Beth L Pruitt

List of Publications by Year
in descending order

124 papers	6,740 citations	65103 42 h-index	70222 77 g-index
153 all docs	153 docs citations	153 times ranked	10588 citing authors

#	Article	IF	Citations
1	Review: Semiconductor Piezoresistance for Microsystems. Proceedings of the IEEE, 2009, 97, 513-552.	26.4	771
2	E-cadherin is under constitutive actomyosin-generated tension that is increased at cellâ€“cell contacts upon externally applied stretch. Proceedings of the National Academy of Sciences of the United States of America, 2012, 109, 12568-12573.	7.6	530
3	Contractility of single cardiomyocytes differentiated from pluripotent stem cells depends on physiological shape and substrate stiffness. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 12705-12710.	7.6	416
4	Tuning the Range of Polyacrylamide Gel Stiffness for Mechanobiology Applications. ACS Applied Materials & Interfaces, 2016, 8, 21893-21902.	8.3	243
5	Disease Model of GATA4 Mutation Reveals Transcription Factor Cooperativity in Human Cardiogenesis. Cell, 2016, 167, 1734-1749.e22.	27.8	208
6	Mechanotransduction: use the force(s). BMC Biology, 2015, 13, 47.	3.9	190
7	Artificial Dirt: Microfluidic Substrates for Nematode Neurobiology and Behavior. Journal of Neurophysiology, 2008, 99, 3136-3143.	1.9	166
8	Modeling and characterization of electrostatic comb-drive actuators in conducting liquid media. Journal of Micromechanics and Microengineering, 2009, 19, 065008.	2.6	165
9	Analysis of nematode mechanics by piezoresistive displacement clamp. Proceedings of the National Academy of Sciences of the United States of America, 2007, 104, 17376-17381.	7.6	146
10	Effects of Substrate Mechanics on Contractility of Cardiomyocytes Generated from Human Pluripotent Stem Cells. International Journal of Cell Biology, 2012, 2012, 1-13.	2.3	144
11	DEG/ENaC but Not TRP Channels Are the Major Mechanoelectrical Transduction Channels in a C.Âelegans Nociceptor. Neuron, 2011, 71, 845-857.	8.0	122
12	The Yin-Yang of Rigidity Sensing: How Forces and Mechanical Properties Regulate the Cellular Response to Materials. Annual Review of Materials Research, 2013, 43, 589-618.	9.8	111
13	Single Molecule Force Measurements in Living Cells Reveal a Minimally Tensioned Integrin State. ACS Nano, 2016, 10, 10745-10752.	15.3	109
14	Multi-Imaging Method to Assay the Contractile Mechanical Output of Micropatterned Human iPSC-Derived Cardiac Myocytes. Circulation Research, 2017, 120, 1572-1583.	10.7	102
15	Controlled phage therapy by photothermal ablation of specific bacterial species using gold nanorods targeted by chimeric phages. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 1951-1961.	7.6	97
16	E-cadherin and LGN align epithelial cell divisions with tissue tension independently of cell shape. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, E5845-E5853.	7.6	92
17	A BAG3 chaperone complex maintains cardiomyocyte function during proteotoxic stress. JCI Insight, 2017, 2, .	5.0	85
18	Spatial distribution of cellâ€“cell and cellâ€“ECM adhesions regulates force balance while mainÂtaining E-cadherin molecular tension in cell pairs. Molecular Biology of the Cell, 2015, 26, 2456-2465.	2.5	80

