

# George M Pharr

## List of Publications by Year in descending order

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117  
papers

39,656  
citations

61984  
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21540  
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121  
docs citations

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times ranked

22888  
citing authors

#	ARTICLE	IF	CITATIONS
1	Strain-rate dependent deformation mechanisms in single-layered Cu, Mo, and multilayer Cu/Mo thin films. <i>Materials Science &amp; Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2022, 838, 142776.	5.6	8
2	Microstructures and mechanical properties of $V_{3Si}$ eutectic composites. <i>International Journal of Materials Research</i> , 2022, 95, 505-512.	0.3	1
3	Direct observation of partial interface slip in micrometre-scale single asperity contacts. <i>Tribology International</i> , 2021, 155, 106776.	5.9	4
4	Measurement of hardness and elastic modulus by load and depth sensing indentation: Improvements to the technique based on continuous stiffness measurement. <i>Journal of Materials Research</i> , 2021, 36, 2137-2153.	2.6	34
5	Effects of crystal orientation on the indentation creep of $^{12}Sn$ . <i>Journal of Materials Research</i> , 2021, 36, 2434-2443.	2.6	2
6	On the effective load during nanoindentation creep testing with continuous stiffness measurement (CSM). <i>Journal of Materials Research</i> , 2021, 36, 1740-1750.	2.6	7
7	Current trends in nanomechanical testing research. <i>Journal of Materials Research</i> , 2021, 36, 2133-2136.	2.6	5
8	Exploring the origins of the indentation size effect at submicron scales. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2021, 118, .	7.1	29
9	Increased tissue-level storage modulus and hardness with age in male cortical bone and its association with decreased fracture toughness. <i>Bone</i> , 2021, 148, 115949.	2.9	15
10	The contribution of plastic sink-in to the static friction of single asperity microscopic contacts. <i>Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences</i> , 2021, 477, .	2.1	1
11	Mechanical properties of metallic lithium: from nano to bulk scales. <i>Acta Materialia</i> , 2020, 186, 215-222.	7.9	103
12	Elastic and Plastic Characteristics of Sodium Metal. <i>ACS Applied Energy Materials</i> , 2020, 3, 1759-1767.	5.1	33
13	Extending the range of constant strain rate nanoindentation testing. <i>Journal of Materials Research</i> , 2020, 35, 343-352.	2.6	24
14	Critical issues in conducting constant strain rate nanoindentation tests at higher strain rates. <i>Journal of Materials Research</i> , 2019, 34, 3495-3503.	2.6	41
15	Nanoindentation of Fused Quartz at Loads Near the Cracking Threshold. <i>Experimental Mechanics</i> , 2019, 59, 369-380.	2.0	17
16	Corrections to the stiffness relationship in 3-sided and conical indentation problems. <i>International Journal of Solids and Structures</i> , 2019, 166, 154-166.	2.7	7
17	Characterization of power-law creep in the solid-acid $CsHSO_4$ via nanoindentation. <i>Journal of Materials Research</i> , 2019, 34, 1130-1137.	2.6	7
18	Tuning the deformation mechanisms of boron carbide via silicon doping. <i>Science Advances</i> , 2019, 5, eaay0352.	10.3	26

