Sean X Sun

List of Publications by Year
in descending order

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152 papers	7,316 citations	61687 45 h-index	73587 79 g-index
165 all docs	165 docs citations	165 times ranked	8118 citing authors

#	Article	IF	Citations
1	The correlation between cell and nucleus size is explained by an eukaryotic cell growth model. PLoS Computational Biology, 2022, 18, e1009400.	1.5	28
2	Fundamental mechanics of cell shape and cell movement. , 2022, , 85-100.		1
3	Directing Multicellular Organization by Varying the Aspect Ratio of Soft Hydrogel Microwells. Advanced Science, 2022, 9, e2104649.	5.6	12
4	Kidney epithelial cells are active mechano-biological fluid pumps. Nature Communications, 2022, 13, 2317.	5.8	23
5	Trans-epithelial fluid flow and mechanics of epithelial morphogenesis. Seminars in Cell and Developmental Biology, 2022, 131, 146-159.	2.3	5
6	Stiffening Matrix Induces Ageâ€Mediated Microvascular Phenotype Through Increased Cell Contractility and Destabilization of Adherens Junctions. Advanced Science, 2022, 9, .	5.6	17
7	Hydraulic resistance induces cell phenotypic transition in confinement. Science Advances, 2021, 7, .	4.7	17
8	Hydrogen, Bicarbonate, and Their Associated Exchangers in Cell Volume Regulation. Frontiers in Cell and Developmental Biology, 2021, 9, 683686.	1.8	11
9	Growth and site-specific organization of micron-scale biomolecular devices on living mammalian cells. Nature Communications, 2021, 12, 5729.	5.8	6
10	The importance of water and hydraulic pressure in cell dynamics. Journal of Cell Science, 2020, 133, .	1.2	57
11	Prolonged culture in aerobic environments alters Escherichia coli H 2 production capacity. Engineering Reports, 2020, 2, e12161.	0.9	0
12	Active random forces can drive differential cellular positioning and enhance motor-driven transport. Molecular Biology of the Cell, 2020, 31, 2283-2288.	0.9	2
13	Dynamic organelle distribution initiates actin-based spindle migration in mouse oocytes. Nature Communications, 2020, 11, 277.	5.8	44
14	Symmetry breaking in hydrodynamic forces drives meiotic spindle rotation in mammalian oocytes. Science Advances, 2020, 6, eaaz5004.	4.7	29
15	CTRL: a label-free method for dynamic measurement of single-cell volume. Journal of Cell Science, 2020, 133, .	1.2	7
16	Single Cell Volume Measurement Utilizing the Fluorescence Exclusion Method (FXm). Bio-protocol, 2020, 10, e3652.	0.2	2
17	Biophysics at the coffee shop: lessons learned working with George Oster. Molecular Biology of the Cell, 2019, 30, 1882-1889.	0.9	4
18	Cell sensing and decision-making in confinement: The role of TRPM7 in a tug of war between hydraulic pressure and cross-sectional area. Science Advances, 2019, 5, eaaw7243.	4.7	56

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19	Confinement hinders motility by inducing RhoA-mediated nuclear influx, volume expansion, and blebbing. Journal of Cell Biology, 2019, 218, 4093-4111.	2.3	64
20	YAP and TAZ regulate cell volume. Journal of Cell Biology, 2019, 218, 3472-3488.	2.3	39
21	Cell Type Classification and Unsupervised Morphological Phenotyping From Low-Resolution Images Using Deep Learning. Scientific Reports, 2019, 9, 13467.	1.6	31
22	Hypo-osmotic-like stress underlies general cellular defects of aneuploidy. Nature, 2019, 570, 117-121.	13.7	66
23	Response of collagen matrices under pressure and hydraulic resistance in hydrogels. Soft Matter, 2019, 15, 2617-2626.	1.2	14
24	Microscale pressure measurements based on an immiscible fluid/fluid interface. Scientific Reports, 2019, 9, 20044.	1.6	6
25	On the energy efficiency of cell migration in diverse physical environments. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 23894-23900.	3.3	40
26	Role of membrane-tension gated Ca flux in cell mechanosensation. Journal of Cell Science, 2018, 131, .	1.2	36
27	Ergodicity, hidden bias and the growth rate gain. Physical Biology, 2018, 15, 036006.	0.8	10
28	Epithelial vertex models with active biochemical regulation of contractility can explain organized collective cell motility. APL Bioengineering, 2018, 2, 031906.	3.3	35
29	Mechanical Tension Serves as a Late G1 Cell Cycle Checkpoint. Biophysical Journal, 2018, 114, 112a.	0.2	0
30	Building the space elevator: lessons from biological design. Journal of the Royal Society Interface, 2018, 15, 20180086.	1.5	7
31	Cytoskeletal tension regulates mesodermal spatial organization and subsequent vascular fate. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 8167-8172.	3.3	35
32	Electromechanics and Volume Dynamics in Nonexcitable Tissue Cells. Biophysical Journal, 2018, 114, 2231-2242.	0.2	25
33	Cell tension and mechanical regulation of cell volume. Molecular Biology of the Cell, 2018, 29, 0-0.	0.9	64
34	Transition from Actin-Driven to Water-Driven Cell Migration Depends on External Hydraulic Resistance. Biophysical Journal, 2018, 114, 2965-2973.	0.2	35
35	The Interplay of Osmotic Engine Model and Actin Polymerization in Confined Cell Migration. Proceedings for Annual Meeting of the Japanese Pharmacological Society, 2018, WCP2018, SY87-1.	0.0	0
36	Cell mechanics: a dialogue. Reports on Progress in Physics, 2017, 80, 036601.	8.1	36

