Julia R Greer

List of Publications by Year
in descending order

134 papers	15,454 citations	19608 61 h-index	16605 123 g-index
139 all docs	139 docs citations	139 times ranked	10764 citing authors

#	Article	IF	Citations
1	Plasticity in small-sized metallic systems: Intrinsic versus extrinsic size effect. Progress in Materials Science, 2011, 56, 654-724.	16.0	1,508
2	Size dependence of mechanical properties of gold at the micron scale in the absence of strain gradients. Acta Materialia, 2005, 53, 1821-1830.	3.8	1,330
3	Strong, lightweight, and recoverable three-dimensional ceramic nanolattices. Science, 2014, 345, 1322-1326.	6.0	1,080
4	Nanoscale gold pillars strengthened through dislocation starvation. Physical Review B, 2006, 73, .	1.1	787
5	Transition from a strong-yet-brittle to aÂstronger-and-ductile state by size reductionÂofÂmetallicÂglasses. Nature Materials, 2010, 9, 215-219.	13.3	606
6	Resilient 3D hierarchical architected metamaterials. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 11502-11507.	3.3	496
7	Fabrication and deformation of three-dimensional hollow ceramic nanostructures. Nature Materials, 2013, 12, 893-898.	13.3	423
8	Deformation mechanisms in nanotwinned metal nanopillars. Nature Nanotechnology, 2012, 7, 594-601.	15.6	385
9	Additive manufacturing of 3D nano-architected metals. Nature Communications, 2018, 9, 593.	5.8	372
10	Tensile and compressive behavior of tungsten, molybdenum, tantalum and niobium at the nanoscale. Acta Materialia, 2010, 58, 2355-2363.	3.8	299
11	Fundamental Differences in Mechanical Behavior between Two Types of Crystals at the Nanoscale. Physical Review Letters, 2008, 100, 155502.	2.9	283
12	Deformation at the nanometer and micrometer length scales: Effects of strain gradients and dislocation starvation. Thin Solid Films, 2007, 515, 3152-3157.	0.8	256
13	Tensile and compressive behavior of gold and molybdenum single crystals at the nano-scale. Acta Materialia, 2009, 57, 5245-5253.	3.8	217
14	Enhanced strength and temperature dependence of mechanical properties of Li at small scales and its implications for Li metal anodes. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, 57-61.	3.3	206
15	Comparing the strength of f.c.c. and b.c.c. sub-micrometer pillars: Compression experiments and dislocation dynamics simulations. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2008, 493, 21-25.	2.6	191
16	Structural color three-dimensional printing by shrinking photonic crystals. Nature Communications, 2019, 10, 4340.	5.8	184
17	Microstructure versus Size: Mechanical Properties of Electroplated Single Crystalline Cu Nanopillars. Physical Review Letters, 2010, 104, 135503.	2.9	181
18	Reexamining the mechanical property space of three-dimensional lattice architectures. Acta Materialia, 2017, 140, 424-432.	3.8	179

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19	Size-induced weakening and grain boundary-assisted deformation in 60 nm grained Ni nanopillars. Scripta Materialia, 2011, 64, 77-80.	2.6	174
20	The nanocomposite nature of bone drives its strength and damage resistance. Nature Materials, 2016, 15, 1195-1202.	13.3	171
21	Statistics of Dislocation Slip Avalanches in Nanosized Single Crystals Show Tuned Critical Behavior Predicted by a Simple Mean Field Model. Physical Review Letters, 2012, 109, 095507.	2.9	170
22	Emergence of strain-rate sensitivity in Cu nanopillars: Transition from dislocation multiplication to dislocation nucleation. Acta Materialia, 2011, 59, 5627-5637.	3.8	162
23	Size effects in Al nanopillars: Single crystalline vs. bicrystalline. Acta Materialia, 2011, 59, 4416-4424.	3.8	162
24	Size-Dependent Deformation of Nanocrystalline Pt Nanopillars. Nano Letters, 2012, 12, 6385-6392.	4.5	162
25	All-day fresh water harvesting by microstructured hydrogel membranes. Nature Communications, 2021, 12, 2797.	5.8	159
26	Lightweight, flaw-tolerant, and ultrastrong nanoarchitected carbon. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 6665-6672.	3.3	158
27	Electrochemically reconfigurable architected materials. Nature, 2019, 573, 205-213.	13.7	145
28	Ultra-strong architected Cu meso-lattices. Extreme Mechanics Letters, 2015, 2, 7-14.	2.0	144
29	Nanolaminates Utilizing Sizeâ€Dependent Homogeneous Plasticity of Metallic Glasses. Advanced Functional Materials, 2011, 21, 4550-4554.	7.8	143
30	Effects of size on the strength and deformation mechanism in Zr-based metallic glasses. International Journal of Plasticity, 2011, 27, 858-867.	4.1	141
31	In situ Mechanical Testing Reveals Periodic Buckle Nucleation and Propagation in Carbon Nanotube Bundles. Advanced Functional Materials, 2010, 20, 2338-2346.	7.8	139
32	Fabrication and Microstructure Control of Nanoscale Mechanical Testing Specimens via Electron Beam Lithography and Electroplating. Nano Letters, 2010, 10, 69-76.	4.5	120
33	Fractal atomic-level percolation in metallic glasses. Science, 2015, 349, 1306-1310.	6.0	114
34	A Molten Salt Lithiumâ€"Oxygen Battery. Journal of the American Chemical Society, 2016, 138, 2656-2663.	6.6	114
35	Protocols for the Optimal Design of Multiâ€Functional Cellular Structures: From Hypersonics to Microâ€Architected Materials. Journal of the American Ceramic Society, 2011, 94, s15.	1.9	113
36	Insight into the deformation behavior of niobium single crystals under uniaxial compression and tension at the nanoscale. Scripta Materialia, 2009, 61, 300-303.	2.6	108

