

# Jeffrey W Kysar

## List of Publications by Year in descending order

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87  
papers

22,207  
citations

136740

32  
h-index

54797

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. <i>Science</i> , 2008, 321, 385-388.	6.0	17,513
2	High-Strength Chemical-Vapor-Deposited Graphene and Grain Boundaries. <i>Science</i> , 2013, 340, 1073-1076.	6.0	753
3	Nonlinear elastic behavior of two-dimensional molybdenum disulfide. <i>Physical Review B</i> , 2013, 87, .	1.1	400
4	Nonlinear elastic behavior of graphene: <i>Ab initio</i> calculations to continuum description. <i>Physical Review B</i> , 2009, 80, .	1.1	364
5	Elastic and frictional properties of graphene. <i>Physica Status Solidi (B): Basic Research</i> , 2009, 246, 2562-2567.	0.7	333
6	Nanoporous Metals by Alloy Corrosion: Formation and Mechanical Properties. <i>MRS Bulletin</i> , 2009, 34, 577-586.	1.7	264
7	Experimental lower bounds on geometrically necessary dislocation density. <i>International Journal of Plasticity</i> , 2010, 26, 1097-1123.	4.1	165
8	Imaging strain-localized excitons in nanoscale bubbles of monolayer WSe <sub>2</sub> at room temperature. <i>Nature Nanotechnology</i> , 2020, 15, 854-860.	15.6	134
9	Mechanical Properties of Thin Glassy Polymer Films Filled with Spherical Polymer-Grafted Nanoparticles. <i>Nano Letters</i> , 2012, 12, 3909-3914.	4.5	131
10	Microfabrication and mechanical properties of nanoporous gold at the nanoscale. <i>Scripta Materialia</i> , 2007, 56, 437-440.	2.6	123
11	High strain gradient plasticity associated with wedge indentation into face-centered cubic single crystals: Geometrically necessary dislocation densities. <i>Journal of the Mechanics and Physics of Solids</i> , 2007, 55, 1554-1573.	2.3	112
12	Recoverable Slippage Mechanism in Multilayer Graphene Leads to Repeatable Energy Dissipation. <i>ACS Nano</i> , 2016, 10, 1820-1828.	7.3	112
13	Cylindrical void in a rigid-ideally plastic single crystal. Part I: Anisotropic slip line theory solution for face-centered cubic crystals. <i>International Journal of Plasticity</i> , 2005, 21, 1481-1520.	4.1	85
14	Thermal vibration and apparent thermal contraction of single-walled carbon nanotubes. <i>Journal of the Mechanics and Physics of Solids</i> , 2006, 54, 1206-1236.	2.3	81
15	Size effects on void growth in single crystals with distributed voids. <i>International Journal of Plasticity</i> , 2008, 24, 688-701.	4.1	74
16	Crack tip deformation fields in ductile single crystals. <i>Acta Materialia</i> , 2002, 50, 2367-2380.	3.8	73
17	Characterization of Plastic Deformation Induced by Microscale Laser Shock Peening. <i>Journal of Applied Mechanics, Transactions ASME</i> , 2004, 71, 713-723.	1.1	66
18	Mechanical considerations for polymeric heart valve development: Biomechanics, materials, design and manufacturing. <i>Biomaterials</i> , 2019, 225, 119493.	5.7	58

