Peter Schuster

List of Publications by Year
in descending order

106 papers	9,698 citations	94433 37 h-index	45317 90 g-index
111 all docs	111 docs citations	111 times ranked	3493 citing authors

#	Article	IF	Citations
1	A principle of natural self-organization. Die Naturwissenschaften, 1977, 64, 541-565.	1.6	1,562
2	The Hypercycle. , 1979, , .		863
3	Replicator dynamics. Journal of Theoretical Biology, 1983, 100, 533-538.	1.7	538
4	The Hypercycle. Die Naturwissenschaften, 1978, 65, 341-369.	1.6	529
5	The Hypercycle. Die Naturwissenschaften, 1978, 65, 7-41.	1.6	523
6	Molecular quasi-species. The Journal of Physical Chemistry, 1988, 92, 6881-6891.	2.9	521
7	Complete suboptimal folding of RNA and the stability of secondary structures. Biopolymers, 1999, 49, 145-165.	2.4	455
8	Continuity in Evolution: On the Nature of Transitions. Science, 1998, 280, 1451-1455.	12.6	430
9	The Molecular Quasi-Species. Advances in Chemical Physics, 2007, , 149-263.	0.3	357
10	Self-replication with errors. Biophysical Chemistry, 1982, 16, 329-345.	2.8	339
11	RNA folding at elementary step resolution. Rna, 2000, 6, 325-338.	3.5	266
12	Statistics of RNA secondary structures. Biopolymers, 1993, 33, 1389-1404.	2.4	265
13	Error thresholds of replication in finite populations mutation frequencies and the onset of muller's ratchet. Journal of Theoretical Biology, 1989, 137, 375-395.	1.7	259
14	RNA folding and combinatory landscapes. Physical Review E, 1993, 47, 2083-2099.	2.1	202
15	A computer model of evolutionary optimization. Biophysical Chemistry, 1987, 26, 123-147.	2.8	201
16	Generic properties of combinatory maps: Neutral networks of RNA secondary structures. Bulletin of Mathematical Biology, 1997, 59, 339-397.	1.9	189
17	Stationary mutant distributions and evolutionary optimization. Bulletin of Mathematical Biology, 1988, 50, 635-660.	1.9	174
18	Shaping Space: the Possible and the Attainable in RNA Genotypeâ€“phenotype Mapping. Journal of Theoretical Biology, 1998, 194, 491-515.	1.7	163

#	Article	IF	Citations
19	Physical aspects of evolutionary optimization and adaptation. Physical Review A, 1989, 40, 3301-3321.	2.5	112
20	Mutation in autocatalytic reaction networks. Journal of Mathematical Biology, 1992, 30, 597-631.	1.9	77
21	How to search for RNA structures Theoretical concepts in evolutionary biotechnology. Journal of Biotechnology, 1995, 41, 239-257.	3.8	75
22	Generic properties of combinatory maps: Neutral networks of RNA secondary structures. Bulletin of Mathematical Biology, 1997, 59, 339-397.	1.9	72
23	Replication and Mutation on Neutral Networks. Bulletin of Mathematical Biology, 2001, 63, 57-94.	1.9	71
24	Landscapes: Complex optimization problems and biopolymer structures. Computers & Chemistry, 1994, 18, 295-324.	1.2	70
25	Prediction of RNA secondary structures: from theory to models and real molecules. Reports on Progress in Physics, 2006, 69, 1419-1477.	20.1	69
26	How does complexity arise in evolution:Nature's recipe for mastering scarcity, abundance, and unpredictability. Complexity, 1996, 2, 22-30.	1.6	67
27	Polynucleotide evolution and branching processes. Bulletin of Mathematical Biology, 1985, 47, 239-262.	1.9	65
28	Full characterization of a strange attractor. Physica D: Nonlinear Phenomena, 1991, 48, 65-90.	2.8	65
29	Chance and necessity in evolution: lessons from RNA. Physica D: Nonlinear Phenomena, 1999, 133, 427-452.	2.8	63
30	Selfregulation of behaviour in animal societies. Biological Cybernetics, 1981, 40, 1-8.	1.3	60
31	Mathematical modeling of evolution. Solved and open problems. Theory in Biosciences, 2011, 130, 71-89.	1.4	59
32	RNA structures and folding: from conventional to new issues in structure predictions. Current Opinion in Structural Biology, 1997, 7, 229-235.	5.7	58
33	Landscapes and molecular evolution. Physica D: Nonlinear Phenomena, 1997, 107, 351-365.	2.8	53
34	Genotypes with phenotypes: Adventures in an RNA toy world. Biophysical Chemistry, 1997, 66, 75-110.	2.8	52
35	Dynamics of Evolutionary Optimization. Zeitschrift Fur Elektrotechnik Und Elektrochemie, 1985, 89, 668-682.	0.9	50
36	Dynamic patterns of gene regulation I: Simple two-gene systems. Journal of Theoretical Biology, 2007, 246, 395-419.	1.7	48

