

# Paolo De Los Rios

## List of Publications by Year in descending order

Source: <https://exaly.com/author-pdf/4978381/publications.pdf>

Version: 2024-02-01

120  
papers

6,302  
citations

70961

41  
h-index

76769

74  
g-index

131  
all docs

131  
docs citations

131  
times ranked

6868  
citing authors

#	ARTICLE	IF	CITATIONS
1	Scale-Free Networks from Varying Vertex Intrinsic Fitness. <i>Physical Review Letters</i> , 2002, 89, 258702.	2.9	612
2	Understanding amyloid aggregation by statistical analysis of atomic force microscopy images. <i>Nature Nanotechnology</i> , 2010, 5, 423-428.	15.6	526
3	Hsp70 chaperones accelerate protein translocation and the unfolding of stable protein aggregates by entropic pulling. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2006, 103, 6166-6171.	3.3	220
4	The kinetic parameters and energy cost of the Hsp70 chaperone as a polypeptide unfoldase. <i>Nature Chemical Biology</i> , 2010, 6, 914-920.	3.9	205
5	Kosmotropes and chaotropes: modelling preferential exclusion, binding and aggregate stability. <i>Biophysical Chemistry</i> , 2004, 112, 45-57.	1.5	167
6	Complex network analysis of free-energy landscapes. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2007, 104, 1817-1822.	3.3	159
7	The mechanism of Hsp70 chaperones: (entropic) pulling the models together. <i>Trends in Biochemical Sciences</i> , 2007, 32, 372-380.	3.7	156
8	Molecular dissection of amyloid disaggregation by human HSP70. <i>Nature</i> , 2020, 587, 483-488.	13.7	153
9	Hydrophobic hydration of poly-N-isopropyl acrylamide: a matter of the mean energetic state of water. <i>Scientific Reports</i> , 2014, 4, 4377.	1.6	139
10	Scaling Exponents and Probability Distributions of DNA End-to-End Distance. <i>Physical Review Letters</i> , 2005, 95, 158105.	2.9	124
11	Functional Dynamics of PDZ Binding Domains: A Normal-Mode Analysis. <i>Biophysical Journal</i> , 2005, 89, 14-21.	0.2	124
12	Self-organization of <i>parS</i> centromeres by the ParB CTP hydrolase. <i>Science</i> , 2019, 366, 1129-1133.	6.0	110
13	Finding instabilities in the community structure of complex networks. <i>Physical Review E</i> , 2005, 72, 056135.	0.8	109
14	Fractal Dimension and Localization of DNA Knots. <i>Physical Review Letters</i> , 2007, 98, 058102.	2.9	109
15	Hsp70 chaperones are non-equilibrium machines that achieve ultra-affinity by energy consumption. <i>ELife</i> , 2014, 3, e02218.	2.8	98
16	Active Solubilization and Refolding of Stable Protein Aggregates By Cooperative Unfolding Action of Individual Hsp70 Chaperones. <i>Journal of Biological Chemistry</i> , 2004, 279, 37298-37303.	1.6	95
17	Spectral Coarse Graining of Complex Networks. <i>Physical Review Letters</i> , 2007, 99, 038701.	2.9	95
18	DNA-segment-capture model for loop extrusion by structural maintenance of chromosome (SMC) protein complexes. <i>Nucleic Acids Research</i> , 2019, 47, 6956-6972.	6.5	92

