

# William D Nix

## 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.

114  
papers

20,068  
citations

45  
h-index

118  
g-index

118  
ext. papers

21,728  
ext. citations

6.2  
avg, IF

7.07  
L-index

#	Paper	IF	Citations
114	Intrinsic size dependent plasticity in BCC micro-pillars under uniaxial tension and pure torsion. <i>Extreme Mechanics Letters</i> , <b>2020</b> , 40, 100901	3.9	3
113	Radiation-damage in multi-layered zircon: Mechanical properties. <i>Applied Physics Letters</i> , <b>2019</b> , 115, 081902	3.4	3
112	High-Throughput Growth of Microscale Gold Bicrystals for Single-Grain-Boundary Studies. <i>Advanced Materials</i> , <b>2019</b> , 31, e1902189	24	6
111	Single-crystal metal growth on amorphous insulating substrates. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , <b>2018</b> , 115, 685-689	11.5	10
110	Radiation-induced effects on the mechanical properties of natural ZrSiO <sub>4</sub> : double cascade-overlap damage accumulation. <i>Physics and Chemistry of Minerals</i> , <b>2018</b> , 45, 435-442	1.6	2
109	Radiation-damage-induced transitions in zircon: Percolation theory applied to hardness and elastic moduli as a function of density. <i>Applied Physics Letters</i> , <b>2018</b> , 112, 201901	3.4	7
108	Growth of Highly Strained CeO Ultrathin Films. <i>ACS Nano</i> , <b>2016</b> , 10, 9938-9947	16.7	23
107	Anisotropic Size-Dependent Plasticity in Face-Centered Cubic Micropillars Under Torsion. <i>Jom</i> , <b>2016</b> , 68, 253-260	2.1	13
106	Mechanical properties of natural radiation-damaged titanite and temperature-induced structural reorganization: A nanoindentation and Raman spectroscopic study. <i>American Mineralogist</i> , <b>2016</b> , 101, 399-406	2.9	9
105	Anisotropic mechanical properties of zircon and the effect of radiation damage. <i>Physics and Chemistry of Minerals</i> , <b>2016</b> , 43, 627-638	1.6	10
104	Kinetics and fracture resistance of lithiated silicon nanostructure pairs controlled by their mechanical interaction. <i>Nature Communications</i> , <b>2015</b> , 6, 7533	17.4	91
103	Mechanical behavior of electrochemically lithiated silicon. <i>Journal of Power Sources</i> , <b>2015</b> , 273, 41-51	8.9	88
102	Stochastic behaviors in plastic deformation of face-centered cubic micropillars governed by surface nucleation and truncated source operation. <i>Acta Materialia</i> , <b>2015</b> , 95, 176-183	8.4	41
101	Fracture of crystalline germanium during electrochemical lithium insertion. <i>Extreme Mechanics Letters</i> , <b>2015</b> , 2, 15-19	3.9	44
100	Instrumented nanoindentation and 3D mechanistic modeling of a shale at multiple scales. <i>Acta Geotechnica</i> , <b>2015</b> , 10, 1-14	4.9	140
99	Microscopic model for fracture of crystalline Si nanopillars during lithiation. <i>Journal of Power Sources</i> , <b>2014</b> , 255, 274-282	8.9	55
98	Robustness of amorphous silicon during the initial lithiation/delithiation cycle. <i>Journal of Power Sources</i> , <b>2014</b> , 258, 253-259	8.9	49

