

Philip C Nelson

List of Publications by Year in descending order

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112
papers

5,887
citations

50244

46
h-index

74108

75
g-index

115
all docs

115
docs citations

115
times ranked

3650
citing authors

#	ARTICLE	IF	CITATIONS
1	High flexibility of DNA on short length scales probed by atomic force microscopy. Nature Nanotechnology, 2006, 1, 137-141.	15.6	345
2	Torsional directed walks, entropic elasticity, and DNA twist stiffness. Proceedings of the National Academy of Sciences of the United States of America, 1997, 94, 14418-14422.	3.3	262
3	Entropic Elasticity of Twist-Storing Polymers. Macromolecules, 1998, 31, 6333-6347.	2.2	181
4	Exact theory of kinkable elastic polymers. Physical Review E, 2005, 71, 021909.	0.8	178
5	Bosonization on higher genus Riemann surfaces. Communications in Mathematical Physics, 1987, 112, 503-552.	1.0	176
6	Theory of high-force DNA stretching and overstretching. Physical Review E, 2003, 67, 051906.	0.8	175
7	An off-shell propagator for string theory. Nuclear Physics B, 1986, 267, 143-157.	0.9	162
8	Measure for moduli The Polyakov string has no nonlocal anomalies. Nuclear Physics B, 1986, 266, 58-74.	0.9	161
9	Biological consequences of tightly bent DNA: The other life of a macromolecular celebrity. Biopolymers, 2007, 85, 115-130.	1.2	158
10	The role of microtubule movement in bidirectional organelle transport. Proceedings of the National Academy of Sciences of the United States of America, 2008, 105, 10011-10016.	3.3	131
11	Hard Spheres in Vesicles: Curvature-Induced Forces and Particle-Induced Curvature. Physical Review Letters, 1998, 80, 409-412.	2.9	130
12	Hamiltonian interpretation of anomalies. Communications in Mathematical Physics, 1985, 99, 103-114.	1.0	129
13	Dynamic Excitations in Membranes Induced by Optical Tweezers. Biophysical Journal, 1998, 75, 294-320.	0.2	128
14	Dynamical Theory of the Pearling Instability in Cylindrical Vesicles. Physical Review Letters, 1995, 74, 3384-3387.	2.9	122
15	Elasticity of Short DNA Molecules: Theory and Experiment for Contour Lengths of $0.6 \leq L \leq 1 \mu\text{m}$. Biophysical Journal, 2007, 93, 4360-4373.	0.2	122
16	Transport of torsional stress in DNA. Proceedings of the National Academy of Sciences of the United States of America, 1999, 96, 14342-14347.	3.3	118
17	Strings and supermoduli. Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 1986, 169, 47-53.	1.5	114
18	Surfactant-Mediated Two-Dimensional Crystallization of Colloidal Crystals. Science, 1999, 286, 2325-2328.	6.0	113

