Nathan A Mara

List of Publications by Year
in descending order

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132 papers	6,583 citations	50170 46 h-index	69108 77 g-index
133 all docs	133 docs citations	133 times ranked	3877 citing authors

#	Article	IF	Citations
1	Radiation damage tolerant nanomaterials. Materials Today, 2013, 16, 443-449.	8.3	423
2	Design of Radiation Tolerant Materials Via Interface Engineering. Advanced Materials, 2013, 25, 6975-6979.	11.1	307
3	High-strength and thermally stable bulk nanolayered composites due to twin-induced interfaces. Nature Communications, 2013, 4, 1696.	5.8	298
4	Deformability of ultrahigh strength 5nmâ€ˆCuâ€•Nb nanolayered composites. Applied Physics Letters, 2008, 92, .	1.5	239
5	Bulk texture evolution of Cuâ€“Nb nanolamellar composites during accumulative roll bonding. Acta Materialia, 2012, 60, 1576-1586.	3.8	197
6	Suppression of irradiation hardening in nanoscale V/Ag multilayers. Acta Materialia, 2011, 59, 6331-6340.	3.8	164
7	Mechanism for shear banding in nanolayered composites. Applied Physics Letters, 2010, 97, .	1.5	154
8	Emergence of stable interfaces under extreme plastic deformation. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 4386-4390.	3.3	150
9	Interface-driven microstructure development and ultra high strength of bulk nanostructured Cu-Nb multilayers fabricated by severe plastic deformation. Journal of Materials Research, 2013, 28, 1799-1812.	1.2	142
10	Structureâ€“Propertyâ€“Functionality of Bimetal Interfaces. Jom, 2012, 64, 1192-1207.	0.9	140
11	A study of microstructure-driven strain localizations in two-phase polycrystalline HCP/BCC composites using a multi-scale model. International Journal of Plasticity, 2015, 74, 35-57.	4.1	137
12	Compressive flow behavior of Alâ€“TiN multilayers at nanometer scale layer thickness. Acta Materialia, 2011, 59, 3804-3816.	3.8	134
13	Texture evolution via combined slip and deformation twinning in rolled silverâ€“copper cast eutectic nanocomposite. International Journal of Plasticity, 2011, 27, 121-146.	4.1	127
14	Plastic instability mechanisms in bimetallic nanolayered composites. Acta Materialia, 2014, 79, 282-291.	3.8	124
15	Texture evolution in two-phase Zr/Nb lamellar composites during accumulative roll bonding. International Journal of Plasticity, 2014, 57, 16-28.	4.1	112
16	Review: effect of bimetal interface structure on the mechanical behavior of Cuâ€“Nb fccâ€“bcc nanolayered composites. Journal of Materials Science, 2014, 49, 6497-6516.	1.7	108
17	Deformation twinning mechanisms from bimetal interfaces as revealed by in situ straining in the TEM. Acta Materialia, 2012, 60, 5858-5866.	3.8	94
18	Anomalous Basal Slip Activity in Zirconium under High-strain Deformation. Materials Research Letters, 2013, 1, 133-140.	4.1	93