97	25th anniversary article: Understanding the lithiation of silicon and other alloying anodes for lithium-ion batteries. <i>Advanced Materials</i> , <b>2013</b> , 25, 4966-85	24	974
96	Plasticity of bcc micropillars controlled by competition between dislocation multiplication and depletion. <i>Acta Materialia</i> , <b>2013</b> , 61, 3233-3241	8.4	42
95	In situ TEM of two-phase lithiation of amorphous silicon nanospheres. <i>Nano Letters</i> , <b>2013</b> , 13, 758-64	11.5	573
94	Critical-temperature/Peierls-stress dependent size effects in body centered cubic nanopillars. <i>Applied Physics Letters</i> , <b>2013</b> , 102, 041910	3.4	29
93	Reaction Front Evolution during Electrochemical Lithiation of Crystalline Silicon Nanopillars. <i>Israel Journal of Chemistry</i> , <b>2012</b> , 52, 1118-1123	3.4	18
92	Studying the kinetics of crystalline silicon nanoparticle lithiation with in situ transmission electron microscopy. <i>Advanced Materials</i> , <b>2012</b> , 24, 6034-41	24	466
91	Size dependence of the yield strength of fcc and bcc metallic micropillars with diameters of a few micrometers. <i>Philosophical Magazine</i> , <b>2012</b> , 92, 1238-1260	1.6	91
90	Fracture of crystalline silicon nanopillars during electrochemical lithium insertion. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , <b>2012</b> , 109, 4080-5	11.5	326
89	Interconnected silicon hollow nanospheres for lithium-ion battery anodes with long cycle life. <i>Nano Letters</i> , <b>2011</b> , 11, 2949-54	11.5	1155
88	Effects of focused-ion-beam irradiation and prestraining on the mechanical properties of FCC Au microparticles on a sapphire substrate. <i>Journal of Materials Research</i> , <b>2011</b> , 26, 1653-1661	2.5	25
87	Size effect in compression of single-crystal gold microparticles. <i>Acta Materialia</i> , <b>2011</b> , 59, 5202-5215	8.4	111
86	Novel size and surface oxide effects in silicon nanowires as lithium battery anodes. <i>Nano Letters</i> , <b>2011</b> , 11, 4018-25	11.5	251
85	Size-dependent fracture of Si nanowire battery anodes. <i>Journal of the Mechanics and Physics of Solids</i> , <b>2011</b> , 59, 1717-1730	5	303
84	Extracting thin film hardness of extremely compliant films on stiff substrates. <i>Thin Solid Films</i> , <b>2011</b> , 519, 3221-3224	2.2	16
83	Dislocation junctions and jogs in a free-standing FCC thin film. <i>Modelling and Simulation in Materials Science and Engineering</i> , <b>2011</b> , 19, 025002	2	14
82	Micro-pillar plasticity controlled by dislocation nucleation at surfaces. <i>Philosophical Magazine</i> , <b>2011</b> , 91, 1084-1096	1.6	50
81	A physically based model for indenter tip shape calibration for nanoindentation. <i>Journal of Materials Research</i> , <b>2010</b> , 25, 735-745	2.5	21
80	What is the Young's Modulus of Silicon?. <i>Journal of Microelectromechanical Systems</i> , <b>2010</b> , 19, 229-238	2.5	1299

79	Geometrical analysis of 3D dislocation dynamics simulations of FCC micro-pillar plasticity. <i>Materials Science &amp; Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , <b>2010</b> , 527, 1903-1910	5.3	23
78	Modelling dislocations in a free-standing thin film. <i>Modelling and Simulation in Materials Science and Engineering</i> , <b>2009</b> , 17, 075007	2	48
77	Exploiting New Opportunities in Materials Research by Remembering and Applying Old Lessons. <i>MRS Bulletin</i> , <b>2009</b> , 34, 82-91	3.2	6
76	A quantitative analysis for the stress field around an elastoplastic indentation/contact. <i>Journal of Materials Research</i> , <b>2009</b> , 24, 704-718	2.5	30
75	Uniaxial compression of fcc Au nanopillars on an MgO substrate: The effects of prestraining and annealing. <i>Acta Materialia</i> , <b>2009</b> , 57, 4404-4415	8.4	143
74	Study of strain softening behavior of Al <sub>3</sub> Sc multilayers using microcompression testing. <i>Acta Materialia</i> , <b>2009</b> , 57, 4473-4490	8.4	79
73	Microstructure Effect on EM-Induced Degradations in Dual Inlaid Copper Interconnects. <i>IEEE Transactions on Device and Materials Reliability</i> , <b>2009</b> , 9, 87-97	1.6	40
72	A model for power law creep controlled hillock growth. <i>Materials Science &amp; Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , <b>2008</b> , 488, 594-600	5.3	6
71	Deformation at the nanometer and micrometer length scales: Effects of strain gradients and dislocation starvation. <i>Thin Solid Films</i> , <b>2007</b> , 515, 3152-3157	2.2	233
70	A model for hillock growth in Al thin films controlled by plastic deformation. <i>Acta Materialia</i> , <b>2007</b> , 55, 5297-5301	8.4	42
69	In-Situ Observation of Electromigration in Eutectic SnPb Solder Lines: Atomic Migration and Hillock Formation. <i>Journal of Electronic Materials</i> , <b>2007</b> , 36, 562-567	1.9	10
68	A model for electromigration-induced degradation mechanisms in dual-inlaid copper interconnects: Effect of microstructure. <i>Journal of Applied Physics</i> , <b>2007</b> , 102, 053505	2.5	59
67	Nanoscale gold pillars strengthened through dislocation starvation. <i>Physical Review B</i> , <b>2006</b> , 73,	3.3	695
66	Critical thickness enhancement of epitaxial SiGe films grown on small structures. <i>Journal of Applied Physics</i> , <b>2005</b> , 97, 043519	2.5	91
65	Mechanism-based strain gradient crystal plasticity II Theory. <i>Journal of the Mechanics and Physics of Solids</i> , <b>2005</b> , 53, 1188-1203	5	163
64	Mechanism-based strain gradient crystal plasticity II. Analysis. <i>Journal of the Mechanics and Physics of Solids</i> , <b>2005</b> , 53, 1204-1222	5	59
63	Size dependence of mechanical properties of gold at the micron scale in the absence of strain gradients. <i>Acta Materialia</i> , <b>2005</b> , 53, 1821-1830	8.4	1175
62	Comparison of Line Stress Predictions with Measured Electromigration Failure Times. <i>Materials Research Society Symposia Proceedings</i> , <b>2005</b> , 863, B7.7-1		

