

# Samuel A Safran

## List of Publications by Citations

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91  
papers

4,203  
citations

35  
h-index

63  
g-index

105  
ext. papers

4,822  
ext. citations

5.7  
avg, IF

5.78  
L-index

#	Paper	IF	Citations
91	Calculation of forces at focal adhesions from elastic substrate data: the effect of localized force and the need for regularization. <i>Biophysical Journal</i> , <b>2002</b> , 83, 1380-94	2.9	285
90	Optimal matrix rigidity for stress fiber polarization in stem cells. <i>Nature Physics</i> , <b>2010</b> , 6, 468-473	16.2	283
89	Metabolic remodeling of the human red blood cell membrane. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , <b>2010</b> , 107, 1289-94	11.5	280
88	Red blood cell membrane fluctuations and shape controlled by ATP-induced cytoskeletal defects. <i>Biophysical Journal</i> , <b>2005</b> , 88, 1859-74	2.9	233
87	Physics of adherent cells. <i>Reviews of Modern Physics</i> , <b>2013</b> , 85, 1327-1381	40.5	211
86	Dynamics of cell orientation. <i>Nature Physics</i> , <b>2007</b> , 3, 655-659	16.2	189
85	Cell mechanosensitivity controls the anisotropy of focal adhesions. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , <b>2004</b> , 101, 12520-5	11.5	179
84	Cytoskeleton confinement and tension of red blood cell membranes. <i>Physical Review Letters</i> , <b>2003</b> , 90, 228101	7.4	142
83	Long-range self-organization of cytoskeletal myosin II filament stacks. <i>Nature Cell Biology</i> , <b>2017</b> , 19, 1332-1341	14.1	113
82	Cyclic stress at mHz frequencies aligns fibroblasts in direction of zero strain. <i>PLoS ONE</i> , <b>2011</b> , 6, e28963	3.7	104
81	Force-induced adsorption and anisotropic growth of focal adhesions. <i>Biophysical Journal</i> , <b>2006</b> , 90, 3469-3484	8.4	99
80	Limitation of cell adhesion by the elasticity of the extracellular matrix. <i>Biophysical Journal</i> , <b>2006</b> , 91, 61-73	7.9	99
79	Hybrid lipids as a biological surface-active component. <i>Biophysical Journal</i> , <b>2009</b> , 97, 1087-94	2.9	97
78	Line active hybrid lipids determine domain size in phase separation of saturated and unsaturated lipids. <i>Biophysical Journal</i> , <b>2010</b> , 98, L21-3	2.9	69
77	Cell shape, spreading symmetry and the polarization of stress-fibers in cells. <i>Journal of Physics Condensed Matter</i> , <b>2010</b> , 22, 194110	1.8	64
76	Do cells sense stress or strain? Measurement of cellular orientation can provide a clue. <i>Biophysical Journal</i> , <b>2008</b> , 94, L29-31	2.9	63
75	Temperature dependence of the thermodynamics and kinetics of micellar solutions. <i>Langmuir</i> , <b>2004</b> , 20, 2199-207	4	57

74	Physics of cell elasticity, shape and adhesion. <i>Physica A: Statistical Mechanics and Its Applications</i> , <b>2005</b> , 352, 171-201	3.3	56
73	Dynamical theory of active cellular response to external stress. <i>Physical Review E</i> , <b>2008</b> , 78, 031923	2.4	52
72	Chain ordering of hybrid lipids can stabilize domains in saturated/hybrid/cholesterol lipid membranes. <i>Europhysics Letters</i> , <b>2010</b> , 91, 28002	1.6	50
71	Hybrid lipids increase the probability of fluctuating nanodomains in mixed membranes. <i>Langmuir</i> , <b>2013</b> , 29, 5246-61	4	49
70	Dynamics of cellular focal adhesions on deformable substrates: consequences for cell force microscopy. <i>Biophysical Journal</i> , <b>2008</b> , 95, 527-39	2.9	47
69	Scaling laws for the response of nonlinear elastic media with implications for cell mechanics. <i>Physical Review Letters</i> , <b>2012</b> , 108, 178103	7.4	43
68	Active elasticity of gels with contractile cells. <i>Physical Review Letters</i> , <b>2006</b> , 97, 128103	7.4	43
67	Electrostatic interactions of asymmetrically charged membranes. <i>Europhysics Letters</i> , <b>2007</b> , 79, 48002	1.6	42
66	Role of cross-links in bundle formation, phase separation and gelation of long filaments. <i>Europhysics Letters</i> , <b>2003</b> , 63, 139-145	1.6	42
65	Enhanced counterion localization induced by surface charge modulation. <i>Europhysics Letters</i> , <b>2002</b> , 58, 785-791	1.6	41
64	Statistical Thermodynamics of Surfaces, Interfaces, and Membranes		40
63	Polymer-induced membrane contraction, phase separation, and fusion via Marangoni flow. <i>Biophysical Journal</i> , <b>2001</b> , 81, 659-66	2.9	38
62	Striated acto-myosin fibers can reorganize and register in response to elastic interactions with the matrix. <i>Biophysical Journal</i> , <b>2011</b> , 100, 2706-15	2.9	37
61	Direct measurement of sub-Debye-length attraction between oppositely charged surfaces. <i>Physical Review Letters</i> , <b>2009</b> , 103, 118304	7.4	37
60	Line active molecules promote inhomogeneous structures in membranes: theory, simulations and experiments. <i>Advances in Colloid and Interface Science</i> , <b>2014</b> , 208, 58-65	14.3	36
59	Substrate stiffness-modulated registry phase correlations in cardiomyocytes map structural order to coherent beating. <i>Nature Communications</i> , <b>2015</b> , 6, 6085	17.4	36
58	Ordering of myosin II filaments driven by mechanical forces: experiments and theory. <i>Philosophical Transactions of the Royal Society B: Biological Sciences</i> , <b>2018</b> , 373,	5.8	35
57	Screening length for finite-size ions in concentrated electrolytes. <i>Physical Review E</i> , <b>2019</b> , 100, 042615	2.4	32