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19	Continuum simulations of directional dependence of crack growth along a copper/sapphire bicrystal interface. Part I: experiments and crystal plasticity background. <i>Journal of the Mechanics and Physics of Solids</i> , 2001, 49, 1099-1128.	2.3	56
20	Inner ear delivery Challenges and opportunities. <i>Laryngoscope Investigative Otolaryngology</i> , 2020, 5, 122-131.	0.6	56
21	Enhanced Glassy State Mechanical Properties of Polymer Nanocomposites via Supramolecular Interactions. <i>Nano Letters</i> , 2015, 15, 5465-5471.	4.5	54
22	In-vitro perforation of the round window membrane via direct 3-D printed microneedles. <i>Biomedical Microdevices</i> , 2018, 20, 47.	1.4	51
23	Experimental validation of multiscale modeling of indentation of suspended circular graphene membranes. <i>International Journal of Solids and Structures</i> , 2012, 49, 3201-3209.	1.3	46
24	Computational strain gradient crystal plasticity. <i>Journal of the Mechanics and Physics of Solids</i> , 2014, 62, 31-47.	2.3	46
25	Novel 3D-printed hollow microneedles facilitate safe, reliable, and informative sampling of perilymph from guinea pigs. <i>Hearing Research</i> , 2021, 400, 108141.	0.9	43
26	Fabrication of crack-free blanket nanoporous gold thin films by galvanostatic dealloying. <i>Journal of Alloys and Compounds</i> , 2011, 509, 6374-6381.	2.8	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 electrocodeposition. <i>Materials Science &amp; Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2007, 447, 209-216.	2.6	40
28	Microperforations Significantly Enhance Diffusion Across Round Window Membrane. <i>Otology and Neurotology</i> , 2015, 36, 694-700.	0.7	40
29	Drug delivery device for the inner ear: ultra-sharp fully metallic microneedles. <i>Drug Delivery and Translational Research</i> , 2021, 11, 214-226.	3.0	37
30	Analytical solution of anisotropic plastic deformation induced by micro-scale laser shock peening. <i>Mechanics of Materials</i> , 2008, 40, 100-114.	1.7	35
31	Raman Microprobe Analysis of Elastic Strain and Fracture in Electrophoretically Deposited CdSe Nanocrystal Films. <i>Nano Letters</i> , 2006, 6, 175-180.	4.5	34
32	Fabrication of crack-free nanoporous gold blanket thin films by potentiostatic dealloying. <i>Scripta Materialia</i> , 2010, 63, 1005-1008.	2.6	34
33	Energy dissipation mechanisms in ductile fracture. <i>Journal of the Mechanics and Physics of Solids</i> , 2003, 51, 795-824.	2.3	33
34	Length-scale effect due to periodic variation of geometrically necessary dislocation densities. <i>International Journal of Plasticity</i> , 2013, 41, 189-201.	4.1	31
35	Directional dependence of fracture in copper/sapphire bicrystal. <i>Acta Materialia</i> , 2000, 48, 3509-3524.	3.8	30
36	3D-Printed Microneedles Create Precise Perforations in Human Round Window Membrane in Situ. <i>Otology and Neurotology</i> , 2020, 41, 277-284.	0.7	29

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37	Spatially Resolved Characterization of Residual Stress Induced by Micro Scale Laser Shock Peening. <i>Journal of Manufacturing Science and Engineering, Transactions of the ASME</i> , 2004, 126, 226-236.	1.3	28
38	Cylindrical void in a rigid-ideally plastic single crystal III: Hexagonal close-packed crystal. <i>International Journal of Plasticity</i> , 2007, 23, 592-619.	4.1	27
39	Facile and quantitative estimation of strain in nanobubbles with arbitrary symmetry in 2D semiconductors verified using hyperspectral nano-optical imaging. <i>Journal of Chemical Physics</i> , 2020, 153, 024702.	1.2	27
40	Continuum simulations of directional dependence of crack growth along a copper/sapphire bicrystal interface. Part II: crack tip stress/deformation analysis. <i>Journal of the Mechanics and Physics of Solids</i> , 2001, 49, 1129-1153.	2.3	25
41	Residual plastic strain recovery driven by grain boundary diffusion in nanocrystalline thin films. <i>Acta Materialia</i> , 2011, 59, 3937-3945.	3.8	25
42	Wedge indentation into elastic-plastic single crystals. 2: Simulations for face-centered cubic crystals. <i>International Journal of Plasticity</i> , 2012, 28, 70-87.	4.1	25
43	Anatomical and Functional Consequences of Microneedle Perforation of Round Window Membrane. <i>Otology and Neurotology</i> , 2020, 41, e280-e287.	0.7	24
44	The Functional Response of Mesenchymal Stem Cells to Electron Beam Patterned Elastomeric Surfaces Presenting Micrometer to Nanoscale Heterogeneous Rigidity. <i>Advanced Materials</i> , 2017, 29, 1702119.	11.1	23
45	Grain boundary response of aluminum bicrystal under micro scale laser shock peening. <i>International Journal of Solids and Structures</i> , 2009, 46, 3323-3335.	1.3	22
46	Strain gradient crystal plasticity analysis of a single crystal containing a cylindrical void. <i>International Journal of Solids and Structures</i> , 2007, 44, 6382-6397.	1.3	20
47	A dual wedge microneedle for sampling of perilymph solution via round window membrane. <i>Biomedical Microdevices</i> , 2016, 18, 24.	1.4	20
48	Fracture in electrophoretically deposited CdSe nanocrystal films. <i>Journal of Applied Physics</i> , 2009, 105, .	1.1	19
49	Serrated needle design facilitates precise round window membrane perforation. <i>Journal of Biomedical Materials Research - Part A</i> , 2016, 104, 1633-1637.	2.1	19
50	Atomistically derived cohesive zone model of intergranular fracture in polycrystalline graphene. <i>Journal of Applied Physics</i> , 2016, 119, 245107.	1.1	18
51	Continuum aspects of directionally dependent cracking of an interface between copper and alumina crystals. <i>Mechanics of Materials</i> , 1996, 23, 271-286.	1.7	17
52	The mean free path of dislocations in nanoparticle and nanorod reinforced metal composites and implication for strengthening mechanisms. <i>Mechanics Research Communications</i> , 2007, 34, 275-282.	1.0	17
53	Monolithic integration of nanoscale tensile specimens and MEMS structures. <i>Nanotechnology</i> , 2013, 24, 165502.	1.3	17
54	Microanatomic Analysis of the Round Window Membrane by White Light Interferometry and Microcomputed Tomography for Mechanical Amplification. <i>Otology and Neurotology</i> , 2014, 35, 672-678.	0.7	17