#	ARTICLE	IF	CITATIONS
19	Elastic Membrane Heterogeneity of Living Cells Revealed by Stiff Nanoscale Membrane Domains. <i>Biophysical Journal</i> , 2008, 94, 1521-1532.	0.2	83
20	Effective interactions between chaotropic agents and proteins. <i>Proteins: Structure, Function and Bioinformatics</i> , 2005, 61, 492-499.	1.5	81
21	Discrete Breathers in Nonlinear Network Models of Proteins. <i>Physical Review Letters</i> , 2007, 99, 238104.	2.9	80
22	Interactions between synaptic vesicle fusion proteins explored by atomic force microscopy. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2003, 100, 8736-8741.	3.3	79
23	Chaperones convert the energy from ATP into the nonequilibrium stabilization of native proteins. <i>Nature Chemical Biology</i> , 2018, 14, 388-395.	3.9	78
24	GroEL and CCT are catalytic unfoldases mediating out-of-cage polypeptide refolding without ATP. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2013, 110, 7199-7204.	3.3	75
25	Quantitative proteomics of heat-treated human cells show an across-the-board mild depletion of housekeeping proteins to massively accumulate few HSPs. <i>Cell Stress and Chaperones</i> , 2015, 20, 605-620.	1.2	69
26	Spectral Coarse Graining and Synchronization in Oscillator Networks. <i>Physical Review Letters</i> , 2008, 100, 174104.	2.9	68
27	Universal $1/f$ Noise from Dissipative Self-Organized Criticality Models. <i>Physical Review Letters</i> , 1999, 82, 472-475.	2.9	66
28	Freezing immunoglobulins to see them move. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2004, 101, 6466-6471.	3.3	66
29	Putting proteins back into water. <i>Physical Review E</i> , 2000, 62, 8449-8452.	0.8	61
30	Large-Scale Conformational Transitions and Dimerization Are Encoded in the Amino-Acid Sequences of Hsp70 Chaperones. <i>PLoS Computational Biology</i> , 2015, 11, e1004262.	1.5	61
31	Evolution of an intricate J-protein network driving protein disaggregation in eukaryotes. <i>ELife</i> , 2017, 6, .	2.8	60
32	Oscillation modes of microtubules. <i>Biology of the Cell</i> , 2004, 96, 697-700.	0.7	59
33	Exploration of scale-free networks. <i>European Physical Journal B</i> , 2004, 38, 201-204.	0.6	59
34	Cold Denaturation of Yeast Frataxin Offers the Clue to Understand the Effect of Alcohols on Protein Stability. <i>Journal of the American Chemical Society</i> , 2008, 130, 9963-9970.	6.6	59
35	Diffusion-Limited Reactions in Crowded Environments. <i>Physical Review Letters</i> , 2010, 105, 120601.	2.9	58
36	Physical realizability of small-world networks. <i>Physical Review E</i> , 2006, 73, 026114.	0.8	52

#	ARTICLE	IF	CITATIONS
37	Mechanisms of Quantum Dot Energy Engineering by Metalorganic Vapor Phase Epitaxy on Patterned Nonplanar Substrates. <i>Nano Letters</i> , 2007, 7, 1282-1285.	4.5	51
38	Role of clustering and gridlike ordering in epidemic spreading. <i>Physical Review E</i> , 2004, 69, 066116.	0.8	50
39	Simulation and Theory of Antibody Binding to Crowded Antigen-Covered Surfaces. <i>PLoS Computational Biology</i> , 2016, 12, e1004752.	1.5	49
40	Membraneless organelles: phasing out of equilibrium. <i>Emerging Topics in Life Sciences</i> , 2020, 4, 343-354.	1.1	48
41	Modeling Hsp70/Hsp40 interaction by multi-scale molecular simulations and coevolutionary sequence analysis. <i>ELife</i> , 2017, 6, .	2.8	48
42	Universal Behavior in the Mesoscale Properties of Amyloid Fibrils. <i>Physical Review Letters</i> , 2014, 113, 268103.	2.9	44
43	Cold and warm denaturation of proteins. <i>Journal of Biological Physics</i> , 2001, 27, 229-241.	0.7	40
44	The local minority game. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2002, 303, 217-225.	1.2	40
45	Dynamics of antibodies from cryo-electron tomography. <i>Biophysical Chemistry</i> , 2005, 115, 235-240.	1.5	39
46	Hydrophobic Interaction Model for Upper and Lower Critical Solution Temperatures. <i>Macromolecules</i> , 2003, 36, 5845-5853.	2.2	37
47	Numerical Simulation of Gel Electrophoresis of DNA Knots in Weak and Strong Electric Fields. <i>Biophysical Journal</i> , 2006, 90, 3100-3105.	0.2	37
48	Relief of ParB autoinhibition by <i>parS</i> DNA catalysis and recycling of ParB by CTP hydrolysis promote bacterial centromere assembly. <i>Science Advances</i> , 2021, 7, eabj2854.	4.7	35
49	Dynamical Jahn-Teller effect and Berry phase in positively charged fullerenes: Basic considerations. <i>Physical Review B</i> , 1996, 54, 7157-7167.	1.1	34
50	Cold and warm swelling of hydrophobic polymers. <i>Physical Review E</i> , 2001, 63, 031802.	0.8	34
51	Cluster approximations for epidemic processes: a systematic description of correlations beyond the pair level. <i>Journal of Theoretical Biology</i> , 2004, 229, 1-11.	0.8	34
52	Hyperplectonemes: A Higher Order Compact and Dynamic DNA Self-Organization. <i>Nano Letters</i> , 2017, 17, 1938-1948.	4.5	34
53	Probing the different chaperone activities of the bacterial HSP70/HSP40 system using a thermolabile luciferase substrate. <i>Proteins: Structure, Function and Bioinformatics</i> , 2011, 79, 1991-1998.	1.5	33
54	First-order coil-globule transition driven by vibrational entropy. <i>Nature Communications</i> , 2012, 3, 1065.	5.8	32