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19	Spatially Resolved Study of Backscattering in the Quantum Spin Hall State. Physical Review X, 2013, 3, .	9.1	77
20	Design and characterization of microfabricated piezoresistive floating element-based shear stress sensors. Sensors and Actuators A: Physical, 2007, 134, 77-87.	4.2	76
21	Mechano-Transduction: From Molecules to Tissues. PLoS Biology, 2014, 12, e1001996.	5.4	75
22	Changes in E-cadherin rigidity sensing regulate cell adhesion. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, E5835-E5844.	7.6	75
23	Design optimization of piezoresistive cantilevers for force sensing in air and water. Journal of Applied Physics, 2009, 106, 064310.	2.3	73
24	Big bottlenecks in cardiovascular tissue engineering. Communications Biology, 2018, 1, 199.	4.5	71
25	Aluminum nitride on titanium for CMOS compatible piezoelectric transducers. Journal of Micromechanics and Microengineering, 2010, 20, 025008.	2.6	66
26	Role of surface roughness in hysteresis during adhesive elastic contact. Philosophical Magazine Letters, 2010, 90, 891-902.	1.2	65
27	For whom the cells pull: Hydrogel and micropost devices for measuring traction forces. Methods, 2016, 94, 51-64.	3.9	65
28	SU-8 force sensing pillar arrays for biological measurements. Lab on A Chip, 2009, 9, 1449.	6.1	64
29	Timeâ€dependent evolution of functional vs. remodeling signaling in induced pluripotent stem cellâ€derived cardiomyocytes and induced maturation with biomechanical stimulation. FASEB Journal, 2016, 30, 1464-1479.	0.5	63
30	Integrated strain array for cellular mechanobiology studies. Journal of Micromechanics and Microengineering, 2011, 21, 054016.	2.6	62
31	Piezoresistive Cantilever Performanceâ€”Part I: Analytical Model for Sensitivity. Journal of Microelectromechanical Systems, 2010, 19, 137-148.	2.7	61
32	Tissue mechanics govern the rapidly adapting and symmetrical response to touch. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, E6955-63.	7.6	61
33	Pneumatic stimulation of C. elegans mechanoreceptor neurons in a microfluidic trap. Lab on A Chip, 2017, 17, 1116-1127.	6.1	61
34	Hydrogel crosslinking density regulates temporal contractility of human embryonic stem cell-derived cardiomyocytes in 3D cultures. Soft Matter, 2012, 8, 10141.	2.8	58
35	Spatial patterning of endothelium modulates cell morphology, adhesiveness and transcriptional signature. Biomaterials, 2013, 34, 2928-2937.	11.8	58
36	Caenorhabditis elegans Body Mechanics Are Regulated by Body Wall Muscle Tone. Biophysical Journal, 2011, 100, 1977-1985.	0.5	56

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37	Microsystems for biomimetic stimulation of cardiac cells. Lab on A Chip, 2012, 12, 3235.	6.1	55
38	Hypertrophic cardiomyopathy Î²-cardiac myosin mutation (P710R) leads to hypercontractility by disrupting super relaxed state. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	7.6	55
39	Formation of composite polyacrylamide and silicone substrates for independent control of stiffness and strain. Lab on A Chip, 2013, 13, 646.	6.1	52
40	Piezoresistive Cantilever Performanceâ€"Part II: Optimization. Journal of Microelectromechanical Systems, 2010, 19, 149-161.	2.7	47
41	Piezoresistive cantilevers and measurement system for characterizing low force electrical contacts. Sensors and Actuators A: Physical, 2003, 104, 68-77.	4.2	46
42	MEMS Electrostatic Actuation in Conducting Biological Media. Journal of Microelectromechanical Systems, 2009, 18, 405-413.	2.7	46
43	MEMS-based force-clamp analysis of the role of body stiffness inC. eleganstouch sensation. Integrative Biology (United Kingdom), 2013, 5, 853-864.	1.3	46
44	Integrated Multifunctional Environmental Sensors. Journal of Microelectromechanical Systems, 2013, 22, 779-793.	2.7	37
45	Biocompatible coatings for CMUTs in a harsh, aqueous environment. Journal of Micromechanics and Microengineering, 2007, 17, 994-1001.	2.6	35
46	Faster than the Speed of Hearing: Nanomechanical Force Probes Enable the Electromechanical Observation of Cochlear Hair Cells. Nano Letters, 2012, 12, 6107-6111.	9.5	35
47	Sacrificial layer technique for axial force post assay of immature cardiomyocytes. Biomedical Microdevices, 2013, 15, 171-181.	3.0	35
48	Silencing of MYH7 ameliorates disease phenotypes in human iPSC-cardiomyocytes. Physiological Genomics, 2020, 52, 293-303.	2.3	34
49	Spontaneous cardiomyocyte differentiation of mouse embryoid bodies regulated by hydrogel crosslink density. Biomaterials Science, 2013, 1, 1082.	5.5	32
50	Allele-Specific Silencing Ameliorates Restrictive Cardiomyopathy Attributable to a Human Myosin Regulatory Light Chain Mutation. Circulation, 2019, 140, 765-778.	9.3	32
51	Stable, Covalent Attachment of Laminin to Microposts Improves the Contractility of Mouse Neonatal Cardiomyocytes. ACS Applied Materials & Interfaces, 2014, 6, 15516-15526.	8.3	31
52	Increased tissue stiffness triggers contractile dysfunction and telomere shortening in dystrophic cardiomyocytes. Stem Cell Reports, 2021, 16, 2169-2181.	4.7	30
53	Extracellular matrix micropatterning technology for whole cell cryogenic electron microscopy studies. Journal of Micromechanics and Microengineering, 2019, 29, 115018.	2.6	29
54	Controlling cell shape on hydrogels using lift-off protein patterning. PLoS ONE, 2018, 13, e0189901.	2.5	29

