Nir S Gov

List of Publications by Year
in descending order

157 papers	7,691 citations	53794 45 h-index	66911 78 g-index
172 all docs	172 docs citations	172 times ranked	6987 citing authors

#	Article	IF	Citations
1	Actin Flows Mediate a Universal Coupling between Cell Speed and Cell Persistence. Cell, 2015, 161, 374-386.	28.9	369
2	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.	7.1	358
3	Lateral mobility of proteins in liquid membranes revisited. Proceedings of the National Academy of Sciences of the United States of America, 2006, 103, 2098-2102.	7.1	342
4	Physics of active jamming during collective cellular motion in a monolayer. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 15314-15319.	7.1	334
5	Red Blood Cell Membrane Fluctuations and Shape Controlled by ATP-Induced Cytoskeletal Defects. Biophysical Journal, 2005, 88, 1859-1874.	0.5	271
6	Guidance of collective cell migration by substrate geometry. Integrative Biology (United Kingdom), 2013, 5, 1026.	1.3	241
7	Equilibrium physics breakdown reveals the active nature of red blood cell flickering. Nature Physics, 2016, 12, 513-519.	16.7	231
8	Dynamics of Membranes Driven by Actin Polymerization. Biophysical Journal, 2006, 90, 454-469.	0.5	154
9	A soft cortex is essential for asymmetric spindle positioning in mouse oocytes. Nature Cell Biology, 2013, 15, 958-966.	10.3	145
10	Active diffusion positions the nucleus in mouse oocytes. Nature Cell Biology, 2015, 17, 470-479.	10.3	139
11	Membrane Undulations Driven by Force Fluctuations of Active Proteins. Physical Review Letters, 2004, 93, 268104.	7.8	126
12	Collective Cell Motility Promotes Chemotactic Prowess and Resistance to Chemorepulsion. Current Biology, 2015, 25, 242-250.	3.9	126
13	Effective Temperature of Red-Blood-Cell Membrane Fluctuations. Physical Review Letters, 2011, 106, 238103.	7.8	125
14	Gap geometry dictates epithelial closure efficiency. Nature Communications, 2015, 6, 7683.	12.8	118
15	Ant groups optimally amplify the effect of transiently informed individuals. Nature Communications, 2015, 6, 7729.	12.8	115
16	The physics of cooperative transport in groups of ants. Nature Physics, 2018, 14, 683-693.	16.7	113
17	Dynamics of Active Semiflexible Polymers. Biophysical Journal, 2014, 107, 1065-1073.	0.5	112
18	Phase Transitions of the Coupled Membrane-Cytoskeleton Modify Cellular Shape. Biophysical Journal, 2007, 93, 3798-3810.	0.5	104