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19	Shear band formation and ductility in bulk metallic glass. Philosophical Magazine, 2005, 85, 2671-2687.	0.7	91
20	Deformation and failure of shocked bulk Cuâ€“Nb nanolaminates. Acta Materialia, 2014, 63, 150-161.	3.8	88
21	Experimentally quantifying critical stresses associated with basal slip and twinning in magnesium using micropillars. Acta Materialia, 2017, 135, 411-421.	3.8	87
22	Interface-facilitated deformation twinning in copper within submicron Agâ€“Cu multilayered composites. Scripta Materialia, 2011, 64, 1083-1086.	2.6	81
23	Bulk texture evolution of nanolamellar Zrâ€“Nb composites processed via accumulative roll bonding. Acta Materialia, 2015, 92, 97-108.	3.8	79
24	Tensile behavior and flow stress anisotropy of accumulative roll bonded Cu-Nb nanolaminates. Applied Physics Letters, 2016, 108, .	1.5	78
25	Atomic-level study of twin nucleation from face-centered-cubic/body-centered-cubic interfaces in nanolamellar composites. Applied Physics Letters, 2012, 100, .	1.5	76
26	Size effects in the superelastic response of Ni54Fe19Ga27 shape memory alloy pillars with a two stage martensitic transformation. Acta Materialia, 2012, 60, 5670-5685.	3.8	75
27	Strain fields induced by kink band propagation in Cu-Nb nanolaminate composites. Acta Materialia, 2017, 133, 303-315.	3.8	74
28	Modeling the texture evolution of Cu/Nb layered composites during rolling. International Journal of Plasticity, 2013, 49, 71-84.	4.1	72
29	Processing Parameter Influence on Texture and Microstructural Evolution in Cu-Nb Multilayer Composites Fabricated via Accumulative Roll Bonding. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2014, 45, 2192-2208.	1.1	67
30	Strong and ductile nanostructured Cu-carbon nanotube composite. Applied Physics Letters, 2009, 95, 071907.	1.5	65
31	Twinnability of bimetal interfaces in nanostructured composites. Materials Research Letters, 2013, 1, 89-95.	4.1	65
32	Engineering Interface Structures and Thermal Stabilities via SPD Processing in Bulk Nanostructured Metals. Scientific Reports, 2014, 4, 4226.	1.6	65
33	Transmission electron microscopy study of the deformation behavior of Cu/Nb and Cu/Ni nanoscale multilayers during nanoindentation. Journal of Materials Research, 2009, 24, 1291-1302.	1.2	64
34	Structure and Property of Interfaces in ARB Cu/Nb Laminated Composites. Jom, 2012, 64, 1208-1217.	0.9	63
35	The critical role of grain orientation and applied stress in nanoscale twinning. Nature Communications, 2014, 5, 3806.	5.8	62
36	Microcompression study of Al-Nb nanoscale multilayers. Journal of Materials Research, 2012, 27, 592-598.	1.2	58

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37	Microstructural evolution of nanolayered Cuâ€“Nb composites subjected to high-pressure torsion. Acta Materialia, 2014, 72, 178-191.	3.8	57
38	Effects of Helium Implantation on the Tensile Properties and Microstructure of Ni₇₃P₂₇ Metallic Glass Nanostructures. Nano Letters, 2014, 14, 5176-5183.	4.5	55
39	Strong, Ductile, and Thermally Stable bcc-Mg Nanolaminates. Scientific Reports, 2017, 7, 8264.	1.6	53
40	He implantation of bulk Cuâ€“Nb nanocomposites fabricated by accumulated roll bonding. Journal of Nuclear Materials, 2014, 452, 57-60.	1.3	50
41	Microstructure and texture evolution in Mg/Nb layered materials made by accumulative roll bonding. International Journal of Plasticity, 2020, 125, 1-26.	4.1	50
42	High-temperature mechanical behavior/microstructure correlation of Cu/Nb nanoscale multilayers. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2008, 493, 274-282.	2.6	49
43	Interface-dominant multilayers fabricated by severe plastic deformation: Stability under extreme conditions. Current Opinion in Solid State and Materials Science, 2015, 19, 265-276.	5.6	49
44	Epitaxial Superconducting Î´-MoN Films Grown by a Chemical Solution Method. Journal of the American Chemical Society, 2011, 133, 20735-20737.	6.6	48
45	Effect of double ion implantation and irradiation by Ar and He ions on nano-indentation hardness of metallic alloys. Journal of Nuclear Materials, 2013, 438, 108-115.	1.3	48
46	Enhanced Plasticity via Kinking in Cubic Metallic Nanolaminates. Advanced Engineering Materials, 2015, 17, 781-785.	1.6	47
47	Mechanical Properties of Anhydrous and Hydrated Uric Acid Crystals. Chemistry of Materials, 2018, 30, 3798-3805.	3.2	46
48	Suppression of shear banding in high-strength Cu/Mo nanocomposites with hierarchical bicontinuous intertwined structures. Materials Research Letters, 2018, 6, 184-190.	4.1	45
49	Chemical Solution Deposition of Epitaxial Carbide Films. Journal of the American Chemical Society, 2010, 132, 2516-2517.	6.6	44
50	Shear band formation and ductility of metallic glasses. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2004, 383, 219-223.	2.6	43
51	Optimum high temperature strength of two-dimensional nanocomposites. APL Materials, 2013, 1, .	2.2	43
52	Misfit dislocation patterns of Mg-Nb interfaces. Acta Materialia, 2017, 126, 552-563.	3.8	43
53	Room temperature deformation mechanisms of Mg/Nb nanolayered composites. Journal of Materials Research, 2018, 33, 1311-1332.	1.2	43
54	In situ x-ray investigation of freestanding nanoscale Cuâ€“Nb multilayers under tensile load. Applied Physics Letters, 2009, 94, .	1.5	42