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37	Risk of mood disorders in patients with colorectal cancer. Journal of Affective Disorders, 2017, 218, 59-65.	2.0	20
38	Going with the Flow: Water Flux and Cell Shape during Cytokinesis. Biophysical Journal, 2017, 113, 2487-2495.	0.2	17
39	Cell-Substrate Interaction Determines Cellular Volume and Shape. Biophysical Journal, 2016, 110, 307a.	0.2	0
40	To grow is not enough: impact of noise on cell environmental response and fitness. Integrative Biology (United Kingdom), 2016, 8, 1030-1039.	0.6	15
41	Cell density and actomyosin contractility control the organization of migrating collectives within an epithelium. Molecular Biology of the Cell, 2016, 27, 3459-3470.	0.9	36
42	Mechanical Regulation of Nuclear Shape and Volume. Biophysical Journal, 2016, 110, 96a.	0.2	0
43	The twisted tauopathies: surface interactions of helically patterned filaments seen in alzheimer's disease and elsewhere. Soft Matter, 2016, 12, 779-789.	1.2	6
44	Electomechanical Model for Non-Excitable Cells. Biophysical Journal, 2015, 108, 141a.	0.2	0
45	Comparison of Stochastic Simulation Methods in Mechanobiology. Biophysical Journal, 2015, 108, 304a.	0.2	0
46	Flow-Driven Cell Migration under External Electric Fields. Physical Review Letters, 2015, 115, 268101.	2.9	23
47	371. AAV-Based Gene Therapy in a Mouse Model of Smith Lemli Opitz Syndrome (SLOS). Molecular Therapy, 2015, 23, S147.	3.7	0
48	Bacterial Growth and Shape Regulation by External Compression. Biophysical Journal, 2015, 108, 600a.	0.2	0
49	Collective cancer cell invasion induced by coordinated contractile stresses. Oncotarget, 2015, 6, 43438-43451.	0.8	70
50	Flow-Driven Cell Motility under Electrical Fields. Biophysical Journal, 2015, 108, 457a-458a.	0.2	0
51	The potential and electric field in the cochlear outer hair cell membrane. Medical and Biological Engineering and Computing, 2015, 53, 405-413.	1.6	9
52	Volume regulation and shape bifurcation in the cell nucleus. Journal of Cell Science, 2015, 128, 3375-85.	1.2	104
53	Bacterial growth and form under mechanical compression. Scientific Reports, 2015, 5, 11367.	1.6	52
54	Stochasticity and Spatial Interaction Govern Stem Cell Differentiation Dynamics. Scientific Reports, 2015, 5, 12617.	1.6	24