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37	Atomistic simulations and continuum modeling of dislocation nucleation and strength in gold nanowires. Journal of the Mechanics and Physics of Solids, 2012, 60, 84-103.	2.3	107
38	Universal Quake Statistics: From Compressed Nanocrystals to Earthquakes. Scientific Reports, 2015, 5, 16493.	1.6	104
39	Mechanical characterization of hollow ceramic nanolattices. Journal of Materials Science, 2014, 49, 2496-2508.	1.7	99
40	Higher Recovery and Better Energy Dissipation at Faster Strain Rates in Carbon Nanotube Bundles: An <i>in-Situ</i> Study. ACS Nano, 2012, 6, 2189-2197.	7.3	96
41	Influence of Homogeneous Interfaces on the Strength of 500 nm Diameter Cu Nanopillars. Nano Letters, 2011, 11, 1743-1746.	4.5	93
42	Highâ€Strength Nanotwinned Al Alloys with 9R Phase. Advanced Materials, 2018, 30, 1704629.	11.1	93
43	Extreme mechanical resilience of self-assembled nanolabyrinthine materials. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 5686-5693.	3.3	87
44	Analysis of uniaxial compression of vertically aligned carbon nanotubes. Journal of the Mechanics and Physics of Solids, 2011, 59, 2227-2237.	2.3	80
45	Three-Dimensional Au Microlattices as Positive Electrodes for Liâ€“O₂ Batteries. ACS Nano, 2015, 9, 5876-5883.	7.3	80
46	Theoretical strength and rubber-like behaviour in micro-sized pyrolytic carbon. Nature Nanotechnology, 2019, 14, 762-769.	15.6	80
47	Responsive materials architected in space and time. Nature Reviews Materials, 2022, 7, 683-701.	23.3	80
48	Mechanisms of Failure in Nanoscale Metallic Glass. Nano Letters, 2014, 14, 5858-5864.	4.5	78
49	Size Effect Suppresses Brittle Failure in Hollow Cu₆₀Zr₄₀ Metallic Glass Nanolattices Deformed at Cryogenic Temperatures. Nano Letters, 2015, 15, 5673-5681.	4.5	77
50	Microstructure provides insights into evolutionary design and resilience of <i>Coscinodiscus</i> sp. frustule. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, 2017-2022.	3.3	75
51	The in-situ mechanical testing of nanoscale single-crystalline nanopillars. Jom, 2009, 61, 19-25.	0.9	73
52	Supersonic impact resilience of nanoarchitected carbon. Nature Materials, 2021, 20, 1491-1497.	13.3	73
53	Impact of node geometry on the effective stiffness of non-slender three-dimensional truss lattice architectures. Extreme Mechanics Letters, 2018, 22, 138-148.	2.0	69
54	Design and Fabrication of Hollow Rigid Nanolattices via Twoâ€<scp>P</scp>hoton Lithography. Advanced Engineering Materials, 2014, 16, 184-189.	1.6	68