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19	Activity-driven fluctuations in living cells. Europhysics Letters, 2015, 110, 48005.	2.0	103
20	Retroviral Assembly and Budding Occur through an Actin-Driven Mechanism. Biophysical Journal, 2009, 97, 2419-2428.	0.5	87
21	Membrane-Wrapping Contributions to Malaria Parasite Invasion of the Human Erythrocyte. Biophysical Journal, 2014, 107, 43-54.	0.5	85
22	Physical Model of the Dynamic Instability in an Expanding Cell Culture. Biophysical Journal, 2010, 98, 361-370.	0.5	84
23	Force Balance and Membrane Shedding at the Red-Blood-Cell Surface. Physical Review Letters, 2007, 98, 018102.	7.8	82
24	Membrane Waves Driven by Actin and Myosin. Physical Review Letters, 2007, 98, 168103.	7.8	80
25	Nonequilibrium membrane fluctuations driven by active proteins. Journal of Chemical Physics, 2006, 124, 074903.	3.0	76
26	F-actin mechanics control spindle centring in the mouse zygote. Nature Communications, 2016, 7, 10253.	12.8	75
27	Guided by curvature: shaping cells by coupling curved membrane proteins and cytoskeletal forces. Philosophical Transactions of the Royal Society B: Biological Sciences, 2018, 373, 20170115.	4.0	74
28	Dynamic compartmentalization of protein tyrosine phosphatase receptor Q at the proximal end of stereocilia: Implication of myosin VIâ€based transport. Cytoskeleton, 2008, 65, 528-538.	4.4	69
29	Direct Cytoskeleton Forces Cause Membrane Softening in Red Blood Cells. Biophysical Journal, 2015, 108, 2794-2806.	0.5	67
30	Active Mechanics Reveal Molecular-Scale Force Kinetics in Living Oocytes. Biophysical Journal, 2018, 114, 1667-1679.	0.5	67
31	A narrow window of cortical tension guides asymmetric spindle positioning in the mouse oocyte. Nature Communications, 2015, 6, 6027.	12.8	66
32	Physics of cell elasticity, shape and adhesion. Physica A: Statistical Mechanics and Its Applications, 2005, 352, 171-201.	2.6	65
33	Modeling and analysis of collective cell migration in an in vivo three-dimensional environment. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, E2134-41.	7.1	63
34	A random first-order transition theory for an active glass. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 7688-7693.	7.1	63
35	Active elastic network: Cytoskeleton of the red blood cell. Physical Review E, 2007, 75, 011921.	2.1	62
36	Propagating Cell-Membrane Waves Driven by Curved Activators of Actin Polymerization. PLoS ONE, 2011, 6, e18635.	2.5	62

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37	Collective cell migration patterns: Follow the leader. Proceedings of the National Academy of Sciences of the United States of America, 2007, 104, 15970-15971.	7.1	59
38	Fluctuations of coupled fluid and solid membranes with application to red blood cells. Physical Review E, 2007, 76, 051910.	2.1	56
39	Membrane-mediated interactions drive the condensation and coalescence of FtsZ rings. Physical Biology, 2009, 6, 046017.	1.8	56
40	The Eps8/IRSp53/VASP Network Differentially Controls Actin Capping and Bundling in Filopodia Formation. PLoS Computational Biology, 2011, 7, e1002088.	3.2	56
41	Modeling the finger instability in an expanding cell monolayer. Integrative Biology (United Kingdom), 2015, 7, 1218-1227.	1.3	55
42	Cell confinement reveals a branched-actin independent circuit for neutrophil polarity. PLoS Biology, 2019, 17, e3000457.	5.6	54
43	Regulation of epithelial cell organization by tuning cellâ€“substrate adhesion. Integrative Biology (United Kingdom), 2015, 7, 1228-1241.	1.3	52
44	Long-range acoustic interactions in insect swarms: an adaptive gravity model. New Journal of Physics, 2016, 18, 073042.	2.9	52
45	Nonequilibrium dissipation in living oocytes. Europhysics Letters, 2016, 116, 30008.	2.0	51
46	Theoretical study of vesicle shapes driven by coupling curved proteins and active cytoskeletal forces. Soft Matter, 2019, 15, 5319-5330.	2.7	51
47	Theoretical Model for Cellular Shapes Driven by Protrusive and Adhesive Forces. PLoS Computational Biology, 2011, 7, e1001127.	3.2	50
48	Diffusion in curved fluid membranes. Physical Review E, 2006, 73, 041918.	2.1	49
49	Protein Localization by Actin Treadmilling and Molecular Motors Regulates Stereocilia Shape and Treadmilling Rate. Biophysical Journal, 2008, 95, 5706-5718.	0.5	49
50	Tissue topography steers migrating <i>Drosophila</i> border cells. Science, 2020, 370, 987-990.	12.6	49
51	The geometry of decision-making in individuals and collectives. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	7.1	49
52	Traction forces during collective cell motion. HFSP Journal, 2009, 3, 223-227.	2.5	48
53	Modeling the dynamics of a tracer particle in an elastic active gel. Physical Review E, 2015, 92, 012716.	2.1	46
54	Living Matter: Mesoscopic Active Materials. Advanced Materials, 2018, 30, e1707028.	21.0	46

