

Brad L Boyce

List of Publications by Year in Descending Order

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The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

139
papers

4,164
citations

40
h-index

59
g-index

152
ext. papers

4,849
ext. citations

4.8
avg, IF

5.82
L-index

#	Paper	IF	Citations
139	Solute segregation improves the high-cycle fatigue resistance of nanocrystalline Pt-Au. <i>Acta Materialia</i> , 2022 , 229, 117794	8.4	
138	Optimization of Stochastic Feature Properties in Laser Powder Bed Fusion. <i>Additive Manufacturing</i> , 2022 , 102943	6.1	
137	A combined thermomechanical and radiation testing platform for a 6 MV tandem accelerator. <i>Nuclear Instruments & Methods in Physics Research B</i> , 2021 , 509, 39-47	1.2	1
136	High-Throughput Statistical Interrogation of Mechanical Properties with Build Plate Location and Powder Reuse in ALSi10Mg. <i>Jom</i> , 2021 , 73, 3356	2.1	0
135	Stress-induced transition from vacancy annihilation to void nucleation near microcracks. <i>International Journal of Solids and Structures</i> , 2021 , 213, 103-110	3.1	2
134	Fatigue and fracture of nanostructured metals and alloys. <i>MRS Bulletin</i> , 2021 , 46, 258-264	3.2	10
133	Pragmatic generative optimization of novel structural lattice metamaterials with machine learning. <i>Materials and Design</i> , 2021 , 203, 109632	8.1	8
132	High-throughput bend-strengths of ultra-small polysilicon MEMS components. <i>Applied Physics Letters</i> , 2021 , 118, 201601	3.4	1
131	Interpenetrating lattices with enhanced mechanical functionality. <i>Additive Manufacturing</i> , 2021 , 38, 101741	4.1	5
130	Analytical Methods to Understand Deformation Mechanics in Additively Manufactured Metals. <i>Conference Proceedings of the Society for Experimental Mechanics</i> , 2021 , 53-56	0.3	
129	Micromechanics of Void Nucleation and Early Growth at Incoherent Precipitates: Lattice-Trapped and Dislocation-Mediated Delamination Modes. <i>Crystals</i> , 2021 , 11, 45	2.3	0
128	The role of grain boundary character in solute segregation and thermal stability of nanocrystalline Pt-Au. <i>Nanoscale</i> , 2021 , 13, 3552-3563	7.7	15
127	Exploring Coupled Extreme Environments via In-situ Transmission Electron Microscopy. <i>Microscopy Today</i> , 2021 , 29, 28-34	0.4	6
126	Increasing fracture toughness via architected porosity. <i>Materials and Design</i> , 2021 , 205, 109696	8.1	9
125	Spinodal Decomposition in Nanocrystalline Alloys. <i>Acta Materialia</i> , 2021 , 215, 117054	8.4	5
124	The grain boundary stiffness and its impact on equilibrium shapes and boundary migration: Analysis of the Σ 7, 9, and 11 boundaries in Ni. <i>Acta Materialia</i> , 2021 , 218, 117220	8.4	5
123	Watching High-Cycle Fatigue with Automated Scanning Electron Microscope Experiments. <i>Conference Proceedings of the Society for Experimental Mechanics</i> , 2021 , 73-76	0.3	0