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19	Stiffness of frictional contact of dissimilar elastic solids. Journal of the Mechanics and Physics of Solids, 2018, 112, 318-333.	4.8	11
20	A simple model for indentation creep. Journal of the Mechanics and Physics of Solids, 2018, 112, 552-562.	4.8	53
21	Constitutive modeling of indentation cracking in fused silica. Journal of the American Ceramic Society, 2017, 100, 1928-1940.	3.8	39
22	On the Measurement of Power Law Creep Parameters from Instrumented Indentation. Jom, 2017, 69, 2229-2236.	1.9	29
23	Nanoscale Roughness of Natural Fault Surfaces Controlled by Scale-Dependent Yield Strength. Geophysical Research Letters, 2017, 44, 9299-9307.	4.0	27
24	Creep behavior of the solid acid fuel cell material CsHSO <sub>4</sub> . Scripta Materialia, 2017, 139, 119-121.	5.2	7
25	Effects of indenter angle on micro-scale fracture toughness measurement by pillar splitting. Journal of the American Ceramic Society, 2017, 100, 5731-5738.	3.8	66
26	Single versus successive pop-in modes in nanoindentation tests of single crystals. Journal of Materials Research, 2016, 31, 2065-2075.	2.6	15
27	Tissue-Level Mechanical Properties of Bone Contributing to Fracture Risk. Current Osteoporosis Reports, 2016, 14, 138-150.	3.6	54
28	The Compelling Case for Indentation as a Functional Exploratory and Characterization Tool. Journal of the American Ceramic Society, 2015, 98, 2671-2680.	3.8	67
29	Lattice Rotation Patterns and Strain Gradient Effects in Face-Centered-Cubic Single Crystals Under Spherical Indentation. Journal of Applied Mechanics, Transactions ASME, 2015, 82, .	2.2	34
30	Discussion on "Interfacial Residual Stress Analysis of Thermal Spray Coatings by Miniature Ring-Core Cutting Combined with DIC Method" by J.G. Zhu et al., Experimental Mechanics DOI:10.1007/s11340-012-9640-2. Experimental Mechanics, 2014, 54, 1305-1306.	2.0	1
31	Measurement of power-law creep parameters by instrumented indentation methods. Journal of the Mechanics and Physics of Solids, 2013, 61, 517-536.	4.8	111
32	On the measurement of energy dissipation using nanoindentation and the continuous stiffness measurement technique. Journal of Materials Research, 2013, 28, 3029-3042.	2.6	18
33	A stochastic model for the size dependence of spherical indentation pop-in. Journal of Materials Research, 2013, 28, 2728-2739.	2.6	42
34	In-situ tensile testing of single-crystal molybdenum-alloy fibers with various dislocation densities in a scanning electron microscope. Journal of Materials Research, 2012, 27, 508-520.	2.6	28
35	The Role of Eta Phase Formation on the Creep Strength and Ductility of INCONEL Alloy 740 at 1023ÅK (750ÅÅ°C). Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2012, 43, 1902-1910.	2.2	85
36	Experimental Analysis of the Elastic-Plastic Transition During Nanoindentation of Single Crystal Alpha-Silicon Nitride. Journal of the American Ceramic Society, 2012, 95, 2113-2115.	3.8	15

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37	Size Effects and Stochastic Behavior of Nanoindentation Pop In. Physical Review Letters, 2011, 106, 165502.	7.8	189
38	Plastic instability in amorphous selenium near its glass transition temperature. Journal of Materials Research, 2010, 25, 1015-1019.	2.6	12
39	The Indentation Size Effect: A Critical Examination of Experimental Observations and Mechanistic Interpretations. Annual Review of Materials Research, 2010, 40, 271-292.	9.3	546
40	Geometric effects on dislocation nucleation in strained electronics. Applied Physics Letters, 2009, 94, .	3.3	8
41	Measuring the constitutive behavior of viscoelastic solids in the time and frequency domain using flat punch nanoindentation. Journal of Materials Research, 2009, 24, 626-637.	2.6	77
42	Measuring the elastic modulus and residual stress of freestanding thin films using nanoindentation techniques. Journal of Materials Research, 2009, 24, 2974-2985.	2.6	21
43	Critical issues in making small-depth mechanical property measurements by nanoindentation with continuous stiffness measurement. Journal of Materials Research, 2009, 24, 653-666.	2.6	202
44	A Comparison of Coulomb Friction and Friction Stress Models Based on Multidimensional Nanocontact Experiments. Journal of Applied Mechanics, Transactions ASME, 2008, 75, .	2.2	8
45	Strength differences arising from homogeneous versus heterogeneous dislocation nucleation. Physical Review B, 2008, 77, .	3.2	166
46	Effects of focused ion beam milling on the nanomechanical behavior of a molybdenum-alloy single crystal. Applied Physics Letters, 2007, 91, .	3.3	141
47	Nanoindentation of biodegradable cellulose diacetate-graft-poly(L-lactide) copolymers: Effect of molecular composition and thermal aging on mechanical properties. Journal of Polymer Science, Part B: Polymer Physics, 2007, 45, 1114-1121.	2.1	11
48	An experimental evaluation of the constant $\hat{l}^2$ relating the contact stiffness to the contact area in nanoindentation. Philosophical Magazine, 2006, 86, 5285-5298.	1.6	37
49	On the measurement of yield strength by spherical indentation. Philosophical Magazine, 2006, 86, 5521-5539.	1.6	53
50	Long-term oxidation of an as-cast Ni <sub>3</sub> Al alloy at 900 Â°C and 1100 Â°C. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2005, 36, 1855-1869.	2.2	10
51	Preparation of ternary alloy libraries for high-throughput screening of material properties by means of thick film deposition and interdiffusion: Benefits and limitations. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 2004, 22, 1788-1792.	2.1	8
52	Cross-Sectional TEM Studies of Indentation-Induced Phase Transformations in Si: Indenter Angle Effects. Materials Research Society Symposia Proceedings, 2004, 843, 641.	0.1	0
53	UV Raman Scattering Analysis of Indented and Machined 6H-SiC and $\hat{l}^2$ -Si <sub>3</sub> N <sub>4</sub> Surfaces. Materials Research Society Symposia Proceedings, 2004, 843, 4101.	0.1	1
54	Nanoindentation creep of quartz, with implications for rate- and state-variable friction laws relevant to earthquake mechanics. Journal of Materials Research, 2004, 19, 357-365.	2.6	61