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55	Microsystems for Biomechanical Measurements. Pediatric Research, 2008, 63, 576-583.	2.4	26
56	Multifunctional Integrated Sensors for Multiparameter Monitoring Applications. Journal of Microelectromechanical Systems, 2015, 24, 810-821.	2.7	25
57	Low 1âˆ•f noise, full bridge, microcantilever with longitudinal and transverse piezoresistors. Applied Physics Letters, 2008, 92, .	3.2	24
58	Mechanobiology Assays with Applications in Cardiomyocyte Biology and Cardiotoxicity. Advanced Healthcare Materials, 2020, 9, e1901656.	8.5	24
59	Piezoresistive cantilever force-clamp system. Review of Scientific Instruments, 2011, 82, 043703.	1.4	23
60	Shear-induced damped oscillations in an epithelium depend on actomyosin contraction and E-cadherin cell adhesion. ELife, 2018, 7, .	5.9	21
61	High-bandwidth piezoresistive force probes with integrated thermal actuation. Journal of Micromechanics and Microengineering, 2012, 22, 095012.	2.6	20
62	Self-heating in piezoresistive cantilevers. Applied Physics Letters, 2011, 98, 223103.	3.2	18
63	CRISPR/Cas9-based targeting of fluorescent reporters to human iPSCs to isolate atrial and ventricular-specific cardiomyocytes. Scientific Reports, 2021, 11, 3026.	3.4	18
64	Using a Microfluidics Device for Mechanical Stimulation and High Resolution Imaging of C. elegans. Journal of Visualized Experiments, 2018, , .	0.3	14
65	Microfluidics for mechanobiology of model organisms. Methods in Cell Biology, 2018, 146, 217-259.	2.1	14
66	Design of piezoresistive versus piezoelectric contact mode scanning probes. Journal of Micromechanics and Microengineering, 2010, 20, 095023.	2.6	13
67	Multi-functional integrated sensors for the environment. , 2012, , .		13
68	Microactuator device for integrated measurement of epithelium mechanics. Biomedical Microdevices, 2013, 15, 117-123.	3.0	13
69	Producing Collagen Micro-stripes with Aligned Fibers for Cell Migration Assays. Cellular and Molecular Bioengineering, 2020, 13, 87-98.	2.1	13
70	Micromechanobiology: Focusing on the Cardiac Cellâ€“Substrate Interface. Annual Review of Biomedical Engineering, 2020, 22, 257-284.	12.4	13
71	Planar patterned stretchable electrode arrays based on flexible printed circuits. Journal of Micromechanics and Microengineering, 2013, 23, 105004.	2.6	12
72	Forces applied during classical touch assays for Caenorhabditis elegans. PLoS ONE, 2017, 12, e0178080.	2.5	11