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55	Active Biochemical Regulation of Cell Volume and a Simple Model of Cell Tension Response. Biophysical Journal, 2015, 109, 1541-1550.	0.2	63
56	To Grow is not Enough: The Impact of Cell Response Time on Fitness. Biophysical Journal, 2015, 108, 613a.	0.2	0
57	Water Permeation Drives Tumor Cell Migration in Confined Microenvironments. Cell, 2014, 157, 611-623.	13.5	416
58	How Accurately Can a Single Receptor Measure Ligand Concentrations?. Biophysical Journal, 2014, 106, 778-779.	0.2	2
59	Active Regulation of Cellular Membrane Tension. Biophysical Journal, 2014, 106, 705a.	0.2	0
60	Bioengineering paradigms for cell migration in confined microenvironments. Current Opinion in Cell Biology, 2014, 30, 41-50.	2.6	37
61	Coherent Motions in Confluent Cell Monolayer Sheets. Biophysical Journal, 2014, 107, 1532-1541.	0.2	105
62	Three-dimensional cell migration does not follow a random walk. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 3949-3954.	3.3	281
63	Mechanochemical regulation of oscillatory follicle cell dynamics in the developing Drosophila egg chamber. Molecular Biology of the Cell, 2014, 25, 3709-3716.	0.9	40
64	Modeling Follicle Cell Length Oscillations During Tissue Elongation in Drosophila Egg Chamber. Biophysical Journal, 2014, 106, 173a.	0.2	0
65	Electromechanical Model for Eukaryotic Cells. Biophysical Journal, 2014, 106, 574a.	0.2	1
66	Coherent Cell Rotation in Confluent Monolayer Sheets. Biophysical Journal, 2014, 106, 788a.	0.2	0
67	Modeling How Epidermal Homeostasis is Achieved. Biophysical Journal, 2014, 106, 380a.	0.2	0
68	The Local Forces Acting on the Mechanotransduction Channel in Hair Cell Stereocilia. Biophysical Journal, 2014, 106, 2519-2528.	0.2	24
69	Jet Propulsion Model of Cell Motility in Confined Spaces. Biophysical Journal, 2013, 104, 147a-148a.	0.2	0
70	Organization of FtsZ Filaments in the Bacterial Division Ring Measured from Polarized Fluorescence Microscopy. Biophysical Journal, 2013, 105, 1976-1986.	0.2	30
71	Functional interplay between the cell cycle and cell phenotypes. Integrative Biology (United Kingdom), 2013, 5, 523-534.	0.6	23
72	Dynamics of Focal Adhesions. Biophysical Journal, 2013, 104, 319a.	0.2	0

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73	Cellular Pressure and Volume Regulation and Implications for Cell Mechanics. Biophysical Journal, 2013, 104, 479a-480a.	0.2	2
74	Cellular Pressure and Volume Regulation and Implications for Cell Mechanics. Biophysical Journal, 2013, 105, 609-619.	0.2	170
75	Simple Stochastic Models for Cell Division. Biophysical Journal, 2013, 104, 511a.	0.2	1
76	Investigation of Ht1080 Tumor Growth Dynamics and ECM Invasion inÂ3D. Biophysical Journal, 2013, 104, 322a.	0.2	0
77	Simultaneously defining cell phenotypes, cell cycle, and chromatin modifications at singleâ€cell resolution. FASEB Journal, 2013, 27, 2667-2676.	0.2	24
78	Initial spatio-temporal domain expansion of the Modelfest database. , 2013, , .		0
79	Age-dependent stochastic models for understanding population fluctuations in continuously cultured cells. Journal of the Royal Society Interface, 2013, 10, 20130325.	1.5	45
80	The distinct roles of the nucleus and nucleus-cytoskeleton connections in three-dimensional cell migration. Scientific Reports, 2012, 2, 488.	1.6	136
81	Actin cap associated focal adhesions and their distinct role in cellular mechanosensing. Scientific Reports, 2012, 2, 555.	1.6	159
82	Stereocilia Membrane Deformation: Implications for the Gating Spring and Mechanotransduction Channel. Biophysical Journal, 2012, 102, 201-210.	0.2	55
83	A Two-State Eukaryotic Cell Migration Model. Biophysical Journal, 2012, 102, 347a.	0.2	1
84	Growth of curved and helical bacterial cells. Soft Matter, 2012, 8, 7446.	1.2	10
85	Mechanochemical models of processive molecular motors. Molecular Physics, 2012, 110, 1017-1034.	0.8	7
86	Growth of Curved and Helical Bacterial Cells. Biophysical Journal, 2012, 102, 150a.	0.2	0
87	A Mechanochemical Model of Actin Filaments. Biophysical Journal, 2012, 103, 719-727.	0.2	40
88	Effect of membrane mechanics on charge transfer by the membrane protein prestin. Biomechanics and Modeling in Mechanobiology, 2012, 11, 107-118.	1.4	5
89	Modeling the Mechanical Property of Single Actin Filament. Biophysical Journal, 2011, 100, 299a.	0.2	0
90	Mechanical Control of Bacterial Cell Shape. Biophysical Journal, 2011, 101, 327-335.	0.2	59