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19	Volume-Exclusion Effects in Tethered-Particle Experiments: Bead Size Matters. <i>Physical Review Letters</i> , 2006, 96, 088306.	2.9	113
20	Bosonization in arbitrary genus. <i>Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics</i> , 1986, 178, 41-47.	1.5	110
21	Global Color Is Not Always Defined. <i>Physical Review Letters</i> , 1983, 50, 943-945.	2.9	108
22	Anomalies in Nonlinear Sigma Models. <i>Physical Review Letters</i> , 1984, 53, 1519-1522.	2.9	103
23	Direct determination of DNA twist-stretch coupling. <i>Europhysics Letters</i> , 1997, 38, 237-242.	0.7	94
24	Dynamically stabilized pores in bilayer membranes. <i>Biophysical Journal</i> , 1997, 72, 2211-2216.	0.2	91
25	Tethered Particle Motion as a Diagnostic of DNA Tether Length. <i>Journal of Physical Chemistry B</i> , 2006, 110, 17260-17267.	1.2	91
26	Generalized theory of semiflexible polymers. <i>Physical Review E</i> , 2006, 73, 031906.	0.8	91
27	Role of Bilayer Tilt Difference in Equilibrium Membrane Shapes. <i>Physical Review Letters</i> , 1996, 77, 5237-5240.	2.9	82
28	Concentration and Length Dependence of DNA Looping in Transcriptional Regulation. <i>PLoS ONE</i> , 2009, 4, e5621.	1.1	82
29	Fermionic strings in the operator formalism. <i>Nuclear Physics B</i> , 1988, 311, 333-400.	0.9	76
30	The aetiology of sigma model anomalies. <i>Communications in Mathematical Physics</i> , 1985, 100, 83-132.	1.0	75
31	Lectures on strings and moduli space. <i>Physics Reports</i> , 1987, 149, 337-375.	10.3	72
32	Electrostatic Repulsion of Positively Charged Vesicles and Negatively Charged Objects. <i>Science</i> , 1999, 285, 394-397.	6.0	66
33	Twirling of Actin by Myosins II and V Observed via Polarized TIRF in a Modified Gliding Assay. <i>Biophysical Journal</i> , 2008, 95, 5820-5831.	0.2	66
34	Rigid chiral membranes. <i>Physical Review Letters</i> , 1992, 69, 3409-3412.	2.9	62
35	Measure factors, tension, and correlations of fluid membranes. <i>Journal De Physique II</i> , 1994, 4, 931-949.	0.9	62
36	Fast, Scalable, Bayesian Spike Identification for Multi-Electrode Arrays. <i>PLoS ONE</i> , 2011, 6, e19884.	1.1	61

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37	What becomes of global color. Nuclear Physics B, 1984, 237, 1-31.	0.9	58
38	Semi-off-shell string amplitudes. Nuclear Physics B, 1987, 281, 127-144.	0.9	58
39	The geometry of super Riemann surfaces. Communications in Mathematical Physics, 1988, 116, 607-634.	1.0	58
40	Tilting and Wobble of Myosin V by High-Speed Single-Molecule Polarized Fluorescence Microscopy. Biophysical Journal, 2013, 104, 1263-1273.	0.2	58
41	Sequence-Disorder Effects on DNA Entropic Elasticity. Physical Review Letters, 1998, 80, 5810-5812.	2.9	57
42	Covariant insertion of general vertex operators. Physical Review Letters, 1989, 62, 993-996.	2.9	55
43	Front Propagation in the Pearling Instability of Tubular Vesicles. Journal De Physique II, 1996, 6, 767-796.	0.9	55
44	Straightening of Thermal Fluctuations in Semiflexible Polymers by Applied Tension. Physical Review Letters, 1996, 77, 5389-5392.	2.9	55
45	First-principles calculation of DNA looping in tethered particle experiments. Physical Biology, 2009, 6, 025001.	0.8	52
46	Modular forms and the cosmological constant. Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 1986, 178, 167-173.	1.5	49
47	Heterotic geometry. Nuclear Physics B, 1986, 274, 509-519.	0.9	44
48	A comment on sigma model anomalies. Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 1985, 152, 68-74.	1.5	40
49	Topological couplings and contact terms in 2d field theory. Communications in Mathematical Physics, 1991, 138, 273-290.	1.0	40
50	DNA Looping Kinetics Analyzed Using Diffusive Hidden Markov Model. Biophysical Journal, 2007, 92, L64-L66.	0.2	37
51	Spin- $\frac{1}{2}$ Bosonization on Compact Surfaces. Physical Review Letters, 1986, 57, 795-798.	2.9	36
52	The Syncytial Drosophila Embryo as a Mechanically Excitable Medium. PLoS ONE, 2013, 8, e77216.	1.1	36
53	Renormalization of chiral couplings in titled bilayer membranes. Journal De Physique II, 1993, 3, 1535-1569.	0.9	31
54	New discrete states of strings near a black hole. Nuclear Physics B, 1992, 374, 123-155.	0.9	30

