Megan T Valentine

List of Publications by Year
in descending order

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68 papers	3,692 citations	257450 24 h-index	133252 59 g-index
68 all docs	68 docs citations	68 times ranked	4069 citing authors

#	Article	IF	Citations
1	Two-Point Microrheology of Inhomogeneous Soft Materials. Physical Review Letters, 2000, 85, 888-891.	7.8	581
2	Anomalous Diffusion Probes Microstructure Dynamics of Entangled F-Actin Networks. Physical Review Letters, 2004, 92, 178101.	7.8	515
3	Toughening elastomers using mussel-inspired iron-catechol complexes. Science, 2017, 358, 502-505.	12.6	505
4	Microrheology of Entangled F-Actin Solutions. Physical Review Letters, 2003, 91, 158302.	7.8	291
5	Individual dimers of the mitotic kinesin motor Eg5 step processively and support substantial loads in vitro. Nature Cell Biology, 2006, 8, 470-476.	10.3	243
6	Colloid Surface Chemistry Critically Affects Multiple Particle Tracking Measurements of Biomaterials. Biophysical Journal, 2004, 86, 4004-4014.	0.5	233
7	Measuring the mechanical stress induced by an expanding multicellular tumor system: a case study. Experimental Cell Research, 2003, 289, 58-66.	2.6	91
8	Forces on a colloidal particle in a polymer solution: a study using optical tweezers. Journal of Physics Condensed Matter, 1996, 8, 9477-9482.	1.8	86
9	Mechanical Properties of Xenopus Egg Cytoplasmic Extracts. Biophysical Journal, 2005, 88, 680-689.	0.5	82
10	To step or not to step? How biochemistry and mechanics influence processivity in Kinesin and Eg5. Current Opinion in Cell Biology, 2007, 19, 75-81.	5.4	71
11	The living interface between synthetic biology and biomaterial design. Nature Materials, 2022, 21, 390-397.	27.5	68
12	Precision steering of an optical trap by electro-optic deflection. Optics Letters, 2008, 33, 599.	3.3	64
13	Significant Performance Enhancement of Polymer Resins by Bioinspired Dynamic Bonding. Advanced Materials, 2017, 29, 1703026.	21.0	63
14	Eg5 steps it up!. Cell Division, 2006, 1, 31.	2.4	62
15	Dynamics of mussel plaque detachment. Soft Matter, 2015, 11, 6832-6839.	2.7	59
16	Microrheology of highly crosslinked microtubule networks is dominated by force-induced crosslinker unbinding. Soft Matter, 2013, 9, 383-393.	2.7	39
17	The microscopic network structure of mussel (<i>Mytilus</i>) adhesive plaques. Journal of the Royal Society Interface, 2015, 12, 20150827.	3.4	36
18	Microscope-based static light-scattering instrument. Optics Letters, 2001, 26, 890.	3.3	34

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19	Force and Premature Binding of ADP Can Regulate the Processivity of Individual Eg5 Dimers. Biophysical Journal, 2009, 97, 1671-1677.	0.5	32
20	Tunable Photothermal Actuation Enabled by Photoswitching of Donorâ€"Acceptor Stenhouse Adducts. ACS Applied Materials & Interfaces, 2020, 12, 54075-54082.	8.0	31
21	Spectral Analysis Methods for the Robust Measurement of the Flexural Rigidity of Biopolymers. Biophysical Journal, 2012, 102, 1144-1153.	0.5	30
22	Simple peptide coacervates adapted for rapid pressure-sensitive wet adhesion. Soft Matter, 2017, 13, 9122-9131.	2.7	29
23	Tough Multimaterial Interfaces through Wavelength-Selective 3D Printing. ACS Applied Materials & Interfaces, 2021, 13, 22065-22072.	8.0	28
24	Microscopic origin of light scattering in tissue. Applied Optics, 2003, 42, 2871.	2.1	26
25	Self-regulating photochemical Rayleigh-BÃ©nard convection using a highly-absorbing organic photoswitch. Nature Communications, 2020, 11, 2599.	12.8	26
26	Molecular control of stress transmission in the microtubule cytoskeleton. Biochimica Et Biophysica Acta - Molecular Cell Research, 2015, 1853, 3015-3024.	4.1	21
27	Direct correlation between creep compliance and deformation in entangled and sparsely crosslinked microtubule networks. Soft Matter, 2012, 8, 1776-1784.	2.7	20
28	Tailoring the Toughness of Elastomers by Incorporating Ionic Cross-Linking. Macromolecules, 2020, 53, 4099-4109.	4.8	20
29	Portable magnetic tweezers device enables visualization of the three-dimensional microscale deformation of soft biological materials. BioTechniques, 2011, 51, 29-34.	1.8	17
30	High-force NdFeB-based magnetic tweezers device optimized for microrheology experiments. Review of Scientific Instruments, 2012, 83, 053905.	1.3	17
31	Force distribution and multiscale mechanics in the mussel byssus. Philosophical Transactions of the Royal Society B: Biological Sciences, 2019, 374, 20190202.	4.0	17
32	Mechanical effects of <scp>EB</scp>1 on microtubules depend on <scp>GTP</scp> hydrolysis state and presence of paclitaxel. Cytoskeleton, 2014, 71, 530-541.	2.0	16
33	The +<scp>TIP</scp> coordinating protein <scp>EB</scp>1 is highly dynamic and diffusive on microtubules, sensitive to <scp>GTP</scp> analog, ionic strength, and <scp>EB</scp>1 concentration. Cytoskeleton, 2016, 73, 23-34.	2.0	13
34	Role of Material Composition in Photothermal Actuation of DASA-Based Polymers. ACS Applied Polymer Materials, 2022, 4, 141-149.	4.4	13
35	Rational mechanochemical design of Dielsâ€"Alder crosslinked biocompatible hydrogels with enhanced properties. Materials Horizons, 2022, 9, 1947-1953.	12.2	13
36	Ring-shaped NdFeB-based magnetic tweezers enables oscillatory microrheology measurements. Applied Physics Letters, 2012, 100, .	3.3	12