61	Quantitative impedance measurement using atomic force microscopy. <i>Journal of Applied Physics</i> , <b>2004</b> , 96, 3540-3549	2.5	66
60	Mechanism-based strain gradient crystal plasticity. <i>Materials Research Society Symposia Proceedings</i> , <b>2004</b> , 821, 198		1
59	Indentation size effect in MgO. <i>Scripta Materialia</i> , <b>2004</b> , 51, 599-603	5.6	158
58	Sample dimensions influence strength and crystal plasticity. <i>Science</i> , <b>2004</b> , 305, 986-9	33.3	1766
57	Effects of the substrate on the determination of thin film mechanical properties by nanoindentation. <i>Acta Materialia</i> , <b>2002</b> , 50, 23-38	8.4	1171
56	Exploring specimen size effects in plastic deformation of Ni <sub>3</sub> (Al, Ta). <i>Materials Research Society Symposia Proceedings</i> , <b>2002</b> , 753, 1		18
55	Indentation of a soft metal film on a hard substrate: strain gradient hardening effects. <i>Journal of the Mechanics and Physics of Solids</i> , <b>2001</b> , 49, 1997-2014	5	149
54	An Experimental and Computational Study of the Elastic-Plastic Transition in Thin Films. <i>Materials Research Society Symposia Proceedings</i> , <b>2001</b> , 673, 1		5
53	Study of the Yielding and Strain Hardening Behavior of a Copper Thin Film on a Silicon Substrate Using Microbeam Bending. <i>Materials Research Society Symposia Proceedings</i> , <b>2001</b> , 673, 1		6
52	Microstructure of thermal hillocks on blanket Al thin films. <i>Thin Solid Films</i> , <b>2000</b> , 371, 278-282	2.2	72
51	Creep-controlled diffusional hillock formation in blanket aluminum thin films as a mechanism of stress relaxation. <i>Journal of Materials Research</i> , <b>2000</b> , 15, 1709-1718	2.5	23
50	Stress-driven surface evolution in heteroepitaxial thin films: Anisotropy of the two-dimensional roughening mode. <i>Journal of Materials Research</i> , <b>1999</b> , 14, 3247-3256	2.5	26
49	Indentation plastic displacement field: Part I. The case of soft films on hard substrates. <i>Journal of Materials Research</i> , <b>1999</b> , 14, 2196-2203	2.5	135
48	Indentation plastic displacement field: Part II. The case of hard films on soft substrates. <i>Journal of Materials Research</i> , <b>1999</b> , 14, 2204-2209	2.5	113
47	SURFACE ROUGHENING OF HETEROEPITAXIAL THIN FILMS. <i>Annual Review of Materials Research</i> , <b>1999</b> , 29, 173-209		216
46	Diffusional Hillock Formation in Al Thin Films Controlled by Creep. <i>Materials Research Society Symposia Proceedings</i> , <b>1999</b> , 594, 129		
45	Yielding and strain hardening of thin metal films on substrates. <i>Scripta Materialia</i> , <b>1998</b> , 39, 545-554	5.6	191
44	Indentation size effects in crystalline materials: A law for strain gradient plasticity. <i>Journal of the Mechanics and Physics of Solids</i> , <b>1998</b> , 46, 411-425	5	3027