56	Line tension between domains in multicomponent membranes is sensitive to degree of unsaturation of hybrid lipids. <i>Soft Matter</i> , <b>2011</b> , 7, 7021	3.6	31
55	Universal reduction of pressure between charged surfaces by long-wavelength surface charge modulation. <i>Europhysics Letters</i> , <b>2002</b> , 60, 629-635	1.6	31
54	Nonlinearities of biopolymer gels increase the range of force transmission. <i>Physical Review E</i> , <b>2015</b> , 92, 032728	2.4	30
53	Long-range interaction between heterogeneously charged membranes. <i>Langmuir</i> , <b>2011</b> , 27, 4439-46	4	30
52	Theoretical concepts and models of cellular mechanosensing. <i>Methods in Cell Biology</i> , <b>2010</b> , 98, 143-75	1.8	29
51	Measurement of cellular forces at focal adhesions using elastic micro-patterned substrates. <i>Materials Science and Engineering C</i> , <b>2003</b> , 23, 387-394	8.3	29
50	Scaling relations for counterion release and attraction of oppositely charged surfaces. <i>Europhysics Letters</i> , <b>2005</b> , 69, 826-831	1.6	29
49	Equilibrium domains on heterogeneously charged surfaces. <i>Langmuir</i> , <b>2007</b> , 23, 12016-23	4	28
48	Living Matter: Mesoscopic Active Materials. <i>Advanced Materials</i> , <b>2018</b> , 30, e1707028	24	28
47	Statistical thermodynamics of soft surfaces. <i>Surface Science</i> , <b>2002</b> , 500, 127-146	1.8	24
46	Sarcomeric pattern formation by actin cluster coalescence. <i>PLoS Computational Biology</i> , <b>2012</b> , 8, e1002544		23
45	How cells feel their substrate: spontaneous symmetry breaking of active surface stresses. <i>Soft Matter</i> , <b>2012</b> , 8, 3223	3.6	22
44	Designer protein assemblies with tunable phase diagrams in living cells. <i>Nature Chemical Biology</i> , <b>2020</b> , 16, 939-945	11.7	20
43	Initiation and dynamics of hemifusion in lipid bilayers. <i>Biophysical Journal</i> , <b>2003</b> , 85, 381-9	2.9	19
42	Effect of charge inhomogeneity and mobility on colloid aggregation. <i>Langmuir</i> , <b>2012</b> , 28, 8329-36	4	18
41	Red blood cell shape and fluctuations: cytoskeleton confinement and ATP activity. <i>Journal of Biological Physics</i> , <b>2005</b> , 31, 453-64	1.6	18
40	Dynamics of elastic interactions in soft and biological matter. <i>Physical Review E</i> , <b>2013</b> , 87, 042703	2.4	17
39	Self assembly modulated by interactions of two heterogeneously charged surfaces. <i>Physical Review Letters</i> , <b>2008</b> , 101, 128101	7.4	17

