Steven A Frank

List of Publications by Year
in descending order

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Version: 2024-02-01

156 papers	11,951 citations	28274 55 h-index	33894 99 g-index
177 all docs	177 docs citations	177 times ranked	7670 citing authors

#	Article	IF	Citations
1	Sexual antagonism leads to a mosaic of Xâ€autosome conflict. Evolution; International Journal of Organic Evolution, 2020, 74, 495-498.	2.3	23
2	Metabolic Heat in Microbial Conflict and Cooperation. Frontiers in Ecology and Evolution, 2020, 8, .	2.2	3
3	The Generalized Price Equation: Forces That Change Population Statistics. Frontiers in Ecology and Evolution, 2020, 8, .	2.2	9
4	The Fundamental Equations of Change in Statistical Ensembles and Biological Populations. Entropy, 2020, 22, 1395.	2.2	6
5	Developmental Mutators and Early Onset Cancer. Frontiers in Pediatrics, 2020, 8, 189.	1.9	4
6	Simple unity among the fundamental equations of science. Philosophical Transactions of the Royal Society B: Biological Sciences, 2020, 375, 20190351.	4.0	3
7	Evolution of negative immune regulators. PLoS Pathogens, 2019, 15, e1007913.	4.7	10
8	How to Understand Behavioral Patterns in Big Data: The Case of Human Collective Memory. Behavioral Sciences (Basel, Switzerland), 2019, 9, 40.	2.1	2
9	Evolutionary design of regulatory control. II. Robust error-correcting feedback increases genetic and phenotypic variability. Journal of Theoretical Biology, 2019, 468, 72-81.	1.7	9
10	Evolutionary design of regulatory control. I. A robust control theory analysis of tradeoffs. Journal of Theoretical Biology, 2019, 463, 121-137.	1.7	5
11	The common patterns of abundance: the log series and Zipf's law. F1000Research, 2019, 8, 334.	1.6	5
12	Invariance in ecological pattern. F1000Research, 2019, 8, 2093.	1.6	4
13	The Price Equation Program: Simple Invariances Unify Population Dynamics, Thermodynamics, Probability, Information and Inference. Entropy, 2018, 20, 978.	2.2	20
14	Measurement invariance explains the universal law of generalization for psychological perception. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 9803-9806.	7.1	12
15	A biochemical logarithmic sensor with broad dynamic range. F1000Research, 2018, 7, 200.	1.6	5
16	A biochemical logarithmic sensor with broad dynamic range. F1000Research, 2018, 7, 200.	1.6	3
17	Universal expressions of population change by the <scp>P</scp>rice equation: Natural selection, information, and maximum entropy production. Ecology and Evolution, 2017, 7, 3381-3396.	1.9	16
18	Receptor uptake arrays for vitamin B₁₂, siderophores, and glycans shape bacterial communities. Ecology and Evolution, 2017, 7, 10175-10195.	1.9	5

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19	Age-specific acceleration in malignant melanoma. F1000Research, 2017, 6, 27.	1.6	3
20	Puzzles in modern biology. V. Why are genomes overwired?. F1000Research, 2017, 6, 924.	1.6	5
21	Age-specific acceleration in malignant melanoma. F1000Research, 2017, 6, 27.	1.6	4
22	Puzzles in modern biology. V. Why are genomes overwired?. F1000Research, 2017, 6, 924.	1.6	5
23	Commentary: The nature of cancer research. International Journal of Epidemiology, 2016, 45, 638-645.	1.9	4
24	The invariances of power law size distributions. F1000Research, 2016, 5, 2074.	1.6	7
25	Invariant death. F1000Research, 2016, 5, 2076.	1.6	4
26	Puzzles in modern biology. IV. Neurodegeneration, localized origin and widespread decay. F1000Research, 2016, 5, 2537.	1.6	3
27	Puzzles in modern biology. I. Male sterility, failure reveals design. F1000Research, 2016, 5, 2288.	1.6	0
28	Puzzles in modern biology. II. Language, cancer and the recursive processes of evolutionary innovation. F1000Research, 2016, 5, 2289.	1.6	2
29	Puzzles in modern biology. III. Two kinds of causality in age-related disease. F1000Research, 2016, 5, 2533.	1.6	1
30	The invariances of power law size distributions. F1000Research, 2016, 5, 2074.	1.6	7
31	Puzzles in modern biology. III.Two kinds of causality in age-related disease. F1000Research, 2016, 5, 2533.	1.6	1
32	The Inductive Theory of Natural Selection. SSRN Electronic Journal, 2014, , .	0.4	2
33	How to Read Probability Distributions as Statements about Process. Entropy, 2014, 16, 6059-6098.	2.2	20
34	Generative models versus underlying symmetries to explain biological pattern. Journal of Evolutionary Biology, 2014, 27, 1172-1178.	1.7	34
35	Somatic Mosaicism and Disease. Current Biology, 2014, 24, R577-R581.	3.9	50
36	Microbial metabolism: optimal control of uptake versus synthesis. PeerJ, 2014, 2, e267.	2.0	6