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73	Nucleation of the destruction complex on the centrosome accelerates degradation of Î²-catenin and regulates Wnt signal transmission. Proceedings of the National Academy of Sciences of the United States of America, 2022, 119, .	7.6	11
74	An Easy-to-Fabricate Cell Stretcher Reveals Density-Dependent Mechanical Regulation of Collective Cell Movements in Epithelia. Cellular and Molecular Bioengineering, 2021, 14, 569-581.	2.1	9
75	Stretchable microelectrode array using room-temperature liquid alloy interconnects. Journal of Micromechanics and Microengineering, 2011, 21, 054015.	2.6	8
76	Vapor-Venting, Micromachined Heat Exchanger for Electronics Cooling. , 2007, , 951.		7
77	Nanomechanical Actuation of a Silicon Cantilever Using an Azo Dye, Self-Assembled Monolayer. Langmuir, 2013, 29, 7118-7124.	3.7	7
78	Ultra-thin atomic layer deposition films for corrosion resistance. , 2013, , .		7
79	Shielded piezoresistive cantilever probes for nanoscale topography and electrical imaging. Journal of Micromechanics and Microengineering, 2014, 24, 045026.	2.6	7
80	The tactile receptive fields of freely movingCaenorhabditis elegansnematodes. Integrative Biology (United Kingdom), 2018, 10, 450-463.	1.3	7
81	Coaxial tip piezoresistive scanning probes with sub-nanometer vertical displacement resolution. , 2010, , .		6
82	Touch-induced mechanical strain in somatosensory neurons is independent of extracellular matrix mutations inCaenorhabditis elegans. Molecular Biology of the Cell, 2020, 31, 1735-1743.	2.5	6
83	Tools for Studying Biomechanical Interactions in Cells. , 2011, , 233-265.		5
84	Patterned cracks improve yield in the release of compliant microdevices from silicon-on-insulator wafers. Journal of Micromechanics and Microengineering, 2011, 21, 087001.	2.6	5
85	Integrated sensor cross-sensitivity analysis. , 2013, , .		5
86	MEMS device for applying shear and tension to an epithelium combined with fluorescent live cell imaging. Journal of Micromechanics and Microengineering, 2020, 30, 125004.	2.6	5
87	Independently paced Ca2+ oscillations in progenitor and differentiated cells in an ex vivo epithelial organ. Journal of Cell Science, 2022, 135, .	2.1	5
88	Self-sensing cantilevers with integrated conductive coaxial tips for high-resolution electrical scanning probe metrology. Journal of Applied Physics, 2015, 118, 034306.	2.3	4
89	3D Microwell Platforms for Control of Single Cell 3D Geometry and Intracellular Organization. Cellular and Molecular Bioengineering, 2021, 14, 1-14.	2.1	4
90	Design, Fabrication, and Characterization of Piezoresistive MEMS Shear Stress Sensors. , 2005, , 531.		3

