136, 202-214.	3.8	91
10	Size Effects in the Mechanical Properties of Bulk Bicontinuous Ta/Cu Nanocomposites Made by Liquid Metal Dealloying. <i>Advanced Engineering Materials</i> , 2016, 18, 46-50.	1.6	75
11	Nanotwinned metal MEMS films with unprecedented strength and stability. <i>Science Advances</i> , 2017, 3, e1700685.	4.7	68
12	Superstrength through Nanotwinning. <i>Nano Letters</i> , 2016, 16, 7573-7579.	4.5	62
13	Atomic-Level Understanding of ϵ -Asymmetric Twins in Boron Carbide. <i>Physical Review Letters</i> , 2015, 115, 175501.	2.9	56
14	MATERIALS SCIENCE: Understanding How Nanocrystalline Metals Deform. <i>Science</i> , 2004, 304, 221-223.	6.0	50
15	New Ground-State Crystal Structure of Elemental Boron. <i>Physical Review Letters</i> , 2016, 117, 085501.	2.9	44
16	Nucleation of amorphous shear bands at nanotwins in boron suboxide. <i>Nature Communications</i> , 2016, 7, 11001.	5.8	43
17	Experimental observations of amorphization in stoichiometric and boron-rich boron carbide. <i>Acta Materialia</i> , 2019, 181, 207-215.	3.8	43
18	Locating Si atoms in Si-doped boron carbide: A route to understand amorphization mitigation mechanism. <i>Acta Materialia</i> , 2018, 157, 106-113.	3.8	42

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19	Permeability measurements and modeling of topology-optimized metallic 3-D woven lattices. <i>Acta Materialia</i> , 2014, 81, 326-336.	3.8	40
20	Effect of strain rate and dislocation density on the twinning behavior in tantalum. <i>AIP Advances</i> , 2016, 6, .	0.6	40
21	Effect of Alumina on the Structure and Mechanical Properties of Spark Plasma Sintered Boron Carbide. <i>Journal of the American Ceramic Society</i> , 2014, 97, 3710-3718.	1.9	36
22	Microstructural Characterization of a Commercial Hot-Pressed Boron Carbide Armor Plate. <i>Journal of the American Ceramic Society</i> , 2016, 99, 2834-2841.	1.9	36
23	Experimental investigation of 3D woven Cu lattices for heat exchanger applications. <i>International Journal of Heat and Mass Transfer</i> , 2016, 96, 296-311.	2.5	34
24	Breaking the icosahedra in boron carbide. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2016, 113, 12012-12016.	3.3	31
25	The effect of Si on the microstructure and mechanical properties of spark plasma sintered boron carbide. <i>Materials Characterization</i> , 2017, 134, 274-278.	1.9	31
26	Development of Ni-based superalloys for microelectromechanical systems. <i>Scripta Materialia</i> , 2012, 67, 459-462.	2.6	28
27	Emerging materials for microelectromechanical systems at elevated temperatures. <i>Journal of Materials Research</i> , 2014, 29, 1597-1608.	1.2	26
28	Tailoring the mechanical properties of sputter deposited nanotwinned nickel-molybdenum-tungsten films. <i>Acta Materialia</i> , 2018, 144, 216-225.	3.8	26
29	Tuning the deformation mechanisms of boron carbide via silicon doping. <i>Science Advances</i> , 2019, 5, eaay0352.	4.7	26
30	Experimental quantification of mechanically induced boundary migration in nanocrystalline copper films. <i>Acta Materialia</i> , 2017, 140, 46-55.	3.8	24
31	Nanoscale elastic strain mapping of polycrystalline materials. <i>Materials Research Letters</i> , 2018, 6, 249-254.	4.1	24
32	In Situ Measurement of the Toughness of the Interface Between a Thermal Barrier Coating and a Ni Alloy. <i>Journal of the American Ceramic Society</i> , 2011, 94, s120.	1.9	22
33	Observations of nanocrystalline cubic boron nitride formed with plasma spraying. <i>Acta Materialia</i> , 2016, 116, 155-165.	3.8	20
34	Damping behavior of 3D woven metallic lattice materials. <i>Scripta Materialia</i> , 2015, 106, 1-4.	2.6	19