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55	Additive Manufacturing of 3Dâ€Architected Multifunctional Metal Oxides. Advanced Materials, 2019, 31, e1901345.	11.1	68
56	Strain Rate Effects in the Mechanical Response of Polymerâ€Anchored Carbon Nanotube Foams. Advanced Materials, 2009, 21, 334-338.	11.1	65
57	Three-dimensional nano-architected scaffolds with tunable stiffness for efficient bone tissue growth. Acta Biomaterialia, 2017, 63, 294-305.	4.1	65
58	Three-dimensional architected materials and structures: Design, fabrication, and mechanical behavior. MRS Bulletin, 2019, 44, 750-757.	1.7	65
59	Tensile deformation of electroplated copper nanopillars. Philosophical Magazine, 2011, 91, 1108-1120.	0.7	64
60	3D nano-architected metallic glass: Size effect suppresses catastrophic failure. Acta Materialia, 2017, 133, 393-407.	3.8	63
61	Functionalized 3D Architected Materials via Thiolâ€Michael Addition and Twoâ€Photon Lithography. Advanced Materials, 2017, 29, 1605293.	11.1	62
62	Size-dependent mechanical properties of molybdenum nanopillars. Applied Physics Letters, 2008, 93, 101916.	1.5	61
63	Additive Manufacturing of High-Refractive-Index, Nanoarchitected Titanium Dioxide for 3D Dielectric Photonic Crystals. Nano Letters, 2020, 20, 3513-3520.	4.5	59
64	Microstructure versus Flaw: Mechanisms of Failure and Strength in Nanostructures. Nano Letters, 2013, 13, 5703-5709.	4.5	58
65	Effects of Helium Implantation on the Tensile Properties and Microstructure of Ni₇₃P₂₇ Metallic Glass Nanostructures. Nano Letters, 2014, 14, 5176-5183.	4.5	55
66	Additive manufacturing of polymer-derived titania for one-step solar water purification. Materials Today Communications, 2018, 15, 288-293.	0.9	55
67	Ultralow Thermal Conductivity and Mechanical Resilience of Architected Nanolattices. Nano Letters, 2018, 18, 4755-4761.	4.5	55
68	Helium Implantation Effects on the Compressive Response of Cu Nanopillars. Small, 2013, 9, 691-696.	5.2	53
69	Substantial tensile ductility in sputtered Zr-Ni-Al nano-sized metallic glass. Acta Materialia, 2016, 118, 270-285.	3.8	52
70	Modeling dislocation nucleation strengths in pristine metallic nanowires under experimental conditions. Acta Materialia, 2013, 61, 2244-2259.	3.8	51
71	Fabrication and Deformation of Metallic Glass Microâ€Lattices. Advanced Engineering Materials, 2014, 16, 889-896.	1.6	50
72	It's all about imperfections. Nature Materials, 2013, 12, 689-690.	13.3	48

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73	Microstructure and small-scale size effects in plasticity of individual phases of Al0.7CoCrFeNi High Entropy alloy. Extreme Mechanics Letters, 2016, 8, 220-228.	2.0	47
74	In Situ Lithiationâ€“Delithiation of Mechanically Robust Cuâ€“Si Coreâ€“Shell Nanolattices in a Scanning Electron Microscope. ACS Energy Letters, 2016, 1, 492-499.	8.8	47
75	Suppression of Catastrophic Failure in Metallic Glassâ€“Polyisoprene Nanolaminate Containing Nanopillars. Advanced Functional Materials, 2012, 22, 1972-1980.	7.8	46
76	Materials by design: Using architecture in material design to reach new property spaces. MRS Bulletin, 2015, 40, 1122-1129.	1.7	45
77	Emergence of New Mechanical Functionality in Materials via Size Reduction. Advanced Functional Materials, 2009, 19, 2880-2886.	7.8	39
78	Cold-temperature deformation of nano-sized tungsten and niobium as revealed by in-situ nano-mechanical experiments. Science China Technological Sciences, 2014, 57, 652-662.	2.0	39
79	3D Architected Carbon Electrodes for Energy Storage. Advanced Energy Materials, 2021, 11, 2002637.	10.2	39
80	Deformation of as-fabricated and helium implanted 100nm-diameter iron nano-pillars. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2014, 612, 316-325.	2.6	36
81	Computationally efficient design of directionally compliant metamaterials. Nature Communications, 2019, 10, 291.	5.8	36
82	Catastrophic vs Gradual Collapse of Thin-Walled Nanocrystalline Ni Hollow Cylinders As Building Blocks of Microlattice Structures. Nano Letters, 2011, 11, 4118-4125.	4.5	34
83	Exceptional Resilience of Small-Scale Au₃₀Cu₂₅Zn₄₅ under Cyclic Stress-Induced Phase Transformation. Nano Letters, 2016, 16, 7621-7625.	4.5	34
84	Exploring Deformation Mechanisms in Nanostructured Materials. Jom, 2012, 64, 1241-1252.	0.9	33
85	Local Relative Density Modulates Failure and Strength in Vertically Aligned Carbon Nanotubes. ACS Nano, 2013, 7, 8593-8604.	7.3	33
86	Polarization-Independent, Narrowband, Near-IR Spectral Filters via Guided Mode Resonances in Ultrathin a-Si Nanopillar Arrays. ACS Photonics, 2019, 6, 265-271.	3.2	33
87	Effects of morphology on the micro-compression response of carbon nanotube forests. Nanoscale, 2012, 4, 3373.	2.8	32
88	Fatigue deformation of microsized metallic glasses. Scripta Materialia, 2013, 68, 773-776.	2.6	32
89	Rechargeable-battery chemistry based on lithium oxide growth through nitrate anion redox. Nature Chemistry, 2019, 11, 1133-1138.	6.6	31
90	Grain Boundary Sliding in Aluminum Nanoâ€Biâ€Crystals Deformed at Room Temperature. Small, 2014, 10, 100-108.	5.2	30