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55	Cooperative grain boundary sliding in nanocrystalline materials. Philosophical Magazine, 2006, 86, 5797-5804.	0.7	41
56	Adhesion of voids to bimetal interfaces with non-uniform energies. Scientific Reports, 2015, 5, 15428.	1.6	41
57	Influence of slip and twinning on the crystallographic stability of bimetal interfaces in nanocomposites under deformation. Acta Materialia, 2014, 72, 137-147.	3.8	40
58	Spherical nanoindentation of proton irradiated 304 stainless steel: A comparison of small scale mechanical test techniques for measuring irradiation hardening. Journal of Nuclear Materials, 2017, 493, 368-379.	1.3	40
59	Quantifying the mechanical effects of He, W and HeÂ+ÂW ion irradiation on tungsten with spherical nanoindentation. Journal of Materials Science, 2018, 53, 5296-5316.	1.7	39
60	Mechanical properties of metal-ceramic nanolaminates: Effect of constraint and temperature. Acta Materialia, 2018, 142, 37-48.	3.8	39
61	The effects of decreasing layer thickness on the high temperature mechanical behavior of Cu/Nb nanoscale multilayers. Thin Solid Films, 2007, 515, 3241-3245.	0.8	37
62	Grain boundary sliding in nanomaterials at elevated temperatures. Journal of Materials Science, 2007, 42, 1433-1438.	1.7	36
63	Processing and Deformation Behavior of Bulk Cuâ€“Nb Nanolaminates. Metallography, Microstructure, and Analysis, 2014, 3, 470-476.	0.5	36
64	Probing nanoscale damage gradients in ion-irradiated metals using spherical nanoindentation. Scientific Reports, 2017, 7, 11918.	1.6	35
65	Slip transmission of high angle grain boundaries in body-centered cubic metals: Micropillar compression of pure Ta single and bi-crystals. Acta Materialia, 2018, 156, 356-368.	3.8	35
66	Superplasticity and cooperative grain boundary sliding in nanocrystalline Ni3Al. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2007, 463, 238-244.	2.6	34
67	Indentation Fracture Response of Alâ€“TiN Nanolaminates. Materials Research Letters, 2013, 1, 102-108.	4.1	33
68	A wedge-mounting technique for nanoscale electron backscatter diffraction. Journal of Applied Physics, 2013, 113, .	1.1	33
69	Hardening due to Interfacial He Bubbles in Nanolayered Composites. Materials Research Letters, 2016, 4, 75-82.	4.1	32
70	Deformation response of AgCu interfaces investigated by in situ and ex situ TEM straining and MD simulations. Acta Materialia, 2017, 138, 212-223.	3.8	32
71	Micromechanical and in situ shear testing of Alâ€“SiC nanolaminate composites in a transmission electron microscope (TEM). Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2015, 621, 229-235.	2.6	30
72	Effects of He radiation on cavity distribution and hardness of bulk nanolayered Cu-Nb composites. Journal of Nuclear Materials, 2017, 487, 311-316.	1.3	28