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37	Natural selection. <scp>VII</scp>. History and interpretation of kin selection theory. Journal of Evolutionary Biology, 2013, 26, 1151-1184.	1.7	90
38	Input-output relations in biological systems: measurement, information and the Hill equation. Biology Direct, 2013, 8, 31.	4.6	77
39	Natural selection. VI. Partitioning the information in fitness and characters by path analysis. Journal of Evolutionary Biology, 2013, 26, 457-471.	1.7	18
40	Microbial Evolution: Regulatory Design Prevents Cancer-like Overgrowths. Current Biology, 2013, 23, R343-R346.	3.9	13
41	Evolution of Robustness and Cellular Stochasticity of Gene Expression. PLoS Biology, 2013, 11, e1001578.	5.6	21
42	Wrightâ€™s Adaptive Landscape Versus Fisherâ€™s Fundamental Theorem. , 2013, , 41-57.		24
43	Nonheritable Cellular Variability Accelerates the Evolutionary Processes of Cancer. PLoS Biology, 2012, 10, e1001296.	5.6	55
44	Natural selection. V. How to read the fundamental equations of evolutionary change in terms of information theory. Journal of Evolutionary Biology, 2012, 25, 2377-2396.	1.7	99
45	Evolution: Mitochondrial Burden on Male Health. Current Biology, 2012, 22, R797-R799.	3.9	21
46	Natural selection. III. Selection versus transmission and the levels of selection*. Journal of Evolutionary Biology, 2012, 25, 227-243.	1.7	51
47	Natural selection. IV. The Price equation*. Journal of Evolutionary Biology, 2012, 25, 1002-1019.	1.7	140
48	A simple derivation and classification of common probability distributions based on information symmetry and measurement scale. Journal of Evolutionary Biology, 2011, 24, 469-484.	1.7	28
49	Measurement scale in maximum entropy models of species abundance. Journal of Evolutionary Biology, 2011, 24, 485-496.	1.7	22
50	Natural selection. II. Developmental variability and evolutionary rate*. Journal of Evolutionary Biology, 2011, 24, 2310-2320.	1.7	52
51	Natural selection. I. Variable environments and uncertain returns on investment*. Journal of Evolutionary Biology, 2011, 24, 2299-2309.	1.7	56
52	Pathology from evolutionary conflict, with a theory of X chromosome versus autosome conflict over sexually antagonistic traits. Proceedings of the National Academy of Sciences of the United States of America, 2011, 108, 10886-10893.	7.1	42
53	Demography and the tragedy of the commons. Journal of Evolutionary Biology, 2010, 23, 32-39.	1.7	23
54	The trade-off between rate and yield in the design of microbial metabolism. Journal of Evolutionary Biology, 2010, 23, 609-613.	1.7	49

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55	A general model of the public goods dilemma. Journal of Evolutionary Biology, 2010, 23, 1245-1250.	1.7	73
56	Measurement Invariance, Entropy, and Probability. Entropy, 2010, 12, 289-303.	2.2	32
57	Microbial secretorâ€“cheater dynamics. Philosophical Transactions of the Royal Society B: Biological Sciences, 2010, 365, 2515-2522.	4.0	23
58	Quantifying Interhospital Patient Sharing as a Mechanism for Infectious Disease Spread. Infection Control and Hospital Epidemiology, 2010, 31, 1160-1169.	1.8	65
59	Somatic evolutionary genomics: Mutations during development cause highly variable genetic mosaicism with risk of cancer and neurodegeneration. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 1725-1730.	7.1	154
60	Natural selection maximizes Fisher information. Journal of Evolutionary Biology, 2009, 22, 231-244.	1.7	102
61	The common patterns of nature. Journal of Evolutionary Biology, 2009, 22, 1563-1585.	1.7	187
62	Evolutionary Foundations of Cooperation and Group Cohesion. Springer Series in Game Theory, 2009, , 3-40.	0.2	8
63	Evolutionary dynamics of redundant regulatory control. Journal of Theoretical Biology, 2008, 255, 64-68.	1.7	7
64	Mechanisms of pathogenesis and the evolution of parasite virulence. Journal of Evolutionary Biology, 2008, 21, 396-404.	1.7	92
65	Pathogenesis, Virulence, and Infective Dose. PLoS Pathogens, 2007, 3, e147.	4.7	180
66	Barriers to antigenic escape by pathogens: trade-off between reproductive rate and antigenic mutability. BMC Evolutionary