35	Fabrication and characterization of arc melted Si/B co-doped boron carbide. <i>Journal of the European Ceramic Society</i> , 2019, 39, 5156-5166.	2.8	17
36	Fabrication of dense B ₄ C-preceramic polymer derived SiC composite. <i>Journal of the European Ceramic Society</i> , 2019, 39, 718-725.	2.8	17

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37	Development of a High-Temperature Tensile Tester for Micromechanical Characterization of Materials Supporting Meso-Scale ICME Models. <i>Jom</i> , 2016, 68, 2754-2760.	0.9	16
38	Formation of BN from BCNO and the development of ordered BN structure: I. Synthesis of BCNO with various chemistries and degrees of crystallinity and reaction mechanism on BN formation. <i>Ceramics International</i> , 2018, 44, 14980-14989.	2.3	16
39	Topology Optimization of Three-Dimensional Woven Materials Using a Ground Structure Design Variable Representation. <i>Journal of Mechanical Design, Transactions of the ASME</i> , 2019, 141, .	1.7	15
40	On anomalous strain hardening in iridium crystals. <i>Scripta Materialia</i> , 2007, 56, 389-392.	2.6	14
41	Properties of sputter deposited Ni-base superalloys for microelectromechanical systems. <i>Thin Solid Films</i> , 2014, 558, 20-23.	0.8	14
42	Nanotwin formation in Ni-Mo-W alloys deposited by dc magnetron sputtering. <i>Scripta Materialia</i> , 2020, 186, 247-252.	2.6	14
43	Experimental observations of the mechanisms associated with the high hardening and low strain to failure of magnesium. <i>Materialia</i> , 2019, 8, 100504.	1.3	13
44	Investigating the compressive strength and strain localization of nanotwinned nickel alloys. <i>Acta Materialia</i> , 2021, 204, 116507.	3.8	13
45	Precipitation of AlN in a commercial hot-pressed boron carbide. <i>Scripta Materialia</i> , 2015, 101, 95-98.	2.6	12
46	An et Al. Reply:. <i>Physical Review Letters</i> , 2017, 118, 089602.	2.9	12
47	Experimental observations of twin formation during thermal annealing of nanocrystalline copper films using orientation mapping. <i>Scripta Materialia</i> , 2017, 141, 76-79.	2.6	12
48	Small amount TiB ₂ addition into B ₄ C through sputter deposition and hot pressing. <i>Journal of the American Ceramic Society</i> , 2019, 102, 4421-4426.	1.9	12
49	Twin boundary migration mechanisms in quasi-statically compressed and plate-impacted Mg single crystals. <i>Science Advances</i> , 2021, 7, eabg3443.	4.7	12
50	The mechanical response of additively manufactured IN625 thin-walled structures. <i>Scripta Materialia</i> , 2021, 205, 114188.	2.6	11
51	Addressing amorphization and transgranular fracture of B ₄ C through Si doping and TiB ₂ microparticle reinforcing. <i>Journal of the American Ceramic Society</i> , 2022, 105, 2959-2977.	1.9	11
52	Observations of explosion phase boron nitride formed by emulsion detonation synthesis. <i>Scripta Materialia</i> , 2018, 145, 126-130.	2.6	10
53	Granular flow of an advanced ceramic under ultra-high strain rates and high pressures. <i>Journal of the Mechanics and Physics of Solids</i> , 2020, 143, 104031.	2.3	10
54	Tailoring the coefficient of thermal expansion of ternary nickel alloys through compositional control and non-contact measurements. <i>Journal of Alloys and Compounds</i> , 2020, 833, 155024.	2.8	10

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55	Formation of metastable wurtzite phase boron nitride by emulsion detonation synthesis. Journal of the American Ceramic Society, 2018, 101, 3276-3281.	1.9	9
56	Influence of a nanotwinned, nanocrystalline microstructure on aging of a Ni-25Mo-8Cr superalloy. Acta Materialia, 2018, 156, 411-419.	3.8	9