#	Article	IF	Citations
37	Statistics of RNA melting kinetics. European Biophysics Journal, 1994, 23, 29-38.	2.2	45
38	Taming combinatorial explosion. Proceedings of the National Academy of Sciences of the United States of America, 2000, 97, 7678-7680.	7.1	45
39	Selfregulation of behaviour in animal societies. Biological Cybernetics, 1981, 40, 17-25.	1.3	41
40	Selfregulation of behaviour in animal societies. Biological Cybernetics, 1981, 40, 9-15.	1.3	40
41	Quasispecies on Fitness Landscapes. Current Topics in Microbiology and Immunology, 2015, 392, 61-120.	1.1	37
42	Statistics of landscapes based on free energies, replication and degradation rate constants of RNA secondary structures. Monatshefte FÃ¼r Chemie, 1991, 122, 795-819.	1.8	36
43	Inverse bifurcation analysis: application to simple gene systems. Algorithms for Molecular Biology, 2006, 1, 11.	1.2	33
44	What is special about autocatalysis?. Monatshefte FÃ¼r Chemie, 2019, 150, 763-775.	1.8	30
45	Dynamics of Autocatalytic Replicator Networks Based on Higher-order Ligation Reactions. Bulletin of Mathematical Biology, 2000, 62, 1061-1086.	1.9	28
46	What Is a Quasispecies? Historical Origins and Current Scope. Current Topics in Microbiology and Immunology, 2015, 392, 1-22.	1.1	27
47	Stochasticity in Processes. Springer Series in Synergetics, 2016, , .	0.4	25
48	The end of Moore's law: Living without an exponential increase in the efficiency of computational facilities. Complexity, 2016, 21, 6-9.	1.6	20
49	Nature and evolution of early replicons. , 1999, , 1-24.		17
50	Networks in molecular evolution. Complexity, 2002, 8, 34-42.	1.6	17
51	Optimization of multiple criteria: Pareto efficiency and fast heuristics should be more popular than they are. Complexity, 2012, 18, 5-7.	1.6	16
52	Nonlinear dynamics from physics to biology. Complexity, 2007, 12, 9-11.	1.6	13
53	Increase in Complexity and Information through Molecular Evolution. Entropy, 2016, 18, 397.	2.2	11
54	Dynamical machinery of a biochemical clock. Bulletin of Mathematical Biology, 1984, 46, 339-355.	1.9	9

#	Article	IF	Citations
55	Autocatalytic networks with intermediates I: Irreversible reactions. Mathematical Biosciences, 1997, 140, 33-74.	1.9	9
56	A beginning of the end of the holism versus reductionism debate?: Molecular biology goes cellular and organismic. Complexity, 2007, 13, 10-13.	1.6	9
57	Genotypes and Phenotypes in the Evolution of Molecules. European Review, 2009, 17, 281-319.	0.7	8
58	A revival of the landscape paradigm: Large scale data harvesting provides access to fitness landscapes. Complexity, 2012, 17, 6-10.	1.6	8
59	Major transitions in evolution and in technology: <i>What they have in common and where they differ</i>. Complexity, 2016, 21, 7-13.	1.6	8
60	Force field based conformational analysis of RNA structural motifs: GNRA tetraloops and their pyrimidine relatives. European Biophysics Journal, 1999, 28, 564-573.	2.2	7
61	Early Replicons: Origin and Evolution**Dedicated to Manfred Eigen, the pioneer of molecular evolution and intellectual father of quasispecies theory, on the occasion of his 80th birthday.. , 2008, , 1-41.		7
62	Evolution in an RNA World. Foundations of Modern Biochemistry, 1998, 4, 159-198.	0.6	6
63	â€œLess is moreâ€•and the art of modeling complex phenomena: Simplification may but need not be the key to handle large networks. Complexity, 2005, 11, 11-13.	1.6	6
64	Boltzmann, atomism, evolution, and statistics: Continuity versus discreteness in biology. Complexity, 2006, 11, 9-11.	1.6	6
65	How complexity originates: Examples from history reveal additional roots to complexity. Complexity, 2016, 21, 7-12.	1.6	6
66	Model studies onRNA-replication I. Monatshefte FÃ¼r Chemie, 1982, 113, 237-263.	1.8	5
67	A testable genotype-phenotype map: modeling evolution of RNA molecules. , 2002, , 55-81.		5
68	Ebolaâ€"challenge and revival of theoretical epidemiology: Why Extrapolations from early phases of epidemics are problematic. Complexity, 2015, 20, 7-12.	1.6	5
69	Modeling in biological chemistry. From biochemical kinetics to systems biology. Monatshefte FÃ¼r Chemie, 2008, 139, 427-446.	1.8	4
70	Power laws in biology: Between fundamental regularities and useful interpolation rules. Complexity, 2011, 16, 6-9.	1.6	4
71	Is there a Newton of the blade of grass?. Complexity, 2011, 16, 5-9.	1.6	4
72	Lethal mutagenesis, error thresholds, and the fight against viruses: Rigorous modeling is facilitated by a firm physical background. Complexity, 2011, 17, 5-9.	1.6	4