#	ARTICLE	IF	CITATIONS
55	The effect of crowding and confinement: a comparison of Yfh1 stability in different environments. <i>Physical Biology</i> , 2013, 10, 045002.	0.8	32
56	High-Dimensional Bak-Sneppen Model. <i>Physical Review Letters</i> , 1998, 80, 5746-5749.	2.9	31
57	Statistical features of drainage basins in mars channel networks. <i>European Physical Journal B</i> , 2004, 38, 387-391.	0.6	31
58	Extended Navigability of Small World Networks: Exact Results and New Insights. <i>Physical Review Letters</i> , 2009, 102, 238703.	2.9	31
59	Hsp70 chaperones use ATP to remodel native protein oligomers and stable aggregates by entropic pulling. <i>Nature Structural and Molecular Biology</i> , 2016, 23, 766-769.	3.6	30
60	J-domain protein chaperone circuits in proteostasis and disease. <i>Trends in Cell Biology</i> , 2023, 33, 30-47.	3.6	30
61	Effective Interactions Cannot Replace Solvent Effects in a Lattice Model of Proteins. <i>Physical Review Letters</i> , 2003, 91, 258102.	2.9	29
62	Uncovering the topology of configuration space networks. <i>Physical Review E</i> , 2007, 76, 026113.	0.8	29
63	Power law size distribution of supercritical random trees. <i>Europhysics Letters</i> , 2001, 56, 898-903.	0.7	26
64	Real-Time Monitoring of Protein Conformational Changes Using a Nano-Mechanical Sensor. <i>PLoS ONE</i> , 2014, 9, e103674.	1.1	26
65	Efficient conversion of chemical energy into mechanical work by Hsp70 chaperones. <i>ELife</i> , 2019, 8, .	2.8	26
66	Berry phase and ground-state symmetry in $\hbar\omega$ -dynamical Jahn-Teller systems. <i>Physical Review B</i> , 2000, 62, 29-32.	1.1	25
67	Slow Energy Relaxation of Macromolecules and Nanoclusters in Solution. <i>Physical Review Letters</i> , 2005, 94, 145502.	2.9	25
68	Non-equilibrium conformational dynamics in the function of molecular chaperones. <i>Current Opinion in Structural Biology</i> , 2015, 30, 161-169.	2.6	25
69	Expansion Around the Mean-Field Solution of the Bak-Sneppen Model. <i>Physical Review Letters</i> , 1998, 80, 1457-1460.	2.9	24
70	Protein Structural Information and Evolutionary Landscape by In Vitro Evolution. <i>Molecular Biology and Evolution</i> , 2020, 37, 1179-1192.	3.5	24
71	Bottleneck Genes and Community Structure in the Cell Cycle Network of <i>S. pombe</i> . <i>PLoS Computational Biology</i> , 2007, 3, e103.	1.5	23
72	A dynamical study of antibody-antigen encounter reactions. <i>Physical Biology</i> , 2007, 4, 172-180.	0.8	20