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91	Enabling Simultaneous Extreme Ultra Low-<i>k</i> in Stiff, Resilient, and Thermally Stable Nano-Architected Materials. Nano Letters, 2017, 17, 7737-7743.	4.5	30
92	The mechanical behavior and deformation of bicrystalline nanowires. Modelling and Simulation in Materials Science and Engineering, 2013, 21, 015004.	0.8	27
93	Cryogenic nanoindentation size effect in [0 0 1]-oriented face-centered cubic and body-centered cubic single crystals. Applied Physics Letters, 2013, 103, .	1.5	26
94	Discreteâ€Continuum Duality of Architected Materials: Failure, Flaws, and Fracture. Advanced Functional Materials, 2019, 29, 1806772.	7.8	26
95	Plastic deformation of indium nanostructures. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2011, 528, 6112-6120.	2.6	25
96	Surface roughness imparts tensile ductility to nanoscale metallic glasses. Extreme Mechanics Letters, 2015, 5, 88-95.	2.0	24
97	Additive Manufacturing of Nano- and Microarchitected Materials. Nano Letters, 2018, 18, 2187-2188.	4.5	24
98	Continuum modeling of dislocation starvation and subsequent nucleation in nano-pillar compressions. Scripta Materialia, 2012, 66, 93-96.	2.6	23
99	Heterogeneous dislocation nucleation from surfaces and interfaces as governing plasticity mechanism in nanoscale metals. Journal of Materials Research, 2011, 26, 2803-2814.	1.2	22
100	Buckling-driven delamination of carbon nanotube forests. Applied Physics Letters, 2013, 102, .	1.5	22
101	Compressive response of vertically aligned carbon nanotube films gleaned from in situ flat-punch indentations. Journal of Materials Research, 2013, 28, 984-997.	1.2	22
102	Nanoframe Catalysts. Science, 2014, 343, 1319-1320.	6.0	22
103	Stimuli Responsive Shape Memory Microarchitectures. Advanced Functional Materials, 2021, 31, 2008380.	7.8	22
104	Pushing and Pulling on Ropes: Hierarchical Woven Materials. Advanced Science, 2020, 7, 2001271.	5.6	20
105	Cross-Split of Dislocations: An Athermal and Rapid Plasticity Mechanism. Scientific Reports, 2016, 6, 25966.	1.6	19
106	Effect of temperature on small-scale deformation of individual face-centered-cubic and body-centered-cubic phases of an Al0.7CoCrFeNi high-entropy alloy. Materials and Design, 2020, 191, 108611.	3.3	19
107	<scp>Threeâ€dimensional</scp> chemical reactors: <i>in situ</i> materials synthesis to advance vat photopolymerization. Polymer International, 2021, 70, 964-976.	1.6	19
108	Tailoring of Interfacial Mechanical Shear Strength by Surface Chemical Modification of Silicon Microwires Embedded in Nafion Membranes. ACS Nano, 2015, 9, 5143-5153.	7.3	18