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91	MEMS-based shear characterization of soft hydrated samples. Journal of Micromechanics and Microengineering, 2013, 23, 085001.	2.6	3
92	Multifunctional integrated sensor in A 2×2 mm epitaxial sealed chip operating in a wireless sensor node. , 2014, , .		3
93	Oxidation stiffening of PDMS microposts. Extreme Mechanics Letters, 2015, 3, 17-23.	4.2	3
94	Application of a Modified Quality Function Deployment Method for MEMS. , 2007, , .		3
95	Morphological control enables nanometer-scale dissection of cell-cell signaling complexes. Nature Communications, 2022, 13, .	13.2	3
96	Piezoresistive Cantilever Optimization and Applications. Materials Research Society Symposia Proceedings, 2009, 1222, 1.	0.1	2
97	Optimization with process limits and application requirements for force sensors. , 2010, , .		2
98	MEMS in biology and medicine. Journal of Micromechanics and Microengineering, 2011, 21, 050201-050201.	2.6	2
99	Associations with Unprotected Sexual Behavior Among HIV-Infected Drinkers in Western Kenya. AIDS and Behavior, 2018, 22, 2840-2850.	2.9	2
100	The effects of xeno-free cryopreservation on the contractile properties of human iPSC derived cardiomyocytes. Journal of Molecular and Cellular Cardiology, 2022, 168, 107-114.	1.9	2
101	Equitable hiring strategies towards a diversified faculty. Nature Biomedical Engineering, 2023, 7, 961-968.	22.4	2
102	Uniaxial cell stretcher enables high resolution live cell imaging. , 2012, , .		1
103	Rise time reduction of thermal actuators operated in air and water through optimized pre-shaped open-loop driving. Journal of Micromechanics and Microengineering, 2017, 27, 045005.	2.6	1
104	MEMS Enabled live cell mechanics and dynamics in shear loading. , 2017, , .		1
105	Hierarchy of models for electrostatic comb-drive actuators in electrolytes. Journal of Micromechanics and Microengineering, 2018, 28, 125013.	2.6	1
106	Force Sensing Optimization and Applications. NATO Science for Peace and Security Series B: Physics and Biophysics, 2010, , 287-298.	0.0	1
107	Improved Cardiac Performance and Decreased Arrhythmia in Hypertrophic Cardiomyopathy With Nonâ€“Î²-Blocking R-Enantiomer Carvedilol. Circulation, 2023, 148, 1691-1704.	9.3	1
108	Field Guide to Traction Force Microscopy. Cellular and Molecular Bioengineering, 2024, 17, 87-106.	2.1	1

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109	Fundamental noise in MEMS force sensors. , 2004, , .		0
110	Strain Transduction in Conductor-Modified Polymers. Materials Research Society Symposia Proceedings, 2005, 872, 1.	0.1	0
111	Modeling and validation of electrostatic actuation in aqueous ionic media. Proceedings of the IEEE International Conference on Micro Electro Mechanical Systems (MEMS), 2008, , .	0.0	0
112	Microfabricated calibration tool for direct shear stiffness measurements with applications in cell mechanics. , 2010, , .		0
113	New Devices for Investigating Hair Cell Mechanical Properties. AIP Conference Proceedings, 2011, , .	1.0	0
114	Low-impedance shielded tip piezoresistive probe enables portable Microwave Impedance Microscopy. , 2012, , .		0
115	Microsystems and functional assays for mechanobiology. , 2013, , .		0
116	MEMS for cell mechanobiology. , 2014, , .		0
117	The MEMS Design Process. MEMS Reference Shelf, 2011, , 1-36.	0.0	0
118	LOS COSTOS SOCIALES DE LOS DIÃŁOGOS DE PAZ EN COLOMBIA. UNA MIRADA DESDE LA JUSTICIA DEL RESARCIMIENTO.. Telos: Revista Iberoamerica De Estudios Utilitaristas, 2018, 21, 9.	0.0	0
119	Wafer-Scale Patterning of Protein Templates for Hydrogel Fabrication. Micromachines, 2021, 12, 1386.	3.0	0
120	Insights from an AIMBE Workshop: Diversifying Paths to Academic Leadership. Biomedical Engineering Education, 0, , .	0.8	0
121	Engineering tools for quantifying and manipulating forces in epithelia. Biophysics Reviews, 2023, 4, .	2.7	0
122	Notes on the blood vessels of new growths, with especial reference to their origin in granulation tissue. Transactions of the Royal Academy of Medicine in Ireland, 1883, 1, .	0.1	0
123	Incomplete-penetrant hypertrophic cardiomyopathy MYH7 G256E mutation causes hypercontractility and elevated mitochondrial respiration. Proceedings of the National Academy of Sciences of the United States of America, 2024, 121, .	7.6	0
124	Tracking single hiPSC-derived cardiomyocyte contractile function using CONTRAX an efficient pipeline for traction force measurement. Nature Communications, 2024, 15, .	13.2	0