

# Jeffrey W Kysar

## List of Publications by Year in descending order

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87  
papers

22,207  
citations

136950

32  
h-index

54911

84  
g-index

89  
all docs

89  
docs citations

89  
times ranked

27105  
citing authors

#	ARTICLE	IF	CITATIONS
1	Measurement of the Elastic Properties and Intrinsic Strength of Monolayer Graphene. Science, 2008, 321, 385-388.	12.6	17,513
2	High-Strength Chemical-Vapor-Deposited Graphene and Grain Boundaries. Science, 2013, 340, 1073-1076.	12.6	753
3	Nonlinear elastic behavior of two-dimensional molybdenum disulfide. Physical Review B, 2013, 87, .	3.2	400
4	Nonlinear elastic behavior of graphene: Ab initio calculations to continuum description. Physical Review B, 2009, 80, .	3.2	364
5	Elastic and frictional properties of graphene. Physica Status Solidi (B): Basic Research, 2009, 246, 2562-2567.	1.5	333
6	Nanoporous Metals by Alloy Corrosion: Formation and Mechanical Properties. MRS Bulletin, 2009, 34, 577-586.	3.5	264
7	Experimental lower bounds on geometrically necessary dislocation density. International Journal of Plasticity, 2010, 26, 1097-1123.	8.8	165
8	Imaging strain-localized excitons in nanoscale bubbles of monolayer WSe <sub>2</sub> at room temperature. Nature Nanotechnology, 2020, 15, 854-860.	31.5	134
9	Mechanical Properties of Thin Glassy Polymer Films Filled with Spherical Polymer-Grafted Nanoparticles. Nano Letters, 2012, 12, 3909-3914.	9.1	131
10	Microfabrication and mechanical properties of nanoporous gold at the nanoscale. Scripta Materialia, 2007, 56, 437-440.	5.2	123
11	High strain gradient plasticity associated with wedge indentation into face-centered cubic single crystals: Geometrically necessary dislocation densities. Journal of the Mechanics and Physics of Solids, 2007, 55, 1554-1573.	4.8	112
12	Recoverable Slippage Mechanism in Multilayer Graphene Leads to Repeatable Energy Dissipation. ACS Nano, 2016, 10, 1820-1828.	14.6	112
13	Cylindrical void in a rigid-ideally plastic single crystal. Part I: Anisotropic slip line theory solution for face-centered cubic crystals. International Journal of Plasticity, 2005, 21, 1481-1520.	8.8	85
14	Thermal vibration and apparent thermal contraction of single-walled carbon nanotubes. Journal of the Mechanics and Physics of Solids, 2006, 54, 1206-1236.	4.8	81
15	Size effects on void growth in single crystals with distributed voids. International Journal of Plasticity, 2008, 24, 688-701.	8.8	74
16	Crack tip deformation fields in ductile single crystals. Acta Materialia, 2002, 50, 2367-2380.	7.9	73
17	Characterization of Plastic Deformation Induced by Microscale Laser Shock Peening. Journal of Applied Mechanics, Transactions ASME, 2004, 71, 713-723.	2.2	66
18	Mechanical considerations for polymeric heart valve development: Biomechanics, materials, design and manufacturing. Biomaterials, 2019, 225, 119493.	11.4	58

#	ARTICLE	IF	CITATIONS
19	Continuum simulations of directional dependence of crack growth along a copper/sapphire bicrystal interface. Part I: experiments and crystal plasticity background. Journal of the Mechanics and Physics of Solids, 2001, 49, 1099-1128.	4.8	56
20	Inner ear delivery Challenges and opportunities. Laryngoscope Investigative Otolaryngology, 2020, 5, 122-131.	1.5	56
21	Enhanced Glassy State Mechanical Properties of Polymer Nanocomposites via Supramolecular Interactions. Nano Letters, 2015, 15, 5465-5471.	9.1	54
22	In-vitro perforation of the round window membrane via direct 3-D printed microneedles. Biomedical Microdevices, 2018, 20, 47.	2.8	51
23	Experimental validation of multiscale modeling of indentation of suspended circular graphene membranes. International Journal of Solids and Structures, 2012, 49, 3201-3209.	2.7	46
24	Computational strain gradient crystal plasticity. Journal of the Mechanics and Physics of Solids, 2014, 62, 31-47.	4.8	46
25	Novel 3D-printed hollow microneedles facilitate safe, reliable, and informative sampling of perilymph from guinea pigs. Hearing Research, 2021, 400, 108141.	2.0	43
26	Fabrication of crack-free blanket nanoporous gold thin films by galvanostatic dealloying. Journal of Alloys and Compounds, 2011, 509, 6374-6381.	5.5	42
27	Influence of ultrasonic irradiation on the microstructure of Cu/Al <sub>2</sub> O <sub>3</sub> , CeO <sub>2</sub> nanocomposite thin films during electrodeposition. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2007, 447, 209-216.	5.6	40
28	Microperforations Significantly Enhance Diffusion Across Round Window Membrane. Otology and Neurotology, 2015, 36, 694-700.	1.3	40
29	Drug delivery device for the inner ear: ultra-sharp fully metallic microneedles. Drug Delivery and Translational Research, 2021, 11, 214-226.	5.8	37
30	Analytical solution of anisotropic plastic deformation induced by micro-scale laser shock peening. Mechanics of Materials, 2008, 40, 100-114.	3.2	35
31	Raman Microprobe Analysis of Elastic Strain and Fracture in Electrophoretically Deposited CdSe Nanocrystal Films. Nano Letters, 2006, 6, 175-180.	9.1	34
32	Fabrication of crack-free nanoporous gold blanket thin films by potentiostatic dealloying. Scripta Materialia, 2010, 63, 1005-1008.	5.2	34
33	Energy dissipation mechanisms in ductile fracture. Journal of the Mechanics and Physics of Solids, 2003, 51, 795-824.	4.8	33
34	Length-scale effect due to periodic variation of geometrically necessary dislocation densities. International Journal of Plasticity, 2013, 41, 189-201.	8.8	31
35	Directional dependence of fracture in copper/sapphire bicrystal. Acta Materialia, 2000, 48, 3509-3524.	7.9	30
36	3D-Printed Microneedles Create Precise Perforations in Human Round Window Membrane in Situ. Otology and Neurotology, 2020, 41, 277-284.	1.3	29