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55	A critical examination of the Berkovich vs. conical indentation based on 3D finite element calculation. Materials Research Society Symposia Proceedings, 2004, 841, R9.5.1.	0.1	7
56	Measurement of hardness and elastic modulus by instrumented indentation: Advances in understanding and refinements to methodology. Journal of Materials Research, 2004, 19, 3-20.	2.6	6,313
57	A review of directionally solidified intermetallic composites for high-temperature structural applications. Journal of Materials Science, 2004, 39, 3975-3984.	3.7	48
58	Measurement of hardness and elastic modulus by instrumented indentation: Advances in understanding and refinements to methodology. Journal of Materials Research, 2004, 19, 3-20.	2.6	52
59	A method for making substrate-independent hardness measurements of soft metallic films on hard substrates by nanoindentation. Journal of Materials Research, 2003, 18, 1383-1391.	2.6	32
60	Mechanical properties of blended single-wall carbon nanotube composites. Journal of Materials Research, 2003, 18, 1849-1853.	2.6	70
61	Effects of Solidification Parameters on Lamellar Microstructures of Near Eutectic Cr-Cr <sub>3</sub> Si Alloys. Materials Research Society Symposia Proceedings, 2002, 753, 1.	0.1	2
62	Microstructure and Oxidation of a Cast Nickel Aluminide Alloy. Materials Research Society Symposia Proceedings, 2002, 753, 1.	0.1	0
63	Understanding nanoindentation unloading curves. Journal of Materials Research, 2002, 17, 2660-2671.	2.6	396
64	Assessment of New Relation for the Elastic Compliance of a Film-Substrate System. Materials Research Society Symposia Proceedings, 2001, 695, 1.	0.1	17
65	Indentation of elastically anisotropic half-spaces by cones and parabolae of revolution. Philosophical Magazine A: Physics of Condensed Matter, Structure, Defects and Mechanical Properties, 2001, 81, 447-466.	0.6	142
66	A critical examination of the fundamental relations used in the analysis of nanoindentation data. Journal of Materials Research, 1999, 14, 2296-2305.	2.6	383
67	Mechanical and morphological variation of the human lumbar vertebral cortical and trabecular bone. Journal of Biomedical Materials Research Part B, 1999, 44, 191-197.	3.1	138
68	Elastic properties of microstructural components of human bone tissue as measured by nanoindentation. Journal of Biomedical Materials Research Part B, 1999, 45, 48-54.	3.1	292
69	Substrate effects on nanoindentation mechanical property measurement of soft films on hard substrates. Journal of Materials Research, 1999, 14, 292-301.	2.6	325
70	Measurement of Residual Stresses by Load and Depth Sensing Spherical Indentation. Materials Research Society Symposia Proceedings, 1999, 594, 519.	0.1	35
71	A Methodology for the Calibration of Spherical Indenters. Materials Research Society Symposia Proceedings, 1999, 594, 525.	0.1	7
72	Mechanical and morphological variation of the human lumbar vertebral cortical and trabecular bone. , 1999, 44, 191.		1