122	Development of a heterogeneous nanostructure through abnormal recrystallization of a nanotwinned Ni superalloy. <i>Acta Materialia</i> , 2020 , 195, 132-140	8.4	10
121	Multi-morphology lattices lead to improved plastic energy absorption. <i>Materials and Design</i> , 2020 , 194, 108883	8.1	20
120	Rethinking scaling laws in the high-cycle fatigue response of nanostructured and coarse-grained metals. <i>International Journal of Fatigue</i> , 2020 , 134, 105472	5	5
119	In situ TEM measurement of activation volume in ultrafine grained gold. <i>Nanoscale</i> , 2020 , 12, 7146-7158	7.7	4
118	Coulombic friction in metamaterials to dissipate mechanical energy. <i>Extreme Mechanics Letters</i> , 2020 , 40, 100847	3.9	9
117	Amorphous intergranular films mitigate radiation damage in nanocrystalline Cu-Zr. <i>Acta Materialia</i> , 2020 , 186, 341-354	8.4	10
116	Deep Convolutional Neural Networks as a Rapid Screening Tool for Complex Additively Manufactured Structures. <i>Additive Manufacturing</i> , 2020 , 35, 101217	6.1	6
115	Shoulder fillet effects in strength distributions of microelectromechanical system components. <i>Journal of Micromechanics and Microengineering</i> , 2020 , 30, 125013	2	2
114	Automated high-throughput tensile testing reveals stochastic process parameter sensitivity. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2020 , 772, 138632	5.3	18
113	Nanoscale conditions for ductile void nucleation in copper: Vacancy condensation and the growth-limited microstructural state. <i>Acta Materialia</i> , 2020 , 184, 211-224	8.4	11
112	Size-dependent stochastic tensile properties in additively manufactured 316L stainless steel. <i>Additive Manufacturing</i> , 2020 , 32, 101090	6.1	14
111	Suppression of Void Nucleation in High-Purity Aluminum via Dynamic Recrystallization. <i>Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science</i> , 2020 , 51, 154-166	2.3	1
110	An experimental approach for enhancing the predictability of mechanical properties of additively manufactured architected materials with manufacturing-induced variability 2020 , 539-565		1
109	Development of the In-Situ Ion Irradiation SEM at Sandia National Laboratories. <i>Microscopy and Microanalysis</i> , 2019 , 25, 1596-1597	0.5	
108	Heterogeneities dominate mechanical performance of additively manufactured metal lattice struts. <i>Additive Manufacturing</i> , 2019 , 28, 692-703	6.1	24
107	In Situ High-Cycle Fatigue Reveals Importance of Grain Boundary Structure in Nanocrystalline Cu-Zr. <i>Jom</i> , 2019 , 71, 1221-1232	2.1	10
106	Progress toward autonomous experimental systems for alloy development. <i>MRS Bulletin</i> , 2019 , 44, 273-280	3	21
105	The third Sandia fracture challenge: predictions of ductile fracture in additively manufactured metal. <i>International Journal of Fracture</i> , 2019 , 218, 5-61	2.3	43

104	Collaborative ductile rupture mechanisms of high-purity copper identified by in situ X-ray computed tomography. <i>Acta Materialia</i> , 2019 , 181, 377-384	8.4	9
103	Revealing inconsistencies in X-ray width methods for nanomaterials. <i>Nanoscale</i> , 2019 , 11, 22456-22466	7.7	7
102	Predicting strength distributions of MEMS structures using flaw size and spatial density. <i>Microsystems and Nanoengineering</i> , 2019 , 5, 49	7.7	10
101	Fatigue-driven acceleration of abnormal grain growth in nanocrystalline wires. <i>Modelling and Simulation in Materials Science and Engineering</i> , 2019 , 27, 025008	2	5
100	Examining the influence of grain size on radiation tolerance in the nanocrystalline regime. <i>Applied Physics Letters</i> , 2018 , 112, 181903	3.4	11
99	Evidence that abnormal grain growth precedes fatigue crack initiation in nanocrystalline Ni-Fe. <i>Scripta Materialia</i> , 2018 , 143, 15-19	5.6	12
98	The role of the interface stiffness tensor on grain boundary dynamics. <i>Acta Materialia</i> , 2018 , 158, 440-453	3.4	18
97	New nanoscale toughening mechanisms mitigate embrittlement in binary nanocrystalline alloys. <i>Nanoscale</i> , 2018 , 10, 21231-21243	7.7	15
96	The mechanisms of ductile rupture. <i>Acta Materialia</i> , 2018 , 161, 83-98	8.4	65
95	Corroborating tomographic defect metrics with mechanical response in an additively manufactured precipitation-hardened stainless steel 2018 ,		8
94	Achieving Ultralow Wear with Stable Nanocrystalline Metals. <i>Advanced Materials</i> , 2018 , 30, e1802026	24	40
93	An atom probe study on Nb solute partitioning and nanocrystalline grain stabilization in mechanically alloyed Cu-Nb. <i>Acta Materialia</i> , 2017 , 126, 564-575	8.4	49
92	Grain boundary segregation in immiscible nanocrystalline alloys. <i>Acta Materialia</i> , 2017 , 126, 528-539	8.4	55
91	Extreme-Value Statistics Reveal Rare Failure-Critical Defects in Additive Manufacturing . <i>Advanced Engineering Materials</i> , 2017 , 19, 1700102	3.5	44
90	Additive manufacturing: Toward holistic design. <i>Scripta Materialia</i> , 2017 , 135, 141-147	5.6	109
89	Do voids nucleate at grain boundaries during ductile rupture?. <i>Acta Materialia</i> , 2017 , 137, 103-114	8.4	54
88	The onset and evolution of fatigue-induced abnormal grain growth in nanocrystalline NiBe. <i>Journal of Materials Science</i> , 2017 , 52, 46-59	4.3	26
87	High-throughput stochastic tensile performance of additively manufactured stainless steel. <i>Journal of Materials Processing Technology</i> , 2017 , 241, 1-12	5.3	88

