Samuel A Safran

List of Publications by Year
in descending order

94 papers	5,359 citations	87723 38 h-index	88477 70 g-index
105 all docs	105 docs citations	105 times ranked	5044 citing authors

#	Article	IF	Citations
1	Metabolic remodeling of the human red blood cell membrane. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 1289-1294.	3.3	358
2	Optimal matrix rigidity for stress-fibre polarization in stem cells. Nature Physics, 2010, 6, 468-473.	6.5	335
3	Calculation of Forces at Focal Adhesions from Elastic Substrate Data: The Effect of Localized Force and the Need for Regularization. Biophysical Journal, 2002, 83, 1380-1394.	0.2	329
4	Physics of adherent cells. Reviews of Modern Physics, 2013, 85, 1327-1381.	16.4	302
5	Red Blood Cell Membrane Fluctuations and Shape Controlled by ATP-Induced Cytoskeletal Defects. Biophysical Journal, 2005, 88, 1859-1874.	0.2	271
6	Dynamics of cell orientation. Nature Physics, 2007, 3, 655-659.	6.5	210
7	Cell mechanosensitivity controls the anisotropy of focal adhesions. Proceedings of the National Academy of Sciences of the United States of America, 2004, 101, 12520-12525.	3.3	206
8	Long-range self-organization of cytoskeletal myosin II filament stacks. Nature Cell Biology, 2017, 19, 133-141.	4.6	170
9	Cytoskeleton Confinement and Tension of Red Blood Cell Membranes. Physical Review Letters, 2003, 90, 228101.	2.9	168
10	Cyclic Stress at mHz Frequencies Aligns Fibroblasts in Direction of Zero Strain. PLoS ONE, 2011, 6, e28963.	1.1	130
11	Force-Induced Adsorption and Anisotropic Growth of Focal Adhesions. Biophysical Journal, 2006, 90, 3469-3484.	0.2	107
12	Limitation of Cell Adhesion by the Elasticity of the Extracellular Matrix. Biophysical Journal, 2006, 91, 61-73.	0.2	102
13	Hybrid Lipids as a Biological Surface-Active Component. Biophysical Journal, 2009, 97, 1087-1094.	0.2	102
14	Line Active Hybrid Lipids Determine Domain Size in Phase Separation of Saturated and Unsaturated Lipids. Biophysical Journal, 2010, 98, L21-L23.	0.2	85
15	Do Cells Sense Stress or Strain? Measurement of Cellular Orientation Can Provide a Clue. Biophysical Journal, 2008, 94, L29-L31.	0.2	75
16	Cell shape, spreading symmetry, and the polarization of stress-fibers in cells. Journal of Physics Condensed Matter, 2010, 22, 194110.	0.7	75
17	Designer protein assemblies with tunable phase diagrams in living cells. Nature Chemical Biology, 2020, 16, 939-945.	3.9	68
18	Statistical Thermodynamics of Surfaces, Interfaces, and Membranes. , 0, , .		66

#	Article	IF	Citations
19	Physics of cell elasticity, shape and adhesion. Physica A: Statistical Mechanics and Its Applications, 2005, 352, 171-201.	1.2	65
20	Temperature Dependence of the Thermodynamics and Kinetics of Micellar Solutions. Langmuir, 2004, 20, 2199-2207.	1.6	61
21	Dynamical theory of active cellular response to external stress. Physical Review E, 2008, 78, 031923.	0.8	59
22	Ordering of myosin II filaments driven by mechanical forces: experiments and theory. Philosophical Transactions of the Royal Society B: Biological Sciences, 2018, 373, 20170114.	1.8	58
23	Screening length for finite-size ions in concentrated electrolytes. Physical Review E, 2019, 100, 042615.	0.8	56
24	Dynamics of Cellular Focal Adhesions on Deformable Substrates: Consequences for Cell Force Microscopy. Biophysical Journal, 2008, 95, 527-539.	0.2	54
25	Hybrid Lipids Increase the Probability of Fluctuating Nanodomains in Mixed Membranes. Langmuir, 2013, 29, 5246-5261.	1.6	53
26	Mesoscale phase separation of chromatin in the nucleus. ELife, 2021, 10, .	2.8	53
27	Chain ordering of hybrid lipids can stabilize domains in saturated/hybrid/cholesterol lipid membranes. Europhysics Letters, 2010, 91, 28002.	0.7	52
28	Live imaging of chromatin distribution reveals novel principles of nuclear architecture and chromatin compartmentalization. Science Advances, 2021, 7, .	4.7	52
29	Scaling Laws for the Response of Nonlinear Elastic Media with Implications for Cell Mechanics. Physical Review Letters, 2012, 108, 178103.	2.9	51
30	Active Elasticity of Gels with Contractile Cells. Physical Review Letters, 2006, 97, 128103.	2.9	49
31	Role of cross-links in bundle formation, phase separation and gelation of long filaments. Europhysics Letters, 2003, 63, 139-145.	0.7	46
32	Living Matter: Mesoscopic Active Materials. Advanced Materials, 2018, 30, e1707028.	11.1	46
33	Electrostatic interactions of asymmetrically charged membranes. Europhysics Letters, 2007, 79, 48002.	0.7	45
34	Nonlinearities of biopolymer gels increase the range of force transmission. Physical Review E, 2015, 92, 032728.	0.8	45
35	Substrate stiffness-modulated registry phase correlations in cardiomyocytes map structural order to coherent beating. Nature Communications, 2015, 6, 6085.	5.8	44
36	Enhanced counterion localization induced by surface charge modulation. Europhysics Letters, 2002, 58, 785-791.	0.7	43