43	Stress Evolution During Growth of Sputtered Ni/Cu Multilayers. <i>Materials Research Society Symposia Proceedings</i> , <b>1998</b> , 528, 161		5
42	Strain relaxation and defect formation in heteroepitaxial Si <sub>1-x</sub> Gex films via surface roughening induced by controlled annealing experiments. <i>Applied Physics Letters</i> , <b>1997</b> , 70, 2247-2249	3-4	123
41	In-Situ TEM Observations of Surface Roughening and Defect Formation in Lattice Mismatched Heteroepitaxial Thin Films. <i>Materials Research Society Symposia Proceedings</i> , <b>1997</b> , 505, 291		1
40	Stress Evolution in Sputtered FCC Metal Multilayers. <i>Materials Research Society Symposia Proceedings</i> , <b>1997</b> , 505, 589		4
39	An analysis technique for extraction of thin film stresses from x-ray data. <i>Applied Physics Letters</i> , <b>1997</b> , 71, 2949-2951	3-4	39
38	Scanning Stiffness Microscopy - A Novel Technique for Detecting Sub-Surface Cracks. <i>Materials Research Society Symposia Proceedings</i> , <b>1997</b> , 473, 285		
37	Elastic and plastic properties of thin films on substrates: nanoindentation techniques. <i>Materials Science &amp; Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , <b>1997</b> , 234-236, 37-44	5-3	254
36	Anisotropic Behaviour of Surface Roughening in Lattice Mismatched Heteroepitaxial Thin Films. <i>Materials Research Society Symposia Proceedings</i> , <b>1996</b> , 436, 487		7
35	Studies of Morphological Instability and Dislocation Formation in Heteroepitaxial Si <sub>1-x</sub> Gex Thin Films Via Controlled Annealing Experiments. <i>Materials Research Society Symposia Proceedings</i> , <b>1996</b> , 440, 323		3
34	Effect of Stresses on Defect Nucleation in Si <sub>1-x</sub> Gex/Si Heteroepitaxial Systems. <i>Materials Research Society Symposia Proceedings</i> , <b>1996</b> , 442, 373		2
33	Strain Relaxation in Heteroepitaxial Si <sub>1-x</sub> Gex Films via Surface Roughening Processes. <i>Materials Research Society Symposia Proceedings</i> , <b>1995</b> , 399, 407		10
32	The elastic biaxial modulus of Ag/Bi multilayered thin films measured using the bulge test. <i>Journal of Materials Research</i> , <b>1994</b> , 9, 25-30	2.5	36
31	Intrinsic stresses in compositionally modulated Au-Ni thin films and the supermodulus effect. <i>Journal of Materials Research</i> , <b>1994</b> , 9, 3145-3152	2.5	29
30	Mechanical properties of compositionally modulated Au-Ni thin films: Nanoindentation and microcantilever deflection experiments. <i>Journal of Materials Research</i> , <b>1994</b> , 9, 3131-3144	2.5	108
29	Blister Test Analysis Methods. <i>Materials Research Society Symposia Proceedings</i> , <b>1994</b> , 356, 585		10
28	Role of Dislocation Interactions in Decreasing Mobile Threading Dislocation Density and Limiting Strain Relaxation in Si <sub>1-x</sub> Gex Heteroepitaxial Films. <i>Materials Research Society Symposia Proceedings</i> , <b>1994</b> , 356, 283		2
27	Mechanical Properties of Ag/Cr Multilayered Epitaxial thin Films. <i>Materials Research Society Symposia Proceedings</i> , <b>1994</b> , 356, 363		6
26	Interfacial Structure and Mechanical Properties of Compositionally-Modulated Au/Bi thin Films. <i>Materials Research Society Symposia Proceedings</i> , <b>1994</b> , 343, 555		11