86	In Situ TEM Study of Fatigue Crack Growth of Cu Thin Films Using a Modified Nanoindentation System 2016 , 199-200		
85	Combining Orientation Mapping and In Situ TEM to Investigate High-Cycle Fatigue and Failure. <i>Microscopy and Microanalysis</i> , 2016 , 22, 1736-1737	0.5	1
84	Room temperature stress relaxation in nanocrystalline Ni measured by micropillar compression and miniature tension. <i>Journal of Materials Research</i> , 2016 , 31, 1085-1095	2.5	24
83	The second Sandia Fracture Challenge: predictions of ductile failure under quasi-static and moderate-rate dynamic loading. <i>International Journal of Fracture</i> , 2016 , 198, 5-100	2.3	55
82	Thermal Stability Comparison of Nanocrystalline Fe-Based Binary Alloy Pairs. <i>Jom</i> , 2016 , 68, 1625-1633	2.1	35
81	High Cycle Fatigue in the Transmission Electron Microscope. <i>Nano Letters</i> , 2016 , 16, 4946-53	11.5	39
80	V-Notched Rail Test for Shear-Dominated Deformation of Ti-6Al-4V. <i>Conference Proceedings of the Society for Experimental Mechanics</i> , 2016 , 51-60	0.3	
79	Preface to the special volume on the second Sandia Fracture Challenge. <i>International Journal of Fracture</i> , 2016 , 198, 1-3	2.3	2
78	Room Temperature Deformation Mechanisms of Alumina Particles Observed from In Situ Micro-compression and Atomistic Simulations. <i>Journal of Thermal Spray Technology</i> , 2016 , 25, 82-93	2.5	23
77	Fatigue stress concentration and notch sensitivity in nanocrystalline metals. <i>Journal of Materials Research</i> , 2016 , 31, 740-752	2.5	16
76	Stress-dependent grain size evolution of nanocrystalline Ni-W and its impact on friction behavior. <i>Scripta Materialia</i> , 2016 , 123, 26-29	5.6	39
75	Detecting rare, abnormally large grains by x-ray diffraction. <i>Journal of Materials Science</i> , 2015 , 50, 6719-6729	4.3	10
74	Crystal plasticity simulations of microstructure-induced uncertainty in strain concentration near voids in brass. <i>Philosophical Magazine</i> , 2015 , 95, 1069-1079	1.6	15
73	Observations of fcc and hcp tantalum. <i>Journal of Materials Science</i> , 2015 , 50, 3706-3715	4.3	13
72	Fracture strength of micro- and nano-scale silicon components. <i>Applied Physics Reviews</i> , 2015 , 2, 021303	17.3	66
71	A physically based model of temperature and strain rate dependent yield in BCC metals: Implementation into crystal plasticity. <i>Journal of the Mechanics and Physics of Solids</i> , 2015 , 74, 80-96	5	59
70	Evaluating Deformation-Induced Grain Orientation Change in a Polycrystal During In Situ Tensile Deformation using EBSD. <i>Microscopy and Microanalysis</i> , 2015 , 21, 969-84	0.5	16
69	Oxide driven strength evolution of silicon surfaces. <i>Journal of Applied Physics</i> , 2015 , 118, 195304	2.5	5