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109	Probing Microplasticity in Small-Scale FCC Crystals via Dynamic Mechanical Analysis. Physical Review Letters, 2017, 118, 155501.	2.9	18
110	Compressive properties of interface-containing Cuâ€“Fe nano-pillars. Scripta Materialia, 2011, 66, 272-272.	2.6	17
111	Hydrogelâ€Based Additive Manufacturing of Lithium Cobalt Oxide. Advanced Materials Technologies, 2021, 6, 2000791.	3.0	17
112	A microstructurally motivated description of the deformation of vertically aligned carbon nanotube structures. Applied Physics Letters, 2012, 100, .	1.5	15
113	Osteogenic cell functionality on 3-dimensional nano-scaffolds with varying stiffness. Extreme Mechanics Letters, 2017, 13, 1-9.	2.0	15
114	Yield Precursor Dislocation Avalanches in Small Crystals: The Irreversibility Transition. Physical Review Letters, 2019, 123, 035501.	2.9	15
115	Tuning crystallographic compatibility to enhance shape memory in ceramics. Physical Review Materials, 2019, 3, .	0.9	14
116	Irradiation Enhances Strength and Deformability of Nanoâ€Architected Metallic Glass. Advanced Engineering Materials, 2018, 20, 1701055.	1.6	13
117	Bioâ€Mimicked Silica Architectures Capture Geometry, Microstructure, and Mechanical Properties of Marine Diatoms. Advanced Engineering Materials, 2018, 20, 1800301.	1.6	12
118	Nanofibril-mediated fracture resistance of bone. Bioinspiration and Biomimetics, 2021, 16, 035001.	1.5	12
119	Miniaturization of a-Si guided mode resonance filter arrays for near-IR multi-spectral filtering. Applied Physics Letters, 2020, 117, .	1.5	10
120	From ion to atom to dendrite: Formation and nanomechanical behavior of electrodeposited lithium. MRS Bulletin, 2020, 45, 891-904.	1.7	9
121	Comment on â€œEffects of focused ion beam milling on the nanomechanical behavior of a molybdenum-alloy single crystalâ€•Appl. Phys. Lett. 91, 111915 (2007). Applied Physics Letters, 2008, 92, 096101.	1.5	8
122	Ordering and dimensional crossovers in metallic glasses and liquids. Physical Review B, 2017, 95, .	1.1	8
123	Dispersion Mapping in 3-Dimensional Coreâ€“Shell Photonic Crystal Lattices Capable of Negative Refraction in the Mid-Infrared. Nano Letters, 2021, 21, 9102-9107.	4.5	8
124	Recoverable Electrical Breakdown Strength and Dielectric Constant in Ultralow-<i>k</i> Nanolattice Capacitors. Nano Letters, 2019, 19, 5689-5696.	4.5	7
125	Tunable Microfibers Suppress Fibrotic Encapsulation via Inhibition of TGFÎ² Signaling. Tissue Engineering - Part A, 2016, 22, 142-150.	1.6	6
126	Understanding and mitigating mechanical degradation in lithiumâ€“sulfur batteries: additive manufacturing of Li2S composites and nanomechanical particle compressions. Journal of Materials Research, 2021, 36, 3656-3666.	1.2	6

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127	Additive manufacturing of 3D batteries: a perspective. Journal of Materials Research, 2022, 37, 1535-1546.	1.2	6
128	Thermal stability of thin Au films deposited on salt whiskers. Acta Materialia, 2021, 205, 116537.	3.8	5
129	3D-Printed Drug Capture Materials Based on Genomic DNA Coatings. ACS Applied Materials & Interfaces, 2021, 13, 41424-41434.	4.0	4
130	Designing core-shell 3D photonic crystal lattices for negative refraction. Proceedings of SPIE, 2017, , .	0.8	3
131	Nanoshearing. Materials Today, 2012, 15, 127.	8.3	2
132	Failure Mechanisms in Vertically Aligned Dense Nanowire Arrays. Nano Letters, 2021, 21, 7542-7547.	4.5	1
133	Electrostatic Switching in Vertically Oriented Nanotubes for Nonvolatile Memory Applications. Materials Research Society Symposia Proceedings, 2009, 1186, 1.	0.1	0
134	Energy-based approach for failure assessment of 3D architectured materials. Procedia Structural Integrity, 2020, 28, 2181-2186.	0.3	0