#	Article	IF	Citations
73	Models: From exploration to prediction: Bad reputation of modeling in some disciplines results from nebulous goals. Complexity, 2015, 21, 6-9.	1.6	4
74	Some mechanistic requirements for major transitions. Philosophical Transactions of the Royal Society B: Biological Sciences, 2016, 371, 20150439.	4.0	4
75	Phylogeny and Evolution of RNA Structure. Methods in Molecular Biology, 2014, 1097, 319-378.	0.9	4
76	Untamable curiosity, innovation, discovery, and bricolage: Are we doomed to progress to ever increasing complexity?. Complexity, 2006, 11, 9-11.	1.6	3
77	Free will, information, quantum mechanics, and biology. Complexity, 2009, 15, 8-10.	1.6	3
78	Origins of life: Concepts, data, and debates. Complexity, 2010, 15, 7-10.	1.6	3
79	A Silent revolution in mathematics. Complexity, 2013, 18, 7-10.	1.6	3
80	Structural constraints and neutrality in RNA. Lecture Notes in Computer Science, 1996, , 156-165.	1.3	3
81	Generation of information and complexity: Different forms of learning and innovation: A simple mechanism of learning. Complexity, 2005, 10, 12-14.	1.6	2
82	The commons' tragicomedy: Self-governance doesn't come easily. Complexity, 2005, 10, 10-12.	1.6	2
83	Evolution and design: The Darwinian view of evolution is a scientific fact and not an ideology. Complexity, 2005, 11, 12-15.	1.6	2
84	Are there recipes for how to handle complexity?. Complexity, 2008, 14, 8-12.	1.6	2
85	How universal is DarwinÊ¼s principle?. Physics of Life Reviews, 2012, 9, 460-461.	2.8	2
86	Models of evolution and evolutionary game theory. Physics of Life Reviews, 2016, 19, 32-35.	2.8	2
87	Beherrschung von KomplexitÃt in der molekularen Evolution. , 1999, , 117-145.		2
88	Chemical reaction kinetics is back: Attempts to deal with complexity in biology: Developing a quantitative molecular view to understanding life. Complexity, 2004, 10, 14-16.	1.6	1
89	Modeling Conformational Flexibility and Evolution of Structure: RNA as an Example. Biological and Medical Physics Series, 2007, , 3-36.	0.4	1
90	Networks in biology: Handling biological complexity requires novel inputs into network theory. Complexity, 2011, 16, 6-9.	1.6	1

#	Article	IF	Citations
91	Designing living matter. Can we do better than evolution?. Complexity, 2013, 18, 21-33.	1.6	1
92	Molecular evolution between chemistry and biology. European Biophysics Journal, 2018, 47, 403-425.	2.2	1
93	Molecular insights into evolution. Artificial Life and Robotics, 1999, 3, 19-23.	1.2	0
94	Evolutionary Biotechnology â€“ From Ideas and Concepts to Experiments and Computer Simulations. , 0, , 5-28.		0
95	From Self-Organization to Evolution of RNA Molecules: The Origin of Biological Information. Solid State Phenomena, 2004, 97-98, 27-36.	0.3	0
96	Contingeny and memory in evolution. Complexity, 2010, 15, 7-10.	1.6	0
97	Recycling and growth in early evolution and today. Complexity, 2013, 19, 6-9.	1.6	0
98	Are computer scientists the sutlers of modern biology?: Bioinformatics is indispensible for progress in molecular life sciences but does not get credit for its contributions. Complexity, 2014, 19, 10-14.	1.6	0
99	The dilemma of statistics: Rigorous mathematical methods cannot compensate messy interpretations and lousy data. Complexity, 2014, 20, 11-15.	1.6	0
100	Historical Contingency in Controlled Evolution. , 2015, , 187-220.		0
101	Applications in Biology. Springer Series in Synergetics, 2016, , 569-677.	0.4	0
102	Manfred Eigen (1927â€“2019). Angewandte Chemie, 2019, 131, 9423-9424.	2.0	0
103	Manfred Eigen (1927â€“2019). Angewandte Chemie - International Edition, 2019, 58, 9323-9324.	13.8	0
104	Mathematical Challenges from Molecular Evolution. , 2001, , 1019-1038.		0
105	Discrete Models of Biopolymers. , 2004, , 187-221.		0
106	Molecular evolutionary biology. Annual Reports in Combinatorial Chemistry and Molecular Diversity, 1997, , 153-168.	0.4	0