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55	Thickness distribution of actin bundles in vitro. European Biophysics Journal, 2008, 37, 447-454.	2.2	45
56	20S proteasomes secreted by the malaria parasite promote its growth. Nature Communications, 2021, 12, 1172.	12.8	45
57	On the role of membrane anisotropy and BAR proteins in the stability of tubular membrane structures. Journal of Biomechanics, 2012, 45, 231-238.	2.1	44
58	Nonequilibrium mode-coupling theory for dense active systems of self-propelled particles. Soft Matter, 2017, 13, 7609-7616.	2.7	44
59	Physical Model of Contractile Ring Initiation in Dividing Cells. Biophysical Journal, 2008, 94, 1155-1168.	0.5	43
60	Curling and Local Shape Changes of Red Blood Cell Membranes Driven by Cytoskeletal Reorganization. Biophysical Journal, 2010, 99, 808-816.	0.5	43
61	Modelling interacting molecular motors with an internal degree of freedom. New Journal of Physics, 2013, 15, 025009.	2.9	43
62	Propagating Waves of Directionality and Coordination Orchestrate Collective Cell Migration. PLoS Computational Biology, 2014, 10, e1003747.	3.2	43
63	Active Trap Model. Physical Review Letters, 2020, 124, 118002.	7.8	43
64	Deterministic patterns in cell motility. Nature Physics, 2016, 12, 1146-1152.	16.7	40
65	One-dimensional cell motility patterns. Physical Review Research, 2020, 2, .	3.6	40
66	Repulsive cues combined with physical barriers and cellâ€"cell adhesion determine progenitor cell positioning during organogenesis. Nature Communications, 2016, 7, 11288.	12.8	38
67	Fronts and waves of actin polymerization in a bistability-based mechanism of circular dorsal ruffles. Nature Communications, 2017, 8, 15863.	12.8	38
68	Cortactin Releases the Brakes in Actin- Based Motility by Enhancing WASP-VCA Detachment from Arp2/3 Branches. Current Biology, 2011, 21, 2092-2097.	3.9	37
69	Membrane-mediated interactions and the dynamics of dynamin oligomers on membrane tubes. New Journal of Physics, 2011, 13, 065008.	2.9	36
70	Cylindrical Cellular Geometry Ensures Fidelity of Division Site Placement in Fission Yeast. Journal of Cell Science, 2012, 125, 3850-7.	2.0	35
71	Variation of the Lateral Mobility of Transmembrane Peptides with Hydrophobic Mismatch. Journal of Physical Chemistry B, 2010, 114, 3559-3566.	2.6	34
72	Diffusion in a Fluid Membrane with a Flexible Cortical Cytoskeleton. Biophysical Journal, 2009, 96, 818-830.	0.5	33