#	Article	IF	Citations
37	Physical theory of biological noise buffering by multicomponent phase separation. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	3.3	43
38	Striated Acto-Myosin Fibers Can Reorganize and Register in Response toÂElastic Interactions with the Matrix. Biophysical Journal, 2011, 100, 2706-2715.	0.2	42
39	Polymer-Induced Membrane Contraction, Phase Separation, and Fusion via Marangoni Flow. Biophysical Journal, 2001, 81, 659-666.	0.2	41
40	Theoretical Concepts and Models of Cellular Mechanosensing. Methods in Cell Biology, 2010, 98, 143-175.	0.5	40
41	Direct Measurement of Sub-Debye-Length Attraction between Oppositely Charged Surfaces. Physical Review Letters, 2009, 103, 118304.	2.9	39
42	Line active molecules promote inhomogeneous structures in membranes: Theory, simulations and experiments. Advances in Colloid and Interface Science, 2014, 208, 58-65.	7.0	39
43	Magnetic strings and networks. Nature Materials, 2003, 2, 71-72.	13.3	38
44	Line tension between domains in multicomponent membranes is sensitive to degree of unsaturation of hybrid lipids. Soft Matter, 2011, 7, 7021.	1.2	36
45	Universal reduction of pressure between charged surfaces by long-wavelength surface charge modulation. Europhysics Letters, 2002, 60, 629-635.	0.7	35
46	Scaling relations for counterion release and attraction of oppositely charged surfaces. Europhysics Letters, 2005, 69, 826-831.	0.7	35
47	Measurement of cellular forces at focal adhesions using elastic micro-patterned substrates. Materials Science and Engineering C, 2003, 23, 387-394.	3.8	31
48	Equilibrium Domains on Heterogeneously Charged Surfaces. Langmuir, 2007, 23, 12016-12023.	1.6	31
49	Balance of osmotic pressures determines the nuclear-to-cytoplasmic volume ratio of the cell. Proceedings of the National Academy of Sciences of the United States of America, 2022, 119, e2118301119.	3.3	31
50	Long-Range Interaction between Heterogeneously Charged Membranes. Langmuir, 2011, 27, 4439-4446.	1.6	30
51	Active volume regulation in adhered cells. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 5604-5609.	3.3	29
52	Sarcomeric Pattern Formation by Actin Cluster Coalescence. PLoS Computational Biology, 2012, 8, e1002544.	1.5	28
53	How cells feel their substrate: spontaneous symmetry breaking of active surface stresses. Soft Matter, 2012, 8, 3223.	1.2	28
54	Statistical thermodynamics of soft surfaces. Surface Science, 2002, 500, 127-146.	0.8	26