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73	Influences of pileup on the measurement of mechanical properties by load and depth sensing indentation techniques. Journal of Materials Research, 1998, 13, 1049-1058.	2.6	807
74	Pile-up Behavior of Spherical Indentations in Engineering Materials. Materials Research Society Symposia Proceedings, 1998, 522, 33.	0.1	18
75	Using the Ratio of Loading Slope and Elastic Stiffness to Predict Pile-Up and Constraint Factor During Indentation. Materials Research Society Symposia Proceedings, 1998, 522, 101.	0.1	34
76	Applicability of Sneddon Relationships to the Real Case of a Rigid Cone Penetrating an Infinite Half Space. Materials Research Society Symposia Proceedings, 1998, 522, 263.	0.1	8
77	Experimental Investigations of the Sneddon Solution and an Improved Solution for the Analysis of Nanoindentation Data. Materials Research Society Symposia Proceedings, 1998, 522, 39.	0.1	22
78	Elastic Anisotropy of Silicon Nitride Whiskers. Journal of the American Ceramic Society, 1998, 81, 2661-2669.	3.8	78
79	Critical Issues In Measuring The Mechanical Properties Of Hard Films On Soft Substrates By Nanoindentation Techniques. Materials Research Society Symposia Proceedings, 1997, 505, 65.	0.1	18
80	Nanoindentation of Soft Films On Hard Substrates: Experiments And Finite Element Simulations. Materials Research Society Symposia Proceedings, 1997, 505, 109.	0.1	11
81	Nanoindentation Hardness of Soft Films on Hard Substrates: Effects of the Substrate. Materials Research Society Symposia Proceedings, 1997, 473, 57.	0.1	19
82	Effects of Adhesion on the Measurement of Thin Film Mechanical Properties by Nanoindentation. Materials Research Society Symposia Proceedings, 1997, 473, 51.	0.1	8
83	Influences of stress on the measurement of mechanical properties using nanoindentation: Part I. Experimental studies in an aluminum alloy. Journal of Materials Research, 1996, 11, 752-759.	2.6	537
84	Influences of stress on the measurement of mechanical properties using nanoindentation: Part II. Finite element simulations. Journal of Materials Research, 1996, 11, 760-768.	2.6	451
85	Finite Element Studies of the Influence of Pile-up on the Analysis of Nanoindentation Data. Materials Research Society Symposia Proceedings, 1996, 436, 141.	0.1	28
86	Inaccuracies in Sneddon's Solution for Elastic Indentation by a Rigid Cone and their Implications for Nanoindentation Data Analysis. Materials Research Society Symposia Proceedings, 1996, 436, 189.	0.1	19
87	Time Dependent Deformation During Indentation Testing. Materials Research Society Symposia Proceedings, 1996, 436, 233.	0.1	97
88	Indenter Geometry Effects on The Measurement of Mechanical Properties by Nanoindentation with Sharp Indenters. Materials Research Society Symposia Proceedings, 1996, 436, 147.	0.1	26
89	Nanoindentation of Soft Films on Hard Substrates:The Importance of Pile-Up. Materials Research Society Symposia Proceedings, 1996, 436, 207.	0.1	28
90	Mechanical Properties of Amorphous Hard Carbon Films Prepared by Cathodic ARC Deposition. Materials Research Society Symposia Proceedings, 1995, 383, 453.	0.1	20