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55	Spontaneous Expulsion of Giant Lipid Vesicles Induced by Laser Tweezers. <i>Physical Review Letters</i> , 1997, 78, 386-389.	2.9	30
56	Line bundles on super Riemann surfaces. <i>Communications in Mathematical Physics</i> , 1988, 118, 289-302.	1.0	29
57	Excitations of SU(5) Monopoles. <i>Physical Review Letters</i> , 1983, 50, 939-942.	2.9	28
58	Torsion Constraints and Super Riemann Surfaces. <i>Physical Review Letters</i> , 1987, 59, 2619-2622.	2.9	28
59	Unambiguous fermionic-string amplitudes. <i>Physical Review Letters</i> , 1989, 63, 24-27.	2.9	28
60	Effective field equations for fermionic strings. <i>Nuclear Physics B</i> , 1990, 332, 83-130.	0.9	27
61	Effect of supercoiling on formation of protein-mediated DNA loops. <i>Physical Review E</i> , 2006, 74, 061907.	0.8	27
62	Gravity with propagating pseudoscalar torsion. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 1980, 79, 285-287.	0.9	24
63	Elementary simulation of tethered Brownian motion. <i>American Journal of Physics</i> , 2007, 75, 520-523.	0.3	24
64	STRESS TENSOR PERTURBATIONS IN CONFORMAL FIELD THEORY. <i>International Journal of Modern Physics A</i> , 1991, 06, 4909-4924.	0.5	22
65	Calibration of Tethered Particle Motion Experiments. <i>The IMA Volumes in Mathematics and Its Applications</i> , 2009, , 123-138.	0.5	22
66	New Measurements of DNA Twist Elasticity. <i>Biophysical Journal</i> , 1998, 74, 2501-2503.	0.2	20
67	The dilaton equation in semirigid string theory. <i>Nuclear Physics B</i> , 1991, 366, 255-272.	0.9	19
68	Semirigid supergravity. <i>Physical Review Letters</i> , 1991, 66, 1955-1958.	2.9	19
69	Elasticity theory of a twisted stack of plates. <i>European Physical Journal B</i> , 1998, 1, 95-102.	0.6	18
70	Spare the (Elastic) Rod. <i>Science</i> , 2012, 337, 1045-1046.	6.0	18
71	Changepoint Analysis for Single-Molecule Polarized Total Internal Reflection Fluorescence Microscopy Experiments. <i>Methods in Enzymology</i> , 2011, 487, 431-463.	0.4	17
72	Glino pair production in electron-positron annihilation. <i>Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics</i> , 1982, 115, 407-409.	1.5	16

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73	The bend stiffness of S-DNA. Europhysics Letters, 2003, 62, 760-766.	0.7	16
74	Transformation of Stimulus Correlations by the Retina. PLoS Computational Biology, 2013, 9, e1003344.	1.5	16
75	What Future Will We Choose for Physics?. Physics Today, 1995, 48, 25-30.	0.3	15
76	Fluctuating Membranes with Tilt Order. Journal De Physique II, 1995, 5, 1671-1678.	0.9	15
77	Holomorphic coordinates for supermoduli space. Communications in Mathematical Physics, 1988, 115, 167-175.	1.0	13
78	Diffusive hidden Markov model characterization of DNA looping dynamics in tethered particle experiments. Physical Biology, 2007, 4, 205-219.	0.8	13
79	Virasoro model space. Communications in Mathematical Physics, 1990, 134, 539-554.	1.0	11
80	Entropic Elasticity of DNA with a Permanent Kink. Macromolecules, 2006, 39, 8816-8821.	2.2	11
81	Charge-reversal instability in mixed bilayer vesicles. Physical Review E, 2000, 62, 2608-2619.	0.8	10
82	The Role of Quantum Decoherence in FRET. Biophysical Journal, 2018, 115, 167-172.	0.2	10
83	Fermions and the Kaluza-Klein monopole. Nuclear Physics B, 1984, 238, 638-652.	0.9	8
84	Semirigid geometry. Communications in Mathematical Physics, 1992, 147, 253-275.	1.0	8
85	Teaching Biological Physics. Physics Today, 2005, 58, 46-51.	0.3	8
86	Colloidal particle motion as a diagnostic of DNA conformational transitions. Current Opinion in Colloid and Interface Science, 2007, 12, 307-313.	3.4	8
87	Old and new results about single-photon sensitivity in human vision. Physical Biology, 2016, 13, 025001.	0.8	8
88	INTRODUCTION TO SUPERMANIFOLDS. International Journal of Modern Physics A, 1988, 03, 585-590.	0.5	6
89	Semirigid construction of topological supergravities. Nuclear Physics B, 1991, 365, 633-652.	0.9	6
90	Twist-Stretch Elasticity of DNA. Materials Research Society Symposia Proceedings, 1996, 463, 43.	0.1	4