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91	Nucleation and Decay Initiation Are the Stiffness-Sensitive Phases of Focal Adhesion Maturation. Biophysical Journal, 2011, 101, 2919-2928.	0.2	38
92	Adhesion dynamics and durotaxis in migrating cells. Physical Biology, 2011, 8, 015011.	0.8	79
93	Physics of Bacterial Morphogenesis. Microbiology and Molecular Biology Reviews, 2011, 75, 543-565.	2.9	33
94	Cytoskeletal Cross-linking and Bundling in Motor-Independent Contraction. Current Biology, 2010, 20, R649-R654.	1.8	85
95	Actin Crosslinkers: Repairing theÂSense of Touch. Current Biology, 2010, 20, R895-R896.	1.8	2
96	Ion Stopping Powers and CT Numbers. Medical Dosimetry, 2010, 35, 179-194.	0.4	84
97	Dynamics of the Bacterial Intermediate Filament Crescentin In Vitro and In Vivo. PLoS ONE, 2010, 5, e8855.	1.1	20
98	MEX-5 enrichment in the C. elegans early embryo mediated by differential diffusion. Development (Cambridge), 2010, 137, 2579-2585.	1.2	39
99	Morphology, Growth, and Size Limit of Bacterial Cells. Physical Review Letters, 2010, 105, 028101.	2.9	48
100	Voltage-induced bending and electromechanical coupling in lipid bilayers. Physical Review E, 2010, 81, 031907.	0.8	17
101	Organization of Cellular Receptors into a Nanoscale Junction during HIV-1 Adhesion. PLoS Computational Biology, 2010, 6, e1000855.	1.5	18
102	A mechanical model of actin stress fiber formation and substrate elasticity sensing in adherent cells. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 7757-7762.	3.3	210
103	Mechanical Response and Conformational Amplification in Î±-Helical Coiled Coils. Biophysical Journal, 2010, 99, 3895-3904.	0.2	23
104	Active force generation in cross-linked filament bundles without motor proteins. Physical Review E, 2010, 82, 050901.	0.8	18
105	Single Molecular Torque Measurements of Chromatin Fibers. Biophysical Journal, 2010, 98, 477a.	0.2	0
106	Torsional Mechanics of DNA Are Regulated by Small-Molecule Intercalation. Journal of Physical Chemistry B, 2010, 114, 16929-16935.	1.2	42
107	Resolving the Role of Actoymyosin Contractility in Cell Microrheology. PLoS ONE, 2009, 4, e7054.	1.1	55
108	Condensation of FtsZ filaments can drive bacterial cell division. Proceedings of the National Academy of Sciences of the United States of America, 2009, 106, 121-126.	3.3	130

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109	Asymmetric enrichment of PIE-1 in the Caenorhabditis elegans zygote mediated by binary counterdiffusion. Journal of Cell Biology, 2009, 184, 473-479.	2.3	49
110	Continuum modeling of forces in growing viscoelastic cytoskeletal networks. Journal of Theoretical Biology, 2009, 256, 596-606.	0.8	14
111	Voltage and frequency dependence of prestin-associated charge transfer. Journal of Theoretical Biology, 2009, 260, 137-144.	0.8	15
112	Magnetic Tweezers Measurement of Single Molecule Torque. Nano Letters, 2009, 9, 1720-1725.	4.5	101
113	Morphology of Caulobacter crescentus and the Mechanical Role of Crescentin. Biophysical Journal, 2009, 96, L47-L49.	0.2	16
114	Hysteresis in cross-bridge models of muscle. Physical Chemistry Chemical Physics, 2009, 11, 4871.	1.3	29
115	Modeling Muscle With A Continuum Approach, New Insights Into An Old Problem. Biophysical Journal, 2009, 96, 615a.	0.2	0
116	Morphology of C. Crescentus and Crescentin. Biophysical Journal, 2009, 96, 519a.	0.2	0
117	MinC Spatially Controls Bacterial Cytokinesis by Antagonizing the Scaffolding Function of FtsZ. Current Biology, 2008, 18, 235-244.	1.8	193
118	Mapping Local Matrix Remodeling Induced by a Migrating Tumor Cell Using Three-Dimensional Multiple-Particle Tracking. Biophysical Journal, 2008, 95, 4077-4088.	0.2	135
119	Polymerization and Bundling Kinetics of FtsZ Filaments. Biophysical Journal, 2008, 95, 4045-4056.	0.2	54
120	Î±-Catenin mediates initial E-cadherin-dependent cellâ€“cell recognition and subsequent bond strengthening. Proceedings of the National Academy of Sciences of the United States of America, 2008, 105, 18331-18336.	3.3	70
121	Chapter 23 Stochastic Modeling Methods in Cell Biology. Methods in Cell Biology, 2008, 89, 601-621.	0.5	10
122	Monitoring Early Fusion Dynamics of Human Immunodeficiency Virus Type 1 at Single-Molecule Resolution. Journal of Virology, 2008, 82, 7022-7033.	1.5	49
123	Z-ring force and cell shape during division in rod-like bacteria. Proceedings of the National Academy of Sciences of the United States of America, 2007, 104, 16110-16115.	3.3	116
124	Shape transitions in lipid membranes and protein mediated vesicle fusion and fission. Journal of Chemical Physics, 2007, 126, 095102.	1.2	42
125	Path ensembles and path sampling in nonequilibrium stochastic systems. Journal of Chemical Physics, 2007, 127, 104103.	1.2	20
126	Protein Geometry and Placement in the Cardiac Dyad Influence Macroscopic Properties of Calcium-Induced Calcium Release. Biophysical Journal, 2007, 92, 3379-3396.	0.2	57