25	Calculation of the [111]-Texture Dependence of the Elastic Biaxial Modulus. <i>Materials Research Society Symposia Proceedings, 1994, 343, 561</i>		2
24	Accuracy and Reliability of Bulge Test Experiments. <i>Materials Research Society Symposia Proceedings, 1993, 308, 159</i>		16
23	Stress Dependence of the Velocity of Threading Dislocation Segments in Si - Ge Heteroepitaxial Films.. <i>Materials Research Society Symposia Proceedings, 1993, 308, 411</i>		1
22	The Role of Indentation Depth on the Measured Hardness of Materials. <i>Materials Research Society Symposia Proceedings, 1993, 308, 613</i>		158
21	Mechanical Behavior of Thin Films. <i>MRS Bulletin, 1992, 17, 25-27</i>	3.2	7
20	High Temperature Deformation of Single Crystals of NiAl. <i>Materials Research Society Symposia Proceedings, 1992, 288, 45</i>		7
19	Transient Deformation of Single Crystal NiAl at High Temperatures. <i>Materials Research Society Symposia Proceedings, 1992, 288, 749</i>		2
18	In Situ Study of Isothermal Strain Relaxation in Si-Ge Heteroepitaxial Films Using Substrate Curvature Measurements. <i>Materials Research Society Symposia Proceedings, 1991, 239, 395</i>		4
17	Re-Examining the Bulge Test: Methods for Improving Accuracy and Reliability. <i>Materials Research Society Symposia Proceedings, 1991, 239, 257</i>		7
16	Time-Dependent Deformation in Room-Temperature Indentation Experiments using a Nanoindenter. <i>Materials Research Society Symposia Proceedings, 1991, 239, 319</i>		12
15	Structure and Mechanical Properties of Fe/Zr Multilayers. <i>Materials Research Society Symposia Proceedings, 1991, 239, 493</i>		1
14	Experimental Examination of the Push-Down Technique for Measuring the Sliding Resistance of Silicon Carbide Fibers in a Ceramic Matrix. <i>Journal of the American Ceramic Society, 1991, 74, 524-534</i>	3.8	53
13	Correlating the Mechanical Properties of a Continuous Fiber-Reinforced Ceramic-Matrix Composite to the Sliding Resistance of the Fibers. <i>Journal of the American Ceramic Society, 1991, 74, 535-540</i>	3.8	20
12	Stress in metal lines under passivation; comparison of experiment with finite element calculations. <i>Applied Physics Letters, 1991, 58, 1845-1847</i>	3.4	109
11	Mechanical Properties Of Compositionally Modulated Au-Ni Thin Films Using Indentation And Microbeam Deflection Techniques. <i>Materials Research Society Symposia Proceedings, 1990, 188, 289</i>		16
10	Mechanical properties of thin films. <i>Metallurgical and Materials Transactions A - Physical Metallurgy and Materials Science, 1989, 20, 2217-2245</i>		2024
9	Stresses and deformation processes in thin films on substrates. <i>Critical Reviews in Solid State and Materials Sciences, 1988, 14, 225-268</i>	10.1	482
8	Dislocation velocities in LiF based on the annealing kinetics of dislocations dipoles. <i>Materials Science and Engineering, 1970, 5, 179-192</i>		7



7	Observations of Dislocation Sources in an Aluminium-Copper-Silicon Alloy. <i>Philosophical Magazine and Journal</i> , <b>1968</b> , 18, 217-228		15
6	Self stresses and line tensions in dislocation loops. <i>Materials Science and Engineering</i> , <b>1968</b> , 3, 175-182		2
5	Statistics of Jogs on Dislocations at Equilibrium. <i>Journal of Applied Physics</i> , <b>1965</b> , 36, 1727-1732	2.5	20
4	Technique for the Determination of the Magnetic History of Local Regions in Cubic Ferromagnets. <i>Journal of Applied Physics</i> , <b>1964</b> , 35, 3057-3058	2.5	1
3	Coercive Force of Iron Resulting from the Interaction of Domain Boundaries with Large Nonmagnetic Inclusions. <i>Physical Review</i> , <b>1964</b> , 135, A401-A407		14
2	Domain Configurations About Nonmagnetic Particles in Iron. <i>Physical Review</i> , <b>1961</b> , 121, 1038-1042		4
1	A Review of: Theory of Dislocations, Third Edition, Peter M. Anderson, John P. Hirth and Jens Lothe, Cambridge University Press, 2017. <i>Journal of Applied Mechanics, Transactions ASME</i> , 1-2	2.7	