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55	Silver/silver chloride microneedles can detect penetration through the round window membrane. <i>Journal of Biomedical Materials Research - Part B Applied Biomaterials</i> , 2017, 105, 307-311.	1.6	17
56	Inner ear gene delivery: vectors and routes. <i>Hearing, Balance and Communication</i> , 2020, 18, 278-285.	0.1	16
57	Effects of strain field on light in crack opening interferometry. <i>International Journal of Solids and Structures</i> , 1998, 35, 33-49.	1.3	15
58	Study of anisotropic character induced by microscale laser shock peening on a single crystal aluminum. <i>Journal of Applied Physics</i> , 2007, 101, 024904.	1.1	15
59	Microscale laser peen forming of single crystal. <i>Journal of Applied Physics</i> , 2008, 103, 063525.	1.1	14
60	Review Article: Case studies in future trends of computational and experimental nanomechanics. <i>Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films</i> , 2017, 35, .	0.9	12
61	Fourier analysis of X-ray micro-diffraction profiles to characterize laser shock peened metals. <i>International Journal of Solids and Structures</i> , 2005, 42, 3471-3485.	1.3	11
62	Deformation and fracture behavior of electrocodeposited alumina nanoparticle/copper composite films. <i>Journal of Materials Science</i> , 2007, 42, 5256-5263.	1.7	11
63	Dynamic Material Response of Aluminum Single Crystal Under Microscale Laser Shock Peening. <i>Journal of Manufacturing Science and Engineering, Transactions of the ASME</i> , 2009, 131, .	1.3	10
64	Design optimization of a cardiovascular stent with application to a balloon expandable prosthetic heart valve. <i>Materials and Design</i> , 2021, 209, 109977.	3.3	10
65	Numerical analysis of the radial breathing mode of armchair and zigzag single-walled carbon nanotubes under deformation. <i>Journal of Applied Physics</i> , 2006, 100, 124305.	1.1	9
66	Impact of Systemic versus Intratympanic Dexamethasone Administration on the Perilymph Proteome. <i>Journal of Proteome Research</i> , 2021, 20, 4001-4009.	1.8	9
67	Response of Thin Films and Substrate to Micro-Scale Laser Shock Peening. <i>Journal of Manufacturing Science and Engineering, Transactions of the ASME</i> , 2007, 129, 485-496.	1.3	7
68	Comparative study of symmetric and asymmetric deformation of Al single crystal under microscale laser shock peening. <i>Journal of Mechanics of Materials and Structures</i> , 2009, 4, 89-105.	0.4	7
69	Experimental validation of plastic constitutive hardening relationship based upon the direction of the Net Burgers Density Vector. <i>Journal of the Mechanics and Physics of Solids</i> , 2018, 111, 358-374.	2.3	7
70	Membrane curvature and connective fiber alignment in guinea pig round window membrane. <i>Acta Biomaterialia</i> , 2021, 136, 343-362.	4.1	7
71	Direct comparison between experiments and computations at the atomic length scale: a case study of graphene. <i>Scientific Modeling and Simulation SMNS</i> , 2008, 15, 143-157.	0.8	6
72	Spatially Resolved Characterization of Geometrically Necessary Dislocation Dependent Deformation in Microscale Laser Shock Peening. <i>Journal of Manufacturing Science and Engineering, Transactions of the ASME</i> , 2009, 131, .	1.3	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.	4.1	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.	1.3	5
75	Observation of plastic deformation in freestanding single crystal Au nanowires. Applied Physics Letters, 2006, 89, 111916.	1.5	5
76	Plane strain deformation by slip in FCC crystals. International Journal of Plasticity, 2020, 133, 102842.	4.1	5
77	Grain size dependence of polycrystalline plasticity modeling in cylindrical indentation. Computational Mechanics, 2021, 68, 499-543.	2.2	5
78	Simulation assisted design for microneedle manufacturing: Computational modeling of two-photon templated electrodeposition. Journal of Manufacturing Processes, 2021, 66, 211-219.	2.8	5
79	A Novel 3D-Printed Head Holder for Guinea Pig Ear Surgery. Otology and Neurotology, 2021, 42, e1197-e1202.	0.7	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.	1.3	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.	4.1	3
83	In Situ NANO-Indentation of Round Window Membrane. Conference Proceedings of the Society for Experimental Mechanics, 2016, , 17-29.	0.3	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