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73	Morphology and porosity of nanoporous Au thin films formed by dealloying of AuxSi1â^'x. Journal of Applied Physics, 2012, 112, .	1.1	26
74	An interface facet driven Rayleigh instability in high-aspect-ratio bimetallic nanolayered composites. Applied Physics Letters, 2014, 105, .	1.5	25
75	Simultaneous High-Strength and Deformable Nanolaminates With Thick Biphase Interfaces. Nano Letters, 2022, 22, 1897-1904.	4.5	25
76	Spray-Dried Multiscale Nano-biocomposites Containing Living Cells. ACS Nano, 2015, 9, 6961-6977.	7.3	24
77	Investigations of orientation and length scale effects on micromechanical responses in polycrystalline zirconium using spherical nanoindentation. Scripta Materialia, 2016, 113, 241-245.	2.6	22
78	Mechanical response of Zr-based metallic glass. Journal of Non-Crystalline Solids, 2003, 317, 169-175.	1.5	20
79	Ultrahigh Strength and Ductility of Cu-Nb Nanolayered Composites. Materials Science Forum, 0, 633-634, 647-653.	0.3	19
80	Interface-Driven Plasticity in Metalâ€“Ceramic Nanolayered Composites: Direct Validation of Multiscale Deformation Modeling via In Situ Indentation in TEM. Jom, 2016, 68, 143-150.	0.9	19
81	Residual strain and texture in free-standing nanoscale Cu-Nb multilayers. Journal of Applied Physics, 2007, 102, .	1.1	18
82	Plasticity at really diminished length scales. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2007, 463, 8-13.	2.6	18
83	The Suppression of Instabilities via Biphase Interfaces During Bulk Fabrication of Nanograined Zr. Materials Research Letters, 2015, 3, 50-57.	4.1	18
84	Hierarchical and heterogeneous multiphase metallic nanomaterials and laminates. MRS Bulletin, 2021, 46, 236-243.	1.7	18
85	Role of interfaces on the trapping of He in 2D and 3D Cuâ€“Nb nanocomposites. Journal of Nuclear Materials, 2015, 466, 36-42.	1.3	16
86	Maintaining nano-lamellar microstructure in friction stir welding (FSW) of accumulative roll bonded (ARB) Cu-Nb nano-lamellar composites (NLC). Journal of Materials Science and Technology, 2018, 34, 92-101.	5.6	16
87	High-Throughput Nanomechanical Screening of Phase-Specific and Temperature-Dependent Hardness in AlxFeCrNiMn High-Entropy Alloys. Jom, 2019, 71, 3368-3377.	0.9	16
88	Mechanically controlling the reversible phase transformation from zinc blende to wurtzite in AlN. Materials Research Letters, 2017, 5, 426-432.	4.1	15
89	In situ frustum indentation of nanoporous copper thin films. International Journal of Plasticity, 2017, 98, 139-155.	4.1	15
90	Microstructure Evolution and Mechanical Response of Nanolaminate Composites Irradiated with Helium at Elevated Temperatures. Jom, 2017, 69, 2206-2213.	0.9	14

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91	Meso-Scale Modeling the Orientation and Interface Stability of Cu/Nb-Layered Composites by Rolling. Jom, 2013, 65, 431-442.	0.9	13
92	Interfaceâ€Driven Plasticity: The Presence of an Interface Affected Zone in Metallic Lamellar Composites. Advanced Engineering Materials, 2015, 17, 109-114.	1.6	13
93	Microstructure and mechanical properties of co-sputtered Al-SiC composites. Materials and Design, 2019, 168, 107670.	3.3	13
94	Quantifying heterogeneous deformation in grain boundary regions on shock loaded tantalum using spherical and sharp tip nanoindentation. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2018, 737, 373-382.	2.6	12
95	Phase-field modeling of the interactions between an edge dislocation and an array of obstacles. Computer Methods in Applied Mechanics and Engineering, 2022, 389, 114426.	3.4	12
96	Aligned carbon nanotubes sandwiched in epitaxial NbC film for enhanced superconductivity. Nanoscale, 2012, 4, 2268.	2.8	11
97	Interfacially Driven Deformation Twinning in Bulk Ag-Cu Composites. Jom, 2012, 64, 1218-1226.	0.9	11
98	Synthesis and mechanical behavior of nanoporous nanotwinned copper. Applied Physics Letters, 2013, 103, .	1.5	11
99	A multi-scale model for texture development in Zr/Nb nanolayered composites processed by accumulative roll bonding. IOP Conference Series: Materials Science and Engineering, 2014, 63, 012170.	0.3	11
100	A comparison of adiabatic shear bands in wrought and additively manufactured 316L stainless steel using nanoindentation and electron backscatter diffraction. Journal of Materials Science, 2020, 55, 1738-1752.	1.7	11
101	Processing of Dilute Mgâ€“Znâ€“Mnâ€“Ca Alloy/Nb Multilayers by Accumulative Roll Bonding. Advanced Engineering Materials, 2020, 22, 1900673.	1.6	11
102	Identifying Deformation and Strain Hardening Behaviors of Nanoscale Metallic Multilayers Through Nano-wear Testing. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2016, 47, 1083-1095.	1.1	10
103	Structure and properties of pseudomorphically transformed bcc Mg in Mg/Nb multilayered nanolaminates studied using synchrotron X-ray diffraction. Journal of Applied Physics, 2019, 126, 025302.	1.1	10
104	Effects of Phase Purity and Pore Reinforcement on Mechanical Behavior of NU-1000 and Silica-Infiltrated NU-1000 Metalâ€“Organic Frameworks. ACS Applied Materials & Interfaces, 2020, 12, 49971-49981.	4.0	10
105	Nanomechanical mapping and strain rate sensitivity of microcrystalline cellulose. Journal of Materials Research, 2021, 36, 2251-2265.	1.2	10
106	Mechanical Properties of Metal Nanolaminates. Annual Review of Materials Research, 2022, 52, 281-304.	4.3	10
107	Multiscale Model for the Extreme Piezoresistivity in Silicone/Nickel Nanostrand Nanocomposites. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2011, 42, 3898-3906.	1.1	9
108	Recrystallization and Grain Growth in Accumulative Roll-Bonded Metal Composites. Jom, 2015, 67, 2810-2819.	0.9	9