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127	Bending Elasticity of Anti-Parallel Î²-Sheets. Biophysical Journal, 2007, 92, 1204-1214.	0.2	8
128	Mechanics and Dynamics of Actin-Driven Thin Membrane Protrusions. Biophysical Journal, 2006, 90, 65-76.	0.2	162
129	Mechanics of Enveloped Virus Entry into Host Cells. Biophysical Journal, 2006, 90, L10-L12.	0.2	73
130	Flexible Light-Chain and Helical Structure of F-Actin Explain the Movement and Step Size of Myosin-VI. Biophysical Journal, 2006, 91, 4002-4013.	0.2	23
131	Elasticity ofÎ±-Helical Coiled Coils. Physical Review Letters, 2006, 97, 248101.	2.9	60
132	Sun Replies:. Physical Review Letters, 2006, 97, .	2.9	5
133	Path Summation Formulation of the Master Equation. Physical Review Letters, 2006, 96, 210602.	2.9	29
134	The elasticity of Î±-helices. Journal of Chemical Physics, 2005, 122, 244912.	1.2	61
135	Dynamics of Myosin-V Processivity. Biophysical Journal, 2005, 88, 999-1008.	0.2	61
136	Dynamics of Myosin-Driven Skeletal Muscle Contraction: I. Steady-State Force Generation. Biophysical Journal, 2005, 88, 4107-4117.	0.2	52
137	Morphology of the Lamellipodium and Organization of Actin Filaments at the Leading Edge of Crawling Cells. Biophysical Journal, 2005, 89, 3589-3602.	0.2	85
138	Equilibrium free energy estimates based on nonequilibrium work relations and extended dynamics. Journal of Chemical Physics, 2004, 121, 10392-10400.	1.2	27
139	The conformational states of Mgï¿½ATP in water. European Biophysics Journal, 2004, 33, 29-37.	1.2	48
140	Asymmetry in the F1-ATPase and Its Implications for the Rotational Cycle. Biophysical Journal, 2004, 86, 1373-1384.	0.2	53
141	Elastic energy storage in ?-sheets with application to F1-ATPase. European Biophysics Journal, 2003, 32, 676-683.	1.2	52
142	Equilibrium free energies from path sampling of nonequilibrium trajectories. Journal of Chemical Physics, 2003, 118, 5769-5775.	1.2	98
143	Statistical sampling of semiclassical distributions: Calculating quantum mechanical effects using Metropolis Monte Carlo. Journal of Chemical Physics, 2002, 117, 5522-5528.	1.2	11
144	Weighted density functional theory of the solvophobic effect. Physical Review E, 2001, 64, 021512.	0.8	16

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145	Model of a fluid at small and large length scales and the hydrophobic effect. Physical Review E, 2001, 65, 011201.	0.8	61
146	Semiclassical approximations to real-time quantum-mechanical effects in correlation functions of complex molecular systems. Journal of Chemical Physics, 2000, 112, 8241-8251.	1.2	5
147	Forwardâ€“backward initial value representation for semiclassical time correlation functions. Journal of Chemical Physics, 1999, 110, 6635-6644.	1.2	195
148	Semiclassical approximations for the calculation of thermal rate constants for chemical reactions in complex molecular systems. Journal of Chemical Physics, 1998, 108, 9726-9736.	1.2	387
149	Semiclassical theory of electronically nonadiabatic dynamics: Results of a linearized approximation to the initial value representation. Journal of Chemical Physics, 1998, 109, 7064-7074.	1.2	337
150	Semiclassical initial value representation for rotational degrees of freedom: The tunneling dynamics of HCl dimer. Journal of Chemical Physics, 1998, 108, 8870-8877.	1.2	80
151	Mixed semiclassicalâ€“classical approaches to the dynamics of complex molecular systems. Journal of Chemical Physics, 1997, 106, 916-927.	1.2	156
152	Semiclassical initial value representation for electronically nonadiabatic molecular dynamics. Journal of Chemical Physics, 1997, 106, 6346-6353.	1.2	241