57	Dynamic failure mechanisms of granular boron carbide under multi-axial high-strain-rate loading. Scripta Materialia, 2019, 173, 125-128.	2.6	9
58	Automated methods for the quantification of 3D woven architectures. Materials Characterization, 2017, 124, 241-249.	1.9	8
59	Non-dissociated $c+a$ dislocations in an AZ31 alloy revealed by transmission electron microscopy. Materials Research Letters, 2020, 8, 145-150.	4.1	8
60	Growth of high purity zone-refined Boron Carbide single crystals by Laser Diode Floating Zone method. Journal of Crystal Growth, 2020, 543, 125700.	0.7	8
61	Mechanical characterization of boron carbide single crystals. Journal of the American Ceramic Society, 2022, 105, 3030-3042.	1.9	8
62	Strong Impact of Minor Elements on the Microstructural Evolution of an Additively Manufactured Inconel 625 Alloy. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2022, 53, 2926-2942.	1.1	8
63	Nano-scale Elastic Strain Maps of Twins in Magnesium Alloys. Microscopy and Microanalysis, 2018, 24, 970-971.	0.2	7
64	Bending Nanoindentation and Plasticity Noise in FCC Single and Polycrystals. Crystals, 2019, 9, 652.	1.0	7
65	Small-scale mechanical characterization of space-exposed fluorinated ethylene propylene recovered from the Hubble Space Telescope. Polymer Testing, 2013, 32, 602-607.	2.3	6
66	Effect of synthesis conditions of BCNO on the formation and structural ordering of BN at 1200°C and 1â€”GPa. Diamond and Related Materials, 2018, 87, 156-162.	1.8	6
67	Effect of stress-relief heat treatments on the microstructure and mechanical response of additively manufactured IN625 thin-walled elements. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2022, 846, 143288.	2.6	6
68	Fabrication of Freestanding Metallic Ni-Mo-W Microcantilever Beams With High Dimensional Stability. Journal of Microelectromechanical Systems, 2020, 29, 329-337.	1.7	5
69	Intrinsic strengthening and toughening in hexagonal boron nitride by ripples. Acta Materialia, 2022, 229, 117845.	3.8	5
70	Effect of Boron on Microstructure and Fracture of Sintered Ultrafine-Grained Tungsten. Jom, 2018, 70, 2537-2543.	0.9	4
71	Experimental observations of amorphization in multiple generations of boron carbide. Journal of the American Ceramic Society, 2022, 105, 3008-3029.	1.9	4
72	Mechanical Properties of Al Thin Films as Measured by Bulge Testing. Materials Research Society Symposia Proceedings, 1999, 594, 135.	0.1	3

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73	The mechanical behavior of single crystal and polycrystalline pure magnesium. <i>Mechanics of Materials</i> , 2021, 163, 104078.	1.7	2
74	Characterization and understanding of the tilt-dependence of core-loss spectra for hexagonal boron nitride. <i>Scripta Materialia</i> , 2021, 204, 114160.	2.6	2
75	In Situ Analysis of the Fracture Behavior of Nanocrystalline Copper Using Precession-Assisted Crystal Orientation Mapping. <i>Microscopy and Microanalysis</i> , 2015, 21, 273-274.	0.2	1
76	Revealing the Microstructural Information of the Quasi-Plastic Zone in a Boron Carbide Using the Advanced Precession Electron Diffraction Technique. <i>Microscopy and Microanalysis</i> , 2019, 25, 788-789.	0.2	1
77	TMS: Advocating for the importance of science and technology. <i>Jom</i> , 2009, 61, 16-16.	0.9	0
78	Manufacturing and Fracture Behavior of Large Scale Multilayered Metal-Ceramic Nanocomposites. <i>Materials Research Society Symposia Proceedings</i> , 2014, 1650, 1.	0.1	0
79	On the formation of arrays of micro-tunnels in pyrope and almandine garnets. <i>American Mineralogist</i> , 2021, 106, 1026-1029.	0.9	0