#	ARTICLE	IF	CITATIONS
73	Chaperoning protein evolution. <i>Nature Chemical Biology</i> , 2012, 8, 226-228.	3.9	20
74	The cold denaturation of IscU highlights structure–function dualism in marginally stable proteins. <i>Communications Chemistry</i> , 2018, 1, .	2.0	19
75	Dissipation-driven selection of states in non-equilibrium chemical networks. <i>Communications Chemistry</i> , 2021, 4, .	2.0	19
76	Ant behavioral maturation is mediated by a stochastic transition between two fundamental states. <i>Current Biology</i> , 2021, 31, 2253-2260.e3.	1.8	19
77	Anticooperativity in diffusion-controlled reactions with pairs of anisotropic domains: a model for the antigen–antibody encounter. <i>European Biophysics Journal</i> , 2005, 34, 899-911.	1.2	18
78	Glasslike Structure of Globular Proteins and the Boson Peak. <i>Physical Review Letters</i> , 2006, 96, 198103.	2.9	18
79	Design of lattice proteins with explicit solvent. <i>Physical Review E</i> , 2002, 66, 061911.	0.8	17
80	Interfaces and the edge percolation map of random directed networks. <i>Physical Review E</i> , 2007, 76, 056121.	0.8	17
81	Interplay between cost and benefits triggers nontrivial vaccination uptake. <i>Physical Review E</i> , 2018, 97, 032308.	0.8	17
82	Equilibrium and non-equilibrium furanose selection in the ribose isomerisation network. <i>Nature Communications</i> , 2021, 12, 2749.	5.8	17
83	Repair or Degrade: the Thermodynamic Dilemma of Cellular Protein Quality-Control. <i>Frontiers in Molecular Biosciences</i> , 2021, 8, 768888.	1.6	17
84	The rôle of the Berry phase in dynamical Jahn-Teller systems. <i>Journal of Physics Condensed Matter</i> , 1998, 10, 8485-8495.	0.7	15
85	Critical exponents of the anisotropic Bak-Sneppen model. <i>Physical Review E</i> , 1998, 58, 7141-7145.	0.8	15
86	Widespread occurrence of the inverse square distribution in social sciences and taxonomy. <i>Physical Review E</i> , 2004, 69, 035101.	0.8	15
87	Chaotropic effect and preferential binding in a hydrophobic interaction model. <i>Journal of Chemical Physics</i> , 2003, 119, 7988-8001.	1.2	13
88	Quantitative description and modeling of real networks. <i>Physical Review E</i> , 2003, 68, 047101.	0.8	12
89	Thermodynamic Bounds on the Ultra- and Infra-affinity of Hsp70 for Its Substrates. <i>Biophysical Journal</i> , 2017, 113, 362-370.	0.2	12
90	Simulations of electrophoretic collisions of DNA knots with gel obstacles. <i>Journal of Physics Condensed Matter</i> , 2006, 18, S161-S171.	0.7	11

