

# Kevin J Hemker

## List of Publications by Year in descending order

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79  
papers

4,003  
citations

218381

26  
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118652

62  
g-index

84  
all docs

84  
docs citations

84  
times ranked

3671  
citing authors

#	ARTICLE	IF	CITATIONS
1	Mechanical characterization of boron carbide single crystals. Journal of the American Ceramic Society, 2022, 105, 3030-3042.	1.9	8
2	Experimental observations of amorphization in multiple generations of boron carbide. Journal of the American Ceramic Society, 2022, 105, 3008-3029.	1.9	4
3	Addressing amorphization and transgranular fracture of B <sub>4</sub> C through Si doping and TiB <sub>2</sub> microparticle reinforcing. Journal of the American Ceramic Society, 2022, 105, 2959-2977.	1.9	11
4	Intrinsic strengthening and toughening in hexagonal boron nitride by ripples. Acta Materialia, 2022, 229, 117845.	3.8	5
5	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
6	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
7	Investigating the compressive strength and strain localization of nanotwinned nickel alloys. Acta Materialia, 2021, 204, 116507.	3.8	13
8	On the formation of arrays of micro-tunnels in pyrope and almandine garnets. American Mineralogist, 2021, 106, 1026-1029.	0.9	0
9	The mechanical behavior of single crystal and polycrystalline pure magnesium. Mechanics of Materials, 2021, 163, 104078.	1.7	2
10	Characterization and understanding of the tilt-dependence of core-loss spectra for hexagonal boron nitride. Scripta Materialia, 2021, 204, 114160.	2.6	2
11	The mechanical response of additively manufactured IN625 thin-walled structures. Scripta Materialia, 2021, 205, 114188.	2.6	11
12	Twin boundary migration mechanisms in quasi-statically compressed and plate-impacted Mg single crystals. Science Advances, 2021, 7, eabg3443.	4.7	12
13	Granular flow of an advanced ceramic under ultra-high strain rates and high pressures. Journal of the Mechanics and Physics of Solids, 2020, 143, 104031.	2.3	10
14	Fabrication of Freestanding Metallic Ni-Mo-W Microcantilever Beams With High Dimensional Stability. Journal of Microelectromechanical Systems, 2020, 29, 329-337.	1.7	5
15	Nanotwin formation in Ni-Mo-W alloys deposited by dc magnetron sputtering. Scripta Materialia, 2020, 186, 247-252.	2.6	14
16	Non-dissociated <math>c/a</math> dislocations in an AZ31 alloy revealed by transmission electron microscopy. Materials Research Letters, 2020, 8, 145-150.	4.1	8
17	Tailoring the coefficient of thermal expansion of ternary nickel alloys through compositional control and non-contact measurements. Journal of Alloys and Compounds, 2020, 833, 155024.	2.8	10
18	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

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19	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
20	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
21	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
22	Dynamic failure mechanisms of granular boron carbide under multi-axial high-strain-rate loading. <i>Scripta Materialia</i> , 2019, 173, 125-128.	2.6	9
23	Experimental observations of amorphization in stoichiometric and boron-rich boron carbide. <i>Acta Materialia</i> , 2019, 181, 207-215.	3.8	43
24	Small amount TiB <sub>2</sub> addition into B <sub>4</sub> C through sputter deposition and hot pressing. <i>Journal of the American Ceramic Society</i> , 2019, 102, 4421-4426.	1.9	12
25	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
26	Tuning the deformation mechanisms of boron carbide via silicon doping. <i>Science Advances</i> , 2019, 5, eaay0352.	4.7	26
27	Fabrication of dense B <sub>4</sub> C-preceramic polymer derived SiC composite. <i>Journal of the European Ceramic Society</i> , 2019, 39, 718-725.	2.8	17
28	Bending Nanoindentation and Plasticity Noise in FCC Single and Polycrystals. <i>Crystals</i> , 2019, 9, 652.	1.0	7
29	Nanoscale elastic strain mapping of polycrystalline materials. <i>Materials Research Letters</i> , 2018, 6, 249-254.	4.1	24
30	Formation of metastable wurtzite phase boron nitride by emulsion detonation synthesis. <i>Journal of the American Ceramic Society</i> , 2018, 101, 3276-3281.	1.9	9
31	Observations of explosion phase boron nitride formed by emulsion detonation synthesis. <i>Scripta Materialia</i> , 2018, 145, 126-130.	2.6	10
32	Tailoring the mechanical properties of sputter deposited nanotwinned nickel-molybdenum-tungsten films. <i>Acta Materialia</i> , 2018, 144, 216-225.	3.8	26
33	Nano-scale Elastic Strain Maps of Twins in Magnesium Alloys. <i>Microscopy and Microanalysis</i> , 2018, 24, 970-971.	0.2	7
34	Effect of Boron on Microstructure and Fracture of Sintered Ultrafine-Grained Tungsten. <i>Jom</i> , 2018, 70, 2537-2543.	0.9	4
35	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
36	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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37	Influence of a nanotwinned, nanocrystalline microstructure on aging of a Ni-25Mo-8Cr superalloy. <i>Acta Materialia</i> , 2018, 156, 411-419.	3.8	9
38	Effect of synthesis conditions of BCNO on the formation and structural ordering of BN at 1200 $\hat{\text{A}}^{\circ}\text{C}$ and 1 $\hat{\text{A}}^{\circ}\text{GPa}$ . <i>Diamond and Related Materials</i> , 2018, 87, 156-162.	1.8	6
39	An et $\hat{\text{A}}$ al. Reply:. <i>Physical Review Letters</i> , 2017, 118, 089602.	2.9	12
40	Automated methods for the quantification of 3D woven architectures. <i>Materials Characterization</i> , 2017, 124, 241-249.	1.9	8
41	Experimental quantification of mechanically induced boundary migration in nanocrystalline copper films. <i>Acta Materialia</i> , 2017, 140, 46-55.	3.8	24
42	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
43	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
44	Mechanistic Insights for Low-Overpotential Electroreduction of CO <sub>2</sub> to CO on Copper Nanowires. <i>ACS Catalysis</i> , 2017, 7, 8578-8587.	5.5	106
45	Microstructural characterization of boron-rich boron carbide. <i>Acta Materialia</i> , 2017, 136, 202-214.	3.8	91
46	Nanotwinned metal MEMS films with unprecedented strength and stability. <i>Science Advances</i> , 2017, 3, e1700685.	4.7	68
47	Effect of strain rate and dislocation density on the twinning behavior in tantalum. <i>AIP Advances</i> , 2016, 6, .	0.6	40
48	New Ground-State Crystal Structure of Elemental Boron. <i>Physical Review Letters</i> , 2016, 117, 085501.	2.9	44
49	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
50	Superstrength through Nanotwinning. <i>Nano Letters</i> , 2016, 16, 7573-7579.	4.5	62
51	Nucleation of amorphous shear bands at nanotwins in boron suboxide. <i>Nature Communications</i> , 2016, 7, 11001.	5.8	43
52	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
53	Microstructural Characterization of a Commercial Hot $\hat{\text{A}}$ Pressed Boron Carbide Armor Plate. <i>Journal of the American Ceramic Society</i> , 2016, 99, 2834-2841.	1.9	36
54	Observations of nanocrystalline cubic boron nitride formed with plasma spraying. <i>Acta Materialia</i> , 2016, 116, 155-165.	3.8	20