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109	Local Mechanical Property Evolution During High Strain-Rate Deformation of Tantalum. Journal of Dynamic Behavior of Materials, 2016, 2, 511-520.	1.1	9
110	Temperature-dependent mechanical behavior of three-dimensionally ordered macroporous tungsten. Journal of Materials Research, 2020, 35, 2556-2566.	1.2	8
111	Nanomechanical testing in drug delivery: Theory, applications, and emerging trends. Advanced Drug Delivery Reviews, 2022, 183, 114167.	6.6	8
112	Bond Characterization of Plasma Sprayed Zirconium on Uranium Alloy by Microcantilever Testing. Journal of Thermal Spray Technology, 2013, 22, 233-241.	1.6	7
113	Microcantilever bend testing and finite element simulations of HIP-ed interface-free bulk Al and Alâ€“Al HIP bonded interfaces. Philosophical Magazine, 2013, 93, 2749-2758.	0.7	7
114	Mechanical behavior of rareâ€earth orthophosphates near the monazite/xenotime boundary characterized by nanoindentation. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2017, 691, 203-210.	2.6	7
115	Characterization of nickel nanostrand nanocomposites through dielectric spectroscopy and nanoindentation. Polymer Engineering and Science, 2013, 53, 2666-2673.	1.5	6
116	High-Throughput Nanoindentation Mapping of Additively Manufactured T91 Steel. Jom, 2022, 74, 1469-1476.	0.9	6
117	Interface Facilitated Reorientation of Mg Nanolayers in Mg-Nb Nanolaminates. Jom, 2019, 71, 1215-1220.	0.9	5
118	High temperature nanoindentation of Cuâ€“TiN nanolaminates. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2021, 804, 140522.	2.6	5
119	Tribological performance of monolithic copper thin films during nanowear. Wear, 2018, 394-395, 50-59.	1.5	5
120	3D Periodic and Interpenetrating Tungstenâ€“Silicon Oxycarbide Nanocomposites Designed for Mechanical Robustness. ACS Applied Materials & Interfaces, 2021, 13, 32126-32135.	4.0	4
121	Quantifying physical parameters to predict brittle/ ductile behavior. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2021, 808, 140899.	2.6	3
122	Algorithms for Nanoindentation Strain Rate Jump Testing and Analysis. Experimental Mechanics, 0, , 1.	1.1	3
123	Layer Stability and Material Properties of Friction-Stir Welded Cuâ€“Nb Nanolamellar Composite Plates. Materials Research Letters, 2014, 2, 227-232.	4.1	2
124	The Influence of Rolling Schedule on the Dynamic Properties of Accumulatively Roll Bonded Nano-Layered Cu-Nb. Key Engineering Materials, 2014, 622-623, 1031-1040.	0.4	2
125	Microstructure and local mechanical property evolution during high strain-rate deformation of tantalum. EPJ Web of Conferences, 2015, 94, 02023.	0.1	2
126	â€œMechanical Behavior of Nanostructured Materialsâ€• Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2010, 41, 777-777.	1.1	1

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127	In situ TEM Investigation of Mechanically Induced Phase Transformations in Nanoscale Composites. Microscopy and Microanalysis, 2018, 24, 1828-1829.	0.2	1
128	Spherical Nanoindentation Stress-Strain Analysis of Ion-Irradiated Tungsten. Minerals, Metals and Materials Series, 2018, , 617-635.	0.3	1
129	Nano goes the distance. Nature Materials, 2021, 20, 1456-1458.	13.3	1
130	Elevated Temperature Mechanical Properties of Devitrified Metallic Glass. Materials Research Society Symposia Proceedings, 2004, 821, 191.	0.1	0
131	Size Effects in Single-Crystal Metallic Micro- and Nanocubes. Conference Proceedings of the Society for Experimental Mechanics, 2018, , 47-49.	0.3	0
132	Spherical Nanoindentation Stress-Strain Analysis of Ion-Irradiated Tungsten. Minerals, Metals and Materials Series, 2019, , 617-635.	0.3	0