#	ARTICLE	IF	CITATIONS
91	Model of correlated evolution. <i>Physical Review E</i> , 1996, 54, 6053-6057.	0.8	10
92	Self-organized criticality driven by deterministic rules. <i>Physical Review E</i> , 1997, 56, 4876-4879.	0.8	10
93	Discretized Diffusion Processes. <i>Physical Review Letters</i> , 2000, 85, 4848-4851.	2.9	10
94	Bethe approximation for self-interacting lattice trees. <i>Europhysics Letters</i> , 2001, 53, 176-182.	0.7	10
95	Preferential exchange: Strengthening connections in complex networks. <i>Physical Review E</i> , 2004, 70, 027102.	0.8	10
96	Diffusion-limited reactions in crowded environments: a local density approximation. <i>Journal of Physics Condensed Matter</i> , 2013, 25, 375104.	0.7	10
97	Directed Polymers on a Factorized Disorder Landscape. <i>Physical Review Letters</i> , 1998, 81, 1023-1026.	2.9	8
98	Shape of a Stretched Polymer. <i>Physical Review Letters</i> , 2017, 119, 037801.	2.9	8
99	Solvent-induced micelle formation in a hydrophobic interaction model. <i>Physical Review E</i> , 2004, 69, 061924.	0.8	7
100	Temperature Dependence of Normal Mode Reconstructions of Protein Dynamics. <i>Physical Review Letters</i> , 2009, 102, 218104.	2.9	7
101	New Techniques for Ancient Proteins: Direct Coupling Analysis Applied on Proteins Involved in Iron Sulfur Cluster Biogenesis. <i>Frontiers in Molecular Biosciences</i> , 2017, 4, 40.	1.6	7
102	Explaining the length threshold of polyglutamine aggregation. <i>Journal of Physics Condensed Matter</i> , 2012, 24, 244105.	0.7	6
103	Quantifying the role of chaperones in protein translocation by computational modeling. <i>Frontiers in Molecular Biosciences</i> , 2015, 2, 8.	1.6	6
104	Structural Efficiency of Percolated Landscapes in Flow Networks. <i>PLoS ONE</i> , 2008, 3, e3654.	1.1	6
105	Reentrant behaviour in a highly anisotropic system. <i>Physica A: Statistical Mechanics and Its Applications</i> , 1994, 203, 640-654.	1.2	5
106	Optimal path and directed percolation. <i>Physical Review E</i> , 1996, 53, R2029-R2032.	0.8	5
107	Universality and Crossover of Directed Polymers and Growing Surfaces. <i>Physical Review Letters</i> , 1999, 82, 4236-4239.	2.9	5
108	Levy-nearest-neighbors Bak-Sneppen model. <i>Physical Review E</i> , 1999, 60, R1111-R1114.	0.8	5

#	ARTICLE	IF	CITATIONS
109	Diffusion-Limited Unbinding of Small Peptides from PDZ Domains. <i>Journal of Physical Chemistry B</i> , 2007, 111, 11057-11063.	1.2	5
110	Vibrational entropy and the structural organization of proteins. <i>European Physical Journal E</i> , 2010, 33, 89-96.	0.7	5
111	Self-organized criticality in deterministic systems with disorder. <i>Physical Review E</i> , 1998, 57, 6451-6459.	0.8	4
112	Exploration Bias of Complex Networks. <i>AIP Conference Proceedings</i> , 2003, , .	0.3	4
113	EXISTENCE, COST AND ROBUSTNESS OF SPATIAL SMALL-WORLD NETWORKS. <i>International Journal of Bifurcation and Chaos in Applied Sciences and Engineering</i> , 2007, 17, 2331-2342.	0.7	3
114	Stochastic fluctuations and the detectability limit of network communities. <i>Physical Review E</i> , 2013, 88, 060801.	0.8	3
115	Polymers with a bimodal disorder distribution and directed percolation. <i>Journal of Physics A</i> , 1997, 30, L617-L621.	1.6	2
116	Statistical analysis of genealogical trees for polygamic species. <i>Physical Review E</i> , 2000, 61, 5620-5623.	0.8	1
117	On the origin of the boson peak in globular proteins. <i>Philosophical Magazine</i> , 2007, 87, 631-641.	0.7	1
118	Dissipation-Driven Selection under Finite Diffusion: Hints from Equilibrium and Separation of Time Scales. <i>Entropy</i> , 2021, 23, 1068.	1.1	1
119	MONTE-CARLO SIMULATIONS OF GEL-ELECTROPHORESIS OF DNA KNOTS. <i>Series on Knots and Everything</i> , 2005, , 149-159.	0.0	1
120	How Complex Molecules Could Possibly be Stable at the Dawn of Life: Out of Equilibrium Dissipation Shapes Selection. <i>Biophysical Journal</i> , 2020, 118, 611a.	0.2	0