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37	Spatially Resolved Characterization of Residual Stress Induced by Micro Scale Laser Shock Peening. Journal of Manufacturing Science and Engineering, Transactions of the ASME, 2004, 126, 226-236.	2.2	28
38	Cylindrical void in a rigid-ideally plastic single crystal III: Hexagonal close-packed crystal. International Journal of Plasticity, 2007, 23, 592-619.	8.8	27
39	Facile and quantitative estimation of strain in nanobubbles with arbitrary symmetry in 2D semiconductors verified using hyperspectral nano-optical imaging. Journal of Chemical Physics, 2020, 153, 024702.	3.0	27
40	Continuum simulations of directional dependence of crack growth along a copper/sapphire bicrystal interface. Part II: crack tip stress/deformation analysis. Journal of the Mechanics and Physics of Solids, 2001, 49, 1129-1153.	4.8	25
41	Residual plastic strain recovery driven by grain boundary diffusion in nanocrystalline thin films. Acta Materialia, 2011, 59, 3937-3945.	7.9	25
42	Wedge indentation into elastic-plastic single crystals. 2: Simulations for face-centered cubic crystals. International Journal of Plasticity, 2012, 28, 70-87.	8.8	25
43	Anatomical and Functional Consequences of Microneedle Perforation of Round Window Membrane. Otology and Neurotology, 2020, 41, e280-e287.	1.3	24
44	The Functional Response of Mesenchymal Stem Cells to Electron Beam Patterned Elastomeric Surfaces Presenting Micrometer to Nanoscale Heterogeneous Rigidity. Advanced Materials, 2017, 29, 1702119.	21.0	23
45	Grain boundary response of aluminum bicrystal under micro scale laser shock peening. International Journal of Solids and Structures, 2009, 46, 3323-3335.	2.7	22
46	Strain gradient crystal plasticity analysis of a single crystal containing a cylindrical void. International Journal of Solids and Structures, 2007, 44, 6382-6397.	2.7	20
47	A dual wedge microneedle for sampling of perilymph solution via round window membrane. Biomedical Microdevices, 2016, 18, 24.	2.8	20
48	Fracture in electrophoretically deposited CdSe nanocrystal films. Journal of Applied Physics, 2009, 105, .	2.5	19
49	Serrated needle design facilitates precise round window membrane perforation. Journal of Biomedical Materials Research - Part A, 2016, 104, 1633-1637.	4.0	19
50	Atomistically derived cohesive zone model of intergranular fracture in polycrystalline graphene. Journal of Applied Physics, 2016, 119, 245107.	2.5	18
51	Continuum aspects of directionally dependent cracking of an interface between copper and alumina crystals. Mechanics of Materials, 1996, 23, 271-286.	3.2	17
52	The mean free path of dislocations in nanoparticle and nanorod reinforced metal composites and implication for strengthening mechanisms. Mechanics Research Communications, 2007, 34, 275-282.	1.8	17
53	Monolithic integration of nanoscale tensile specimens and MEMS structures. Nanotechnology, 2013, 24, 165502.	2.6	17
54	Microanatomic Analysis of the Round Window Membrane by White Light Interferometry and Microcomputed Tomography for Mechanical Amplification. Otology and Neurotology, 2014, 35, 672-678.	1.3	17