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37	Mechanical and functional properties of epothiloneâ€stabilized microtubules. Cytoskeleton, 2013, 70, 74-84.	2.0	12
38	Tau Proteins Harboring Neurodegeneration-Linked Mutations Impair Kinesin Translocation in vitro. Journal of Alzheimer's Disease, 2014, 39, 301-314.	2.6	12
39	Influence of multi-cycle loading on the structure and mechanics of marine mussel plaques. Soft Matter, 2017, 13, 7381-7388.	2.7	12
40	Effects of sea water pH on marine mussel plaque maturation. Soft Matter, 2020, 16, 9339-9346.	2.7	11
41	Bond breaking dynamics in semiflexible networks under load. Soft Matter, 2015, 11, 4899-4911.	2.7	10
42	Design and optimization of arrays of neodymium iron boron-based magnets for magnetic tweezers applications. Review of Scientific Instruments, 2015, 86, 053704.	1.3	9
43	In vivo manipulation of the extracellular matrix induces vascular regression in a basal chordate. Molecular Biology of the Cell, 2017, 28, 1883-1893.	2.1	9
44	Three-Dimensional Photochemical Printing of Thermally Activated Polymer Foams. ACS Applied Polymer Materials, 2021, 3, 4984-4991.	4.4	9
45	Design and characterization of a 3D-printed staggered herringbone mixer. BioTechniques, 2021, 70, 285-289.	1.8	8
46	Uncertainty quantification and estimation in differential dynamic microscopy. Physical Review E, 2021, 104, 034610.	2.1	8
47	High-throughput microscopy to determine morphology, microrheology, and phase boundaries applied to phase separating coacervates. Soft Matter, 2022, 18, 3063-3075.	2.7	8
48	Effects of wild type tau and disease-linked tau mutations on microtubule organization and intracellular trafficking. Journal of Biomechanics, 2016, 49, 1280-1285.	2.1	7
49	Rapid analysis of cell-generated forces within a multicellular aggregate using microsphere-based traction force microscopy. Soft Matter, 2020, 16, 4192-4199.	2.7	7
50	Engineering crack tortuosity in printed polymerâ€"polymer composites through ordered pores. Materials Horizons, 2020, 7, 1854-1860.	12.2	7
51	Influence of Polarity Change and Photophysical Effects on Photosurfactant-Driven Wetting. Langmuir, 2021, 37, 9939-9951.	3.5	7
52	Non-destructive quantification of anaerobic gut fungi and methanogens in co-culture reveals increased fungal growth rate and changes in metabolic flux relative to mono-culture. Microbial Cell Factories, 2021, 20, 199.	4.0	7
53	Determining the Structureâ€"Mechanics Relationships of Dense Microtubule Networks with Confocal Microscopy and Magnetic Tweezers-Based Microrheology. Methods in Cell Biology, 2013, 115, 75-96.	1.1	6
54	Force spectroscopy of complex biopolymers with heterogeneous elasticity. Soft Matter, 2013, 9, 772-778.	2.7	6

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55	Characterizing the cellular architecture of dynamically remodeling vascular tissue using 3-D image analysis and virtual reconstruction. Molecular Biology of the Cell, 2020, 31, 1714-1725.	2.1	6
56	Network structure influences bulk modulus of nearly incompressible filled silicone elastomers. Extreme Mechanics Letters, 2022, 52, 101616.	4.1	5
57	Investigating Cellular Response to Impact With a Microfluidic MEMS Device. Journal of Microelectromechanical Systems, 2020, 29, 14-24.	2.5	4
58	Vascular Aging in the Invertebrate Chordate, Botryllus schlosseri. Frontiers in Molecular Biosciences, 2021, 8, 626827.	3.5	4
59	Suction-Controlled Detachment of Mushroom-Shaped Adhesive Structures. Journal of Applied Mechanics, Transactions ASME, 2021, 88, .	2.2	3
60	Inertial flow focusing: a case study in optimizing cellular trajectory through a microfluidic MEMS device for timing-critical applications. Biomedical Microdevices, 2020, 22, 52.	2.8	2
61	Controlled Single-Cell Compression With a High-Throughput MEMS Actuator. Journal of Microelectromechanical Systems, 2020, 29, 790-796.	2.5	2
62	Tuning the response of fluid filled hydrogel coreâ€"shell structures. Journal of the Mechanical Behavior of Biomedical Materials, 2021, 120, 104605.	3.1	2
63	Single-Molecule Manipulation Using Optical Traps. , 2009, , 341.		2
64	Improved calibration of the nonlinear regime of a single-beam gradient optical trap. Optics Letters, 2016, 41, 2386.	3.3	1
65	3D-printable cell crowding device enables imaging of live cells in compression. BioTechniques, 2020, 68, 275-278.	1.8	1
66	On-Demand Manufacturing Capabilities of Mussels Enable Robust Adhesion to Geometrically Complex Surfaces. ACS Biomaterials Science and Engineering, 2021, 7, 5099-5106.	5.2	1
67	Microscale Manipulation by NdFeB-Based Magnetic Tweezers: Applications to Microrheology. , 2013, , .		0
68	Strength of fluid-filled soft composites across the elastofracture length. Soft Matter, 0, , .	2.7	0