68	Characterization of Void-Dominated Ductile Failure in Pure Ta. <i>Microscopy and Microanalysis</i> , 2015 , 21, 1163-1164	0.5	1
67	Role of Microstructure and Doping on the Mechanical Strength and Toughness of Polysilicon Thin Films. <i>Journal of Microelectromechanical Systems</i> , 2015 , 24, 1436-1452	2.5	9
66	Thermal Stability: The Next Frontier for Nanocrystalline Materials. <i>Jom</i> , 2015 , 67, 2785-2787	2.1	18
65	Quantitative comparison between experimental measurements and CP-FEM predictions of plastic deformation in a tantalum oligocrystal. <i>International Journal of Mechanical Sciences</i> , 2015 , 92, 98-108	5.5	39
64	The Sandia Fracture Challenge: blind round robin predictions of ductile tearing. <i>International Journal of Fracture</i> , 2014 , 186, 5-68	2.3	92
63	Preface to the Special Issue on the Sandia Fracture Challenge. <i>International Journal of Fracture</i> , 2014 , 186, 1-3	2.3	2
62	Grain-scale experimental validation of crystal plasticity finite element simulations of tantalum oligocrystals. <i>International Journal of Plasticity</i> , 2014 , 60, 1-18	7.6	119
61	The role of copper twin boundaries in cryogenic indentation-induced grain growth. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2014 , 592, 182-188	5.3	13
60	Observations on Heavily Deformed Tantalum. <i>Microscopy and Microanalysis</i> , 2014 , 20, 1082-1083	0.5	1
59	Compressive Properties of <110> Cu Micro-Pillars after High-Dose Self-Ion Irradiation. <i>Materials Research Letters</i> , 2014 , 2, 57-62	7.4	18
58	Grain Boundary Responses to Heterogeneous Deformation in Tantalum Polycrystals. <i>Jom</i> , 2014 , 66, 121-128	4.6	11
57	The Morphology of Tensile Failure in Tantalum. <i>Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science</i> , 2013 , 44, 4567-4580	2.3	23
56	Cryogenic indentation-induced grain growth in nanotwinned copper. <i>Scripta Materialia</i> , 2013 , 68, 781-784	4.6	19
55	An experimental statistical analysis of stress projection factors in BCC tantalum. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2013 , 581, 108-118	5.3	30
54	Frictional performance and near-surface evolution of nanocrystalline NiBe as governed by contact stress and sliding velocity. <i>Wear</i> , 2013 , 297, 860-871	3.5	56
53	Interpreting the ductility of nanocrystalline metals. <i>Journal of Materials Research</i> , 2013 , 28, 1539-1552	2.5	41
52	Slip planes in bcc transition metals. <i>International Materials Reviews</i> , 2013 , 58, 296-314	16.1	165
51	The effect of grain size on local deformation near a void-like stress concentration. <i>International Journal of Plasticity</i> , 2012 , 39, 46-60	7.6	25