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55	Silver/silver chloride microneedles can detect penetration through the round window membrane. Journal of Biomedical Materials Research - Part B Applied Biomaterials, 2017, 105, 307-311.	3.4	17
56	Inner ear gene delivery: vectors and routes. Hearing, Balance and Communication, 2020, 18, 278-285.	0.4	16
57	Effects of strain field on light in crack opening interferometry. International Journal of Solids and Structures, 1998, 35, 33-49.	2.7	15
58	Study of anisotropic character induced by microscale laser shock peening on a single crystal aluminum. Journal of Applied Physics, 2007, 101, 024904.	2.5	15
59	Microscale laser peen forming of single crystal. Journal of Applied Physics, 2008, 103, 063525.	2.5	14
60	Review Article: Case studies in future trends of computational and experimental nanomechanics. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 2017, 35, .	2.1	12
61	Fourier analysis of X-ray micro-diffraction profiles to characterize laser shock peened metals. International Journal of Solids and Structures, 2005, 42, 3471-3485.	2.7	11
62	Deformation and fracture behavior of electrocodeposited alumina nanoparticle/copper composite films. Journal of Materials Science, 2007, 42, 5256-5263.	3.7	11
63	Dynamic Material Response of Aluminum Single Crystal Under Microscale Laser Shock Peening. Journal of Manufacturing Science and Engineering, Transactions of the ASME, 2009, 131, .	2.2	10
64	Design optimization of a cardiovascular stent with application to a balloon expandable prosthetic heart valve. Materials and Design, 2021, 209, 109977.	7.0	10
65	Numerical analysis of the radial breathing mode of armchair and zigzag single-walled carbon nanotubes under deformation. Journal of Applied Physics, 2006, 100, 124305.	2.5	9
66	Impact of Systemic versus Intratympanic Dexamethasone Administration on the Perilymph Proteome. Journal of Proteome Research, 2021, 20, 4001-4009.	3.7	9
67	Response of Thin Films and Substrate to Micro-Scale Laser Shock Peening. Journal of Manufacturing Science and Engineering, Transactions of the ASME, 2007, 129, 485-496.	2.2	7
68	Comparative study of symmetric and asymmetric deformation of Al single crystal under microscale laser shock peening. Journal of Mechanics of Materials and Structures, 2009, 4, 89-105.	0.6	7
69	Experimental validation of plastic constitutive hardening relationship based upon the direction of the Net Burgers Density Vector. Journal of the Mechanics and Physics of Solids, 2018, 111, 358-374.	4.8	7
70	Membrane curvature and connective fiber alignment in guinea pig round window membrane. Acta Biomaterialia, 2021, 136, 343-362.	8.3	7
71	Direct comparison between experiments and computations at the atomic length scale: a case study of graphene. Scientific Modeling and Simulation SMNS, 2008, 15, 143-157.	0.8	6
72	Spatially Resolved Characterization of Geometrically Necessary Dislocation Dependent Deformation in Microscale Laser Shock Peening. Journal of Manufacturing Science and Engineering, Transactions of the ASME, 2009, 131, .	2.2	6

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73	Order in polycrystalline plasticity deformation fields: Short-range intermittency and long-range persistency. International Journal of Plasticity, 2020, 128, 102674.	8.8	6
74	Systematical Characterization of Material Response to Microscale Laser Shock Peening. Journal of Manufacturing Science and Engineering, Transactions of the ASME, 2004, 126, 740-749.	2.2	5
75	Observation of plastic deformation in freestanding single crystal Au nanowires. Applied Physics Letters, 2006, 89, 111916.	3.3	5
76	Plane strain deformation by slip in FCC crystals. International Journal of Plasticity, 2020, 133, 102842.	8.8	5
77	Grain size dependence of polycrystalline plasticity modeling in cylindrical indentation. Computational Mechanics, 2021, 68, 499-543.	4.0	5
78	Simulation assisted design for microneedle manufacturing: Computational modeling of two-photon templated electrodeposition. Journal of Manufacturing Processes, 2021, 66, 211-219.	5.9	5
79	A Novel 3D-Printed Head Holder for Guinea Pig Ear Surgery. Otology and Neurotology, 2021, 42, e1197-e1202.	1.3	4
80	Path of light in near crack tip region in anisotropic medium and under mixed-mode loading. International Journal of Solids and Structures, 2001, 38, 5963-5973.	2.7	3
81	Spatially resolved characterization of residual stress induced by micro scale laser shock Peening. , 2003, , .		3
82	Plastic strain recovery in nanocrystalline copper thin films. International Journal of Plasticity, 2018, 107, 27-53.	8.8	3
83	In Situ NANO-Indentation of Round Window Membrane. Conference Proceedings of the Society for Experimental Mechanics, 2016, , 17-29.	0.5	2
84	CHAPTER 5. Microfabrication of Nanoporous Gold. RSC Nanoscience and Nanotechnology, 2012, , 69-96.	0.2	1
85	Comparative study of symmetric and asymmetric deformation of Al single crystal under micro scale laser shock peening. , 2006, , .		1
86	Brittle to Ductile Transition in Intermetallic Alloys. Materials Research Society Symposia Proceedings, 2002, 753, 1.	0.1	0
87	Spatially Resolved Characterization of Geometrically Necessary Dislocation Dependent Deformation in Micro-Scale Laser Shock Peening. , 2008, , .		0