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55	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
56	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
57	Pyramidal Slip in c-axis compressed Mg single crystals. <i>Scripta Materialia</i> , 2016, 112, 75-78.	2.6	105
58	Atomic-Level Understanding of "Asymmetric Twins" in Boron Carbide. <i>Physical Review Letters</i> , 2015, 115, 175501.	2.9	56
59	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
60	Microstructural evolution of pure magnesium under high strain rate loading. <i>Acta Materialia</i> , 2015, 87, 56-67.	3.8	168
61	Precipitation of AlN in a commercial hot-pressed boron carbide. <i>Scripta Materialia</i> , 2015, 101, 95-98.	2.6	12
62	Damping behavior of 3D woven metallic lattice materials. <i>Scripta Materialia</i> , 2015, 106, 1-4.	2.6	19
63	Emerging materials for microelectromechanical systems at elevated temperatures. <i>Journal of Materials Research</i> , 2014, 29, 1597-1608.	1.2	26
64	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
65	Manufacturing and Fracture Behavior of Large Scale Multilayered Metal-Ceramic Nanocomposites. <i>Materials Research Society Symposia Proceedings</i> , 2014, 1650, 1.	0.1	0
66	Properties of sputter deposited Ni-base superalloys for microelectromechanical systems. <i>Thin Solid Films</i> , 2014, 558, 20-23.	0.8	14
67	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
68	Permeability measurements and modeling of topology-optimized metallic 3-D woven lattices. <i>Acta Materialia</i> , 2014, 81, 326-336.	3.8	40
69	Small-scale mechanical characterization of space-exposed fluorinated ethylene propylene recovered from the Hubble Space Telescope. <i>Polymer Testing</i> , 2013, 32, 602-607.	2.3	6
70	Development of Ni-based superalloys for microelectromechanical systems. <i>Scripta Materialia</i> , 2012, 67, 459-462.	2.6	28
71	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
72	TMS: Advocating for the importance of science and technology. <i>Jom</i> , 2009, 61, 16-16.	0.9	0

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73	In situ TEM observations of fast grain-boundary motion in stressed nanocrystalline aluminum films. Acta Materialia, 2008, 56, 3380-3393.	3.8	372
74	On anomalous strain hardening in iridium crystals. Scripta Materialia, 2007, 56, 389-392.	2.6	14
75	MATERIALS SCIENCE: Understanding How Nanocrystalline Metals Deform. Science, 2004, 304, 221-223.	6.0	50
76	Deformation Twinning in Nanocrystalline Aluminum. Science, 2003, 300, 1275-1277.	6.0	1,058
77	Shock-Induced Localized Amorphization in Boron Carbide. Science, 2003, 299, 1563-1566.	6.0	483
78	Mechanical Properties of Al Thin Films as Measured by Bulge Testing. Materials Research Society Symposia Proceedings, 1999, 594, 135.	0.1	3
79	Modelling the flow stress anomaly in $\hat{\text{TiAl}}$ I. Experimental observations of dislocation mechanisms. Philosophical Magazine A: Physics of Condensed Matter, Structure, Defects and Mechanical Properties, 1995, 71, 1295-1312.	0.8	136