38	Response of adherent cells to mechanical perturbations of the surrounding matrix. <i>Soft Matter</i> , <b>2015</b> , 11, 1412-24	3.6	16
37	Attractive instability of oppositely charged membranes induced by charge density fluctuations. <i>Physical Review Letters</i> , <b>2004</b> , 93, 138101	7.4	16
36	Scaling laws indicate distinct nucleation mechanisms of holes in the nuclear lamina. <i>Nature Physics</i> , <b>2019</b> , 15, 823-829	16.2	15
35	Elastic interactions synchronize beating in cardiomyocytes. <i>Soft Matter</i> , <b>2016</b> , 12, 6088-95	3.6	15
34	Filament networks attached to membranes: cytoskeletal pressure and local bilayer deformation. <i>New Journal of Physics</i> , <b>2007</b> , 9, 430-430	2.9	15
33	Live imaging of chromatin distribution reveals novel principles of nuclear architecture and chromatin compartmentalization. <i>Science Advances</i> , <b>2021</b> , 7,	14.3	15
32	Prediction of the dependence of the line tension on the composition of linactants and the temperature in phase separated membranes. <i>Langmuir</i> , <b>2014</b> , 30, 11734-45	4	14
31	Mechanical consequences of cellular force generation. <i>Current Opinion in Solid State and Materials Science</i> , <b>2011</b> , 15, 169-176	12	14
30	Active volume regulation in adhered cells. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , <b>2020</b> , 117, 5604-5609	11.5	12
29	Compressive elasticity of polydisperse biopolymer gels. <i>Physical Review E</i> , <b>2017</b> , 95, 052415	2.4	11
28	Scattering form factors for self-assembled network junctions. <i>Journal of Chemical Physics</i> , <b>2007</b> , 127, 204711	3.9	11
27	Hybrid lipids increase nanoscale fluctuation lifetimes in mixed membranes. <i>Physical Review E</i> , <b>2013</b> , 88, 032708	2.4	10
26	Nematic order by elastic interactions and cellular rigidity sensing. <i>Europhysics Letters</i> , <b>2011</b> , 93, 28007	1.6	9
25	Mesoscale phase separation of chromatin in the nucleus. <i>ELife</i> , <b>2021</b> , 10,	8.9	9
24	Theory of frequency response of mechanically driven cardiomyocytes. <i>Scientific Reports</i> , <b>2018</b> , 8, 2237	4.9	8
23	Introductory physics going soft. <i>American Journal of Physics</i> , <b>2012</b> , 80, 51-60	0.7	7
22	Equilibrium size distribution and phase separation of multivalent, molecular assemblies in dilute solution. <i>Soft Matter</i> , <b>2020</b> , 16, 5458-5469	3.6	7
21	Physical theory of biological noise buffering by multicomponent phase separation. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , <b>2021</b> , 118,	11.5	7

20	Transcription rates in DNA brushes. <i>Soft Matter</i> , <b>2015</b> , 11, 3017-21	3.6	6
19	Evolution in students' understanding of thermal physics with increasing complexity. <i>Physical Review Physics Education Research</i> , <b>2013</b> , 9,		6
18	Registry Kinetics of Myosin Motor Stacks Driven by Mechanical Force-Induced Actin Turnover. <i>Biophysical Journal</i> , <b>2019</b> , 117, 856-866	2.9	4
17	Cholesterol tilting drives phase separation in lipid bilayer membranes. <i>Soft Matter</i> , <b>2012</b> , 8, 5439	3.6	4
16	Is the Mechanics of Cell-Matrix Adhesion Amenable to Physical Modeling?. <i>Journal of Adhesion Science and Technology</i> , <b>2010</b> , 24, 2203-2214	2	4
15	Theory of the mechanical response of focal adhesions to shear flow. <i>Journal of Physics Condensed Matter</i> , <b>2010</b> , 22, 194111	1.8	4
14	Diffusion in a soft confining environment: dynamic effects of thermal fluctuations. <i>Physical Review E</i> , <b>2012</b> , 86, 031111	2.4	4
13	Physics of Spontaneous Calcium Oscillations in Cardiac Cells and Their Entrainment. <i>Physical Review Letters</i> , <b>2019</b> , 122, 198101	7.4	3
12	Cardiomyocyte Calcium Ion Oscillations-Lessons From Physics. <i>Frontiers in Physiology</i> , <b>2020</b> , 11, 164	4.6	3
11	Visualizing the Entropy Change of a Thermal Reservoir. <i>Journal of Chemical Education</i> , <b>2014</b> , 91, 380-385	2.4	3
10	Long-Time Phase Correlations Reveal Regulation of Beating Cardiomyocytes. <i>Physical Review Letters</i> , <b>2020</b> , 125, 258101	7.4	2
9	Live imaging of chromatin distribution in muscle nuclei reveals novel principles of nuclear architecture and chromatin compartmentalization		2
8	Metabolic remodeling of the human red blood cell membrane measured by quantitative phase microscopy <b>2011</b> ,		1
7	Competitive adsorption of amphiphilic molecules and the stability of water-swollen micelles in oil. <i>Langmuir</i> , <b>2005</b> , 21, 7109-20	4	1
6	Mesoscale phase separation of chromatin in the nucleus		1
5	Confined Polymers in a Poor Solvent: The Role of Bonding to the Surface. <i>Macromolecules</i> , <b>2021</b> , 54, 4760-4768	5.5	1
4	Physical theory of biological noise buffering by multi-component phase separation		1
3	Balance of osmotic pressures determines the nuclear-to-cytoplasmic volume ratio of the cell.. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , <b>2022</b> , 119, e2118301119	11.5	0

2 In memory of pierre-gilles de gennes. *Journal of Physical Chemistry B*, **2009**, 113, 3591-2 3.4

1 Elastic Interactions of Biological Cells **2005**, 329-342