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73	Lifetime of Major Histocompatibility Complex Class-I Membrane Clusters IsÂControlled by the Actin Cytoskeleton. Biophysical Journal, 2012, 102, 1543-1550.	0.5	33
74	Active diffusion in oocytes nonspecifically centers large objects during prophase I and meiosis I. Journal of Cell Biology, 2020, 219, .	5.2	33
75	Dynamics of Actin Waves on Patterned Substrates: A Quantitative Analysis of Circular Dorsal Ruffles. PLoS ONE, 2015, 10, e0115857.	2.5	32
76	Frustration-induced phases in migrating cell clusters. Science Advances, 2018, 4, eaar8483.	10.3	32
77	Calcium-Actin Waves and Oscillations of Cellular Membranes. Biophysical Journal, 2009, 97, 1558-1568.	0.5	30
78	Are cell jamming and unjamming essential in tissue development?. Cells and Development, 2021, 168, 203727.	1.5	30
79	Modeling the Size Distribution of Focal Adhesions. Biophysical Journal, 2006, 91, 2844-2847.	0.5	29
80	Dynamics and escape of active particles in a harmonic trap. Physical Review Research, 2020, 2, .	3.6	29
81	Chapter 4 Cytoskeletal Control of Red Blood Cell Shape. Behavior Research Methods, 2009, 10, 95-119.	4.0	28
82	Sarcomeric Pattern Formation by Actin Cluster Coalescence. PLoS Computational Biology, 2012, 8, e1002544.	3.2	28
83	Theory of Epithelial Cell Shape Transitions Induced by Mechanoactive Chemical Gradients. Biophysical Journal, 2018, 114, 968-977.	0.5	28
84	Local actin dynamics couple speed and persistence in a cellular Potts model of cell migration. Biophysical Journal, 2021, 120, 2609-2622.	0.5	28
85	Physical Model for the Geometry of Actin-Based Cellular Protrusions. Biophysical Journal, 2014, 107, 576-587.	0.5	27
86	Timing of Z-ring localization in<i>Escherichia coli</i>. Physical Biology, 2011, 8, 066003.	1.8	26
87	Modeling collective cell migration in geometric confinement. Physical Biology, 2017, 14, 035001.	1.8	26
88	Chemokine-biased robust self-organizing polarization of migrating cells in vivo. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	7.1	26
89	Transport dynamics of molecular motors that switch between an active and inactive state. Physical Review E, 2013, 88, 022714.	2.1	24
90	Dynamics and Morphology of Microvilli Driven by Actin Polymerization. Physical Review Letters, 2006, 97, 018101.	7.8	23

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91	Packing defects and the width of biopolymer bundles. Physical Review E, 2008, 78, 011916.	2.1	23
92	Tuning the adhesive geometry of neurons: length and polarity control. Soft Matter, 2014, 10, 2381.	2.7	23
93	Red Blood Cell Shape and Fluctuations: Cytoskeleton Confinement and ATP Activity. Journal of Biological Physics, 2005, 31, 453-464.	1.5	22
94	Tuning of Differential Lipid Order Between Submicrometric Domains and Surrounding Membrane Upon Erythrocyte Reshaping. Cellular Physiology and Biochemistry, 2018, 48, 2563-2582.	1.6	22
95	Emergent oscillations assist obstacle negotiation during ant cooperative transport. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, 14615-14620.	7.1	21
96	Less is more: removing membrane attachments<i>stiffens</i>the RBC cytoskeleton. New Journal of Physics, 2007, 9, 429-429.	2.9	20
97	Pearling instability of membrane tubes driven by curved proteins and actin polymerization. Physical Biology, 2015, 12, 066022.	1.8	20
98	Self-organization of waves and pulse trains by molecular motors in cellular protrusions. Scientific Reports, 2015, 5, 13521.	3.3	20
99	Modelling cellular spreading and emergence of motility in the presence of curved membrane proteins and active cytoskeleton forces. European Physical Journal Plus, 2021, 136, 1.	2.6	20
100	Morphological Transitions during the Formation of Templated Mesoporous Materials:â€‰ Theoretical Modeling. Langmuir, 2006, 22, 605-614.	3.5	19
101	Linking actin networks and cell membrane via a reaction-diffusion-elastic description of nonlinear filopodia initiation. Physical Review E, 2013, 88, 022718.	2.1	19
102	Generalized Archimedes' principle in active fluids. Physical Review E, 2017, 96, 032606.	2.1	19
103	Moving under peer pressure. Nature Materials, 2011, 10, 412-414.	27.5	18
104	Filament networks attached to membranes: cytoskeletal pressure and local bilayer deformation. New Journal of Physics, 2007, 9, 430-430.	2.9	17
105	Spatial Fluctuations at Vertices of Epithelial Layers: Quantification of Regulation by Rho Pathway. Biophysical Journal, 2018, 114, 939-946.	0.5	17
106	Collective conflict resolution in groups on the move. Physical Review E, 2018, 97, 032304.	2.1	17
107	Effect of shortâ€range forces on the length distribution of fibrous cytoskeletal proteins. Biopolymers, 2008, 89, 711-721.	2.4	16
108	Exciting cytoskeleton-membrane waves. Physical Review E, 2008, 78, 041911.	2.1	16