50	The hardness and strength of metal tribofilms: An apparent contradiction between nanoindentation and pillar compression. <i>Acta Materialia</i> , 2012 , 60, 1712-1720	8.4	18
49	Finite element modeling and testing of a deformable carbon fiber reinforced polymer mirror. <i>Applied Optics</i> , 2012 , 51, 2081-7	1.7	2
48	Dependence on diameter and growth direction of apparent strain to failure of Si nanowires. <i>Journal of Applied Physics</i> , 2011 , 109, 033503	2.5	21
47	Actuation for deformable thin-shelled composite mirrors 2011 ,		2
46	An inverse finite element method for determining the anisotropic properties of the cornea. <i>Biomechanics and Modeling in Mechanobiology</i> , 2011 , 10, 323-37	3.8	66
45	Anomalous Fatigue Behavior and Fatigue-Induced Grain Growth in Nanocrystalline Nickel Alloys. <i>Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science</i> , 2011 , 42, 1793-1804 ²⁻³	2.3	75
44	On the Strain Rate- and Temperature-Dependent Tensile Behavior of Eutectic SnPb Solder. <i>Journal of Electronic Packaging, Transactions of the ASME</i> , 2011 , 133,	2	5
43	Predicting Fracture in Micrometer-Scale Polycrystalline Silicon MEMS Structures. <i>Journal of Microelectromechanical Systems</i> , 2011 , 20, 922-932	2.5	30
42	Stronger silicon for microsystems. <i>Acta Materialia</i> , 2010 , 58, 439-448	8.4	19
41	Emerging Methods in Mechanical Behavior. <i>Experimental Mechanics</i> , 2010 , 50, 3-3	2.6	1
40	A Sequential Tensile Method for Rapid Characterization of Extreme-value Behavior in Microfabricated Materials. <i>Experimental Mechanics</i> , 2010 , 50, 993-997	2.6	24
39	A Review of Fatigue Behavior in Nanocrystalline Metals. <i>Experimental Mechanics</i> , 2010 , 50, 5-23	2.6	135
38	Deformation and failure of small-scale structures. <i>Jom</i> , 2010 , 62, 62-63	2.1	5
37	The effect of microstructural representation on simulations of microplastic ratcheting. <i>International Journal of Plasticity</i> , 2010 , 26, 617-633	7.6	39
36	The inflation response of the posterior bovine sclera. <i>Acta Biomaterialia</i> , 2010 , 6, 4327-35	10.8	58
35	The dynamic tensile behavior of tough, ultrahigh-strength steels at strain-rates from 0.0002 s ⁻¹ to 200 s ⁻¹ . <i>International Journal of Impact Engineering</i> , 2009 , 36, 263-271	4	80
34	Quantifying uncertainty from material inhomogeneity. 2009 ,		4
33	A nonlinear anisotropic viscoelastic model for the tensile behavior of the corneal stroma. <i>Journal of Biomechanical Engineering</i> , 2008 , 130, 041020	2.1	69