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91	A Demonstration of the Infrared Activity of Carbon Dioxide. <i>Physics Teacher</i> , 2019, 57, 246-249.	0.2	4
92	Hitchhiking through the cytoplasm. <i>Europhysics Letters</i> , 2008, 81, 18001.	0.7	3
93	An Application of Microprogramming to Nuclear Physics Data Acquisition. <i>IEEE Transactions on Nuclear Science</i> , 1980, 27, 1359-1361.	1.2	2
94	Cohomology and the operator formalism. <i>Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics</i> , 1989, 221, 31-34.	1.5	2
95	Reply to "Comment on "Theory of high-force DNA stretching and overstretching". <i>Physical Review E</i> , 2004, 70, 013902.	0.8	2
96	Comment on "Rotational Drag on DNA: A Single Molecule Experiment". <i>Physical Review Letters</i> , 2004, 92, 159801; author reply 159802.	2.9	2
97	First-principles Calculation Of DNA Looping In Tethered Particle Experiments. <i>Biophysical Journal</i> , 2009, 96, 556a.	0.2	2
98	Bosonization on Higher Genus Riemann Surface. , 1994, , 332-381.		2
99	Stochastic Simulation to Visualize Gene Expression and Error Correction in Living Cells. <i>The Biophysicist</i> , 2020, 1, .	0.1	1
100	Those Magnetic Feynman Tapes. <i>Physics Today</i> , 1989, 42, 13-15.	0.3	0
101	Physical states of the string in a black hole background. <i>Nuclear Physics, Section B, Proceedings Supplements</i> , 1992, 25, 104-108.	0.5	0
102	Single Molecule Myosin V Dynamics Using High Time Resolution Polarized TIRF. <i>Biophysical Journal</i> , 2011, 100, 154a.	0.2	0
103	Wavefronts and Mechanical Signaling in Early <i>Drosophila</i> Embryos. <i>Biophysical Journal</i> , 2013, 104, 329a.	0.2	0
104	Learning Physical Biology via Modeling and Simulation: A New Course and Textbook for Science and Engineering Undergraduates. <i>Biophysical Journal</i> , 2016, 110, 172a.	0.2	0
105	Light, Imaging, Vision: An Interdisciplinary Undergraduate Course. <i>Biophysical Journal</i> , 2017, 112, 463a.	0.2	0
106	Time to Stop Telling Biophysics Students that Light Is Primarily a Wave. <i>Biophysical Journal</i> , 2018, 114, 761-765.	0.2	0
107	Beyond Conformal Field Theory. <i>NATO ASI Series Series B: Physics</i> , 1990, , 409-413.	0.2	0
108	BOSONIZATION IN ARBITRARY GENUS. , 1994, , 382-388.		0

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109	Neural Spikes, Identification from a Multielectrode Array. , 2015, , 1019-1023.		0
110	Stochastic Modelling of Reactionâ€“Diffusion Processes by Radek Erban and S. Jonathan Chapman. The Biophysicist, 2020, 1, .	0.1	0
111	ANALYTIC STRUCTURE OF TWO-DIMENSIONAL QUANTUM FIELD THEORIES. , 1987, , .		0
112	Anomalies in Nonlinear Sigma Models. , 1989, , 1210-1213.		0