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109	Modeling FtsZ ring formation in the bacterial cellâ€”anisotropic aggregation via mutual interactions of polymer rods. Physical Biology, 2011, 8, 026007.	1.8	16
110	Traffic jams and shocks of molecular motors inside cellular protrusions. Physical Review E, 2014, 89, 052703.	2.1	16
111	Signatures of motor susceptibility to forces in the dynamics of a tracer particle in an active gel. Physical Review E, 2019, 99, 022419.	2.1	16
112	Bi-stability in cooperative transport by ants in the presence of obstacles. PLoS Computational Biology, 2018, 14, e1006068.	3.2	15
113	FtsZ rings and helices: physical mechanisms for the dynamic alignment of biopolymers in rod-shaped bacteria. Physical Biology, 2012, 9, 016009.	1.8	14
114	Inside a quantum solid. Contemporary Physics, 2003, 44, 145-151.	1.8	13
115	Competition and compensation. Bioarchitecture, 2012, 2, 171-174.	1.5	12
116	Patterning of Polar Active Filaments on a Tense Cylindrical Membrane. Physical Review Letters, 2013, 110, 168104.	7.8	11
117	Exclusion and Hierarchy of Time Scales Lead to Spatial Segregation of Molecular Motors in Cellular Protrusions. Physical Review Letters, 2017, 118, 018102.	7.8	11
118	Forces in inhomogeneous open active-particle systems. Physical Review E, 2017, 96, 052409.	2.1	11
119	Geometrical Determinants of Neuronal Actin Waves. Frontiers in Cellular Neuroscience, 2017, 11, 86.	3.7	11
120	Cellular Blebs and Membrane Invaginations Are Coupled through Membrane Tension Buffering. Biophysical Journal, 2019, 117, 1485-1495.	0.5	11
121	Stable swarming using adaptive long-range interactions. Physical Review E, 2017, 95, 042405.	2.1	10
122	Theory of the length distribution of tread-milling actin filaments inside bundles. Europhysics Letters, 2007, 77, 68005.	2.0	9
123	Physical model for the width distribution of axons. European Physical Journal E, 2009, 29, 337-344.	1.6	9
124	Cell cluster migration: Connecting experiments with physical models. Seminars in Cell and Developmental Biology, 2019, 93, 77-86.	5.0	9
125	Why a Large-Scale Mode Can Be Essential for Understanding Intracellular Actin Waves. Cells, 2020, 9, 1533.	4.1	9
126	Sequential Decision-Making in Ants and Implications to the Evidence Accumulation Decision Model. Frontiers in Applied Mathematics and Statistics, 2021, 7, .	1.3	7