32	An argument for proof testing brittle microsystems in high-reliability applications. <i>Journal of Micromechanics and Microengineering</i> , 2008 , 18, 117001	2	12
31	Connections between morphological and mechanical evolution during galvanic corrosion of micromachined polycrystalline and monocrystalline silicon. <i>Journal of Applied Physics</i> , 2008 , 103, 123518 ^{2,5}		17
30	Effect of post-release sidewall morphology on the fracture and fatigue properties of polycrystalline silicon structural films. <i>Sensors and Actuators A: Physical</i> , 2008 , 147, 553-560	3.9	26
29	Full-field deformation of bovine cornea under constrained inflation conditions. <i>Biomaterials</i> , 2008 , 29, 3896-904	15.6	137
28	Strength Distributions in Polycrystalline Silicon MEMS. <i>Journal of Microelectromechanical Systems</i> , 2007 , 16, 179-190	2.5	76
27	Modeling the Anisotropic Finite-Deformation Viscoelastic Behavior of Soft Fiber-Reinforced Tissues 2007 ,		1
26	Modeling the anisotropic finite-deformation viscoelastic behavior of soft fiber-reinforced composites. <i>International Journal of Solids and Structures</i> , 2007 , 44, 8366-8389	3.1	61
25	Mechanisms of fatigue in LIGA Ni MEMS thin films. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2007 , 444, 39-50	5.3	52
24	Characteristics of a commercially available silicon-on-insulator MEMS material. <i>Sensors and Actuators A: Physical</i> , 2007 , 138, 130-144	3.9	60
23	An Experimental Study of Fracture of LIGA Ni Micro-Electro-Mechanical Systems Thin Films. <i>Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science</i> , 2007 , 38, 1223-1230 ^{2,3}		4
22	Fatigue of LIGA Ni Micro-Electro-Mechanical System Thin Films. <i>Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science</i> , 2007 , 38, 2340-2348	2.3	9
21	Stress-controlled viscoelastic tensile response of bovine cornea. <i>Journal of Biomechanics</i> , 2007 , 40, 2367-2376		107
20	Science-based MEMS reliability methodology. <i>Microelectronics Reliability</i> , 2007 , 47, 1806-1811	1.2	21
19	Very high-cycle fatigue failure in micron-scale polycrystalline silicon films: Effects of environment and surface oxide thickness. <i>Journal of Applied Physics</i> , 2007 , 101, 013515	2.5	52
18	Galvanic corrosion induced degradation of tensile properties in micromachined polycrystalline silicon. <i>Applied Physics Letters</i> , 2007 , 90, 191902	3.4	12
17	The constitutive behavior of laser welds in 304L stainless steel determined by digital image correlation. <i>Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science</i> , 2006 , 37, 2481-2492	2.3	47
16	The effect of nanoparticles on rough surface adhesion. <i>Journal of Applied Physics</i> , 2006 , 99, 104304	2.5	34
15	Experimental apparatus and software design for dynamic long-term reliability testing of a spring-mass MEMS device 2006 , 6111, 184		

14	Indentation fracture toughness and acoustic energy release in tetrahedral amorphous carbon diamond-like thin films. <i>Acta Materialia</i> , 2006 , 54, 4043-4052	8.4	59
13	Nanoprobing Fracture Length Scales. <i>International Journal of Fracture</i> , 2006 , 138, 75-100	2.3	11
12	The mechanical properties, dimensional tolerance and microstructural characterization of micro-molded ceramic and metal components. <i>Microsystem Technologies</i> , 2004 , 10, 506-509	1.7	16
11	Fatigue of metallic microdevices and the role of fatigue-induced surface oxides. <i>Acta Materialia</i> , 2004 , 52, 1609-1619	8.4	49
10	Micromolding and sintering of nanoparticle preforms into microparts 2003 ,		4
9	An international round-robin experiment to evaluate the consistency of nanoindentation hardness measurements of thin films. <i>Surface and Coatings Technology</i> , 2003 , 168, 57-61	4.4	52
8	Mechanical relaxation of localized residual stresses associated with foreign object damage. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2003 , 349, 48-58	5.3	47
7	On the application of the Kitagawa-Takahashi diagram to foreign-object damage and high-cycle fatigue. <i>Engineering Fracture Mechanics</i> , 2002 , 69, 1425-1446	4.2	72
6	The Role of Microstructure in MEMS Deformation and Failure 2002 , 559		4
5	The residual stress state due to a spherical hard-body impact. <i>Mechanics of Materials</i> , 2001 , 33, 441-454	3.3	104
4	Effect of load ratio and maximum stress intensity on the fatigue threshold in Ti-6Al-4V. <i>Engineering Fracture Mechanics</i> , 2001 , 68, 129-147	4.2	159
3	The Fabrication of Stainless Steel Parts for MEMs. <i>Materials Research Society Symposia Proceedings</i> , 2001 , 687, 1		
2	Thresholds for high-cycle fatigue in a turbine engine Ti-6Al-4V alloy. <i>International Journal of Fatigue</i> , 1999 , 21, 653-662	5	101
1	High-cycle fatigue of Ti-6Al-4V. <i>Fatigue and Fracture of Engineering Materials and Structures</i> , 1999 , 22, 621-631	3	96