#	Article	IF	Citations
55	Response of adherent cells to mechanical perturbations of the surrounding matrix. Soft Matter, 2015, 11, 1412-1424.	1.2	24
56	Red Blood Cell Shape and Fluctuations: Cytoskeleton Confinement and ATP Activity. Journal of Biological Physics, 2005, 31, 453-464.	0.7	22
57	Scaling laws indicate distinct nucleation mechanisms of holes in the nuclear lamina. Nature Physics, 2019, 15, 823-829.	6.5	21
58	Self Assembly Modulated by Interactions of Two Heterogeneously Charged Surfaces. Physical Review Letters, 2008, 101, 128101.	2.9	20
59	Dynamics of elastic interactions in soft and biological matter. Physical Review E, 2013, 87, 042703.	0.8	20
60	Elastic interactions synchronize beating in cardiomyocytes. Soft Matter, 2016, 12, 6088-6095.	1.2	20
61	Initiation and Dynamics of Hemifusion in Lipid Bilayers. Biophysical Journal, 2003, 85, 381-389.	0.2	19
62	Mechanical consequences of cellular force generation. Current Opinion in Solid State and Materials Science, 2011, 15, 169-176.	5.6	19
63	Effect of Charge Inhomogeneity and Mobility on Colloid Aggregation. Langmuir, 2012, 28, 8329-8336.	1.6	18
64	Prediction of the Dependence of the Line Tension on the Composition of Linactants and the Temperature in Phase Separated Membranes. Langmuir, 2014, 30, 11734-11745.	1.6	18
65	Attractive Instability of Oppositely Charged Membranes Induced by Charge Density Fluctuations. Physical Review Letters, 2004, 93, 138101.	2.9	17
66	Filament networks attached to membranes: cytoskeletal pressure and local bilayer deformation. New Journal of Physics, 2007, 9, 430-430.	1.2	17
67	Compressive elasticity of polydisperse biopolymer gels. Physical Review E, 2017, 95, 052415.	0.8	16
68	Hybrid lipids increase nanoscale fluctuation lifetimes in mixed membranes. Physical Review E, 2013, 88, 032708.	0.8	13
69	Evolution in studentsâ€™ understanding of thermal physics with increasing complexity. Physical Review Physics Education Research, 2013, 9, .	1.7	13
70	Equilibrium size distribution and phase separation of multivalent, molecular assemblies in dilute solution. Soft Matter, 2020, 16, 5458-5469.	1.2	13
71	Introductory physics going soft. American Journal of Physics, 2012, 80, 51-60.	0.3	12
72	Theory of frequency response of mechanically driven cardiomyocytes. Scientific Reports, 2018, 8, 2237.	1.6	12

#	Article	IF	Citations
73	Scattering form factors for self-assembled network junctions. Journal of Chemical Physics, 2007, 127, 204711.	1.2	11
74	Nematic order by elastic interactions and cellular rigidity sensing. Europhysics Letters, 2011, 93, 28007.	0.7	10
75	Transcription rates in DNA brushes. Soft Matter, 2015, 11, 3017-3021.	1.2	8
76	Physics of Spontaneous Calcium Oscillations in Cardiac Cells and Their Entrainment. Physical Review Letters, 2019, 122, 198101.	2.9	7
77	Registry Kinetics of Myosin Motor Stacks Driven by Mechanical Force-Induced Actin Turnover. Biophysical Journal, 2019, 117, 856-866.	0.2	6
78	Cardiomyocyte Calcium Ion Oscillationsâ€"Lessons From Physics. Frontiers in Physiology, 2020, 11, 164.	1.3	6
79	Confined Polymers in a Poor Solvent: The Role of Bonding to the Surface. Macromolecules, 2021, 54, 4760-4768.	2.2	6
80	Theory of the mechanical response of focal adhesions to shear flow. Journal of Physics Condensed Matter, 2010, 22, 194111.	0.7	5
81	Mesoscale Phase Separation of Chromatin in the Nucleus. Biophysical Journal, 2020, 118, 549a.	0.2	5
82	Shifting the learning gears: Redesigning a project-based course on soft matter through the perspective of constructionism. Physical Review Physics Education Research, 2020, 16, .	1.4	5
83	Is the Mechanics of Cellâ€"Matrix Adhesion Amenable to Physical Modeling?. Journal of Adhesion Science and Technology, 2010, 24, 2203-2214.	1.4	4
84	Diffusion in a soft confining environment: Dynamic effects of thermal fluctuations. Physical Review E, 2012, 86, 031111.	0.8	4
85	Cholesterol tilting drives phase separation in lipid bilayer membranes. Soft Matter, 2012, 8, 5439.	1.2	4
86	Visualizing the Entropy Change of a Thermal Reservoir. Journal of Chemical Education, 2014, 91, 380-385.	1.1	3
87	Design guidelines for adapting scientific research articles: An example from an introductory level, interdisciplinary program on soft matter. , 2013, , .		2
88	Long-Time Phase Correlations Reveal Regulation of Beating Cardiomyocytes. Physical Review Letters, 2020, 125, 258101.	2.9	2
89	Competitive Adsorption of Amphiphilic Molecules and the Stability of Water-Swollen Micelles in Oil. Langmuir, 2005, 21, 7109-7120.	1.6	1
90	Metabolic remodeling of the human red blood cell membrane measured by quantitative phase microscopy. , 2011, , .		1

#	Article	IF	Citations
91	Soft matter education. Soft Matter, 2013, 9, 4736.	1.2	1
92	In Memory of Pierre-Gilles de Gennes. Journal of Physical Chemistry B, 2009, 113, 3591-3592.	1.2	0
93	Nonlinear Elasticity in the Interaction of Living Cells with their Mechanical Environment. Biophysical Journal, 2013, 104, 479a.	0.2	0
94	Elastic Interactions of Biological Cells. , 2005, , 329-342.		0