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127	bcc4Heas a coherent quantum solid. Physical Review B, 2000, 62, 910-918.	3.2	6
128	Vortex-Loops and Solid Nucleation in Superfluid 4He and 3He. Journal of Low Temperature Physics, 2002, 129, 25-42.	1.4	6
129	A Biophysical Model for the Staircase Geometry of Stereocilia. PLoS ONE, 2015, 10, e0127926.	2.5	6
130	Excitable solitons: Annihilation, crossover, and nucleation of pulses in mass-conserving activator-inhibitor media. Physical Review E, 2020, 101, 022213.	2.1	6
131	Cell-Substrate Patterns Driven by Curvature-Sensitive Actin Polymerization: Waves and Podosomes. Cells, 2020, 9, 782.	4.1	6
132	Similarities between insect swarms and isothermal globular clusters. Physical Review Research, 2020, 2, .	3.6	6
133	Correlated Atomic Motion and Spin-Ordering in bcc 3He. Journal of Low Temperature Physics, 2002, 128, 55-85.	1.4	5
134	Phases of membrane tubules pulled by molecular motors. Soft Matter, 2009, 5, 2431.	2.7	5
135	Releasing the brakes while hanging on. Bioarchitecture, 2012, 2, 11-14.	1.5	5
136	Electrifying movement. Nature Materials, 2014, 13, 331-332.	27.5	5
137	Reactionâ€"diffusionâ€"advection approach to spatially localized treadmilling aggregates of molecular motors. Physica D: Nonlinear Phenomena, 2016, 318-319, 84-90.	2.8	4
138	Vortex-Loops and Phase Nucleation in Superfluid 4He and 3He. Journal of Low Temperature Physics, 2002, 126, 621-625.	1.4	3
139	Cytoskeletal connectivity may guide erythrocyte membrane ex- and invagination â€" A discussion point how biophysical principles might be exploited by a parasite invading erythrocytes. Blood Cells, Molecules, and Diseases, 2017, 65, 78-80.	1.4	3
140	Cytoskeletal Reorganization of Red Blood Cell Shape: Curling of Free Edges and Malaria Merozoites. Behavior Research Methods, 2011, 13, 73-102.	4.0	3
141	Spatiotemporal dynamics of animal contests arise from effective forces between contestants. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	7.1	3
142	Ants resort to majority concession to reach democratic consensus in the presence of a persistent minority. Current Biology, 2022, 32, 645-653.e8.	3.9	3
143	Unusual Doppler shift of fourth sound in a 3Heâ^'4He mixture. Physics Letters, Section A: General, Atomic and Solid State Physics, 1993, 182, 149-152.	2.1	2
144	Pair formation in insect swarms driven by adaptive long-range interactions. Journal of the Royal Society Interface, 2020, 17, 20200367.	3.4	2

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145	Extraordinary sensitivity of the internal Doppler effect in a superfluidâˆ'34He admixture. Physical Review B, 1995, 52, 6739-6768.	3.2	1
146	The role of point defects in melting of solid He. Physica B: Condensed Matter, 2000, 280, 142-145.	2.7	1
147	Bcc 4He as a Coherent Quantum Solid: â€œSuper-Solidâ€?. Journal of Low Temperature Physics, 2000, 121, 731-736.	1.4	1
148	Quantum Nature of Dislocations in Pure bcc Helium. Journal of Low Temperature Physics, 2001, 125, 143-151.	1.4	1
149	Coherent dipolar correlations in the low-temperature phase of geometrically frustrated SrCr8$minus$xGa4$plus$xO19. Journal of Physics Condensed Matter, 2002, 14, 6931-6940.	1.8	1
150	Metabolic remodeling of the human red blood cell membrane measured by quantitative phase microscopy. , 2011, , .		1
151	Unusual Doppler effect in superfluid and nonanalyticity of4He-3He hydrodynamics. Journal of Low Temperature Physics, 1995, 100, 365-379.	1.4	0
152	Topological defects and HCP nucleation in BCC helium. Physica B: Condensed Matter, 2003, 329-333, 382-383.	2.7	0
153	Spin ordering and coherent atomic motion in bcc solid. Physica B: Condensed Matter, 2003, 329-333, 400-401.	2.7	0
154	The complexity of living: when biology meets theory. Conference on Systems Dynamics of Intracellular Communication. EMBO Reports, 2009, 10, 1279-1279.	4.5	0
155	Cooperative dynamics. Journal of Physics Condensed Matter, 2011, 23, 370301.	1.8	0
156	Keep politics out of academia in Israel. Nature, 2012, 488, 281-281.	27.8	0
157	Three-ring circus without a ringmaster: Self-organization of supracellular actin ring patterns during epithelial morphogenesis. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 8521-8522.	7.1	0