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91	On the elastic moduli of nanocrystalline Fe, Cu, Ni, and Cu–Ni alloys prepared by mechanical milling/alloying. Journal of Materials Research, 1995, 10, 2892-2896.	2.6	227
92	Nanoindentation and Nanoscratching of Hard Carbon Coatings for Magnetic Disks. Materials Research Society Symposia Proceedings, 1995, 383, 447.	0.1	356
93	Cracking During Nanoindentation and its Use in the Measurement of Fracture Toughness. Materials Research Society Symposia Proceedings, 1994, 356, 663.	0.1	157
94	Effects of Residual Stress on the Measurement of Hardness and Elastic Modulus using Nanoindentation. Materials Research Society Symposia Proceedings, 1994, 338, 127.	0.1	36
95	An Explanation for the Shape of Nanoindentation Unloading Curves based on Finite Element Simulation. Materials Research Society Symposia Proceedings, 1994, 356, 675.	0.1	26
96	Nanoindentation and Nanoscratching of Hard Coating Materials for Magnetic Disks. Materials Research Society Symposia Proceedings, 1994, 356, 767.	0.1	29
97	Effects of Interlayers on the Scratch Adhesion Performance of Ultra-Thin Films of Copper and Gold on Silicon Substrates. Materials Research Society Symposia Proceedings, 1994, 356, 809.	0.1	20
98	Measurement of Fracture Toughness in Thin Films and Small Volumes Using Nanoindentation Methods. , 1993, , 449-461.		70
99	Mechanical properties and microstructures of metal/ceramic microlaminates: Part I. Nb/MoSi <sub>2</sub> systems. Journal of Materials Research, 1992, 7, 2765-2773.	2.6	43
100	Mechanical properties and microstructures of metal/ceramic microlaminates: Part II. A Mo/Al <sub>2</sub> O <sub>3</sub> system. Journal of Materials Research, 1992, 7, 2774-2784.	2.6	44
101	Electrical resistance of metallic contacts on silicon and germanium during indentation. Journal of Materials Research, 1992, 7, 961-972.	2.6	132
102	An improved technique for determining hardness and elastic modulus using load and displacement sensing indentation experiments. Journal of Materials Research, 1992, 7, 1564-1583.	2.6	22,457
103	On the generality of the relationship among contact stiffness, contact area, and elastic modulus during indentation. Journal of Materials Research, 1992, 7, 613-617.	2.6	1,355
104	Effect of Temperature on the Formation of Creep Substructure in Sodium Chloride Single Crystals. Journal of the American Ceramic Society, 1992, 75, 347-352.	3.8	6
105	The Anomalous Behavior of Silicon During Nanoindentation. Materials Research Society Symposia Proceedings, 1991, 239, 301.	0.1	36
106	Deformation of an extruded nickel beryllide between room temperature and 820 °C. Journal of Materials Research, 1991, 6, 2653-2659.	2.6	6
107	New evidence for a pressure-induced phase transformation during the indentation of silicon. Journal of Materials Research, 1991, 6, 1129-1130.	2.6	221
108	Direct Observation and Analysis of Indentation Cracking in Glasses and Ceramics. Journal of the American Ceramic Society, 1990, 73, 787-817.	3.8	935

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109	The mechanical behavior of silicon during small-scale indentation. Journal of Electronic Materials, 1990, 19, 881-887.	2.2	123
110	Instrumentation of a conventional hardness tester for load-displacement measurement during indentation. Journal of Materials Research, 1990, 5, 847-851.	2.6	41
111	Nanoindentation of silver-relations between hardness and dislocation structure. Journal of Materials Research, 1989, 4, 94-101.	2.6	95
112	Effects of wetting on the compression creep behaviour of metals containing low melting intergranular phases. Journal of Materials Science, 1989, 24, 784-792.	3.7	23
113	Surface mechanical properties of C implanted Ni. Journal of Materials Research, 1988, 3, 226-232.	2.6	24
114	Surface Mechanical Properties of Ti Alloys Produced by Excimer Laser Mixing of Ti on AISI 304 Stainless Steel. Materials Research Society Symposia Proceedings, 1988, 128, 457.	0.1	0
115	Surface Mechanical Properties of Ti Alloys Produced by Excimer Laser Mixing of Ti on AISI 304 Stainless Steel. Materials Research Society Symposia Proceedings, 1988, 140, 189.	0.1	2
116	A Technique for Producing Ice From NaCl Brine for Studying Fundamental Deformation Behavior. Journal of Energy Resources Technology, Transactions of the ASME, 1985, 107, 173-176.	2.3	4
117	The Effects of Temperature, Stress and Salinity on the Creep of Frozen Saline Soil. Journal of Energy Resources Technology, Transactions of the ASME, 1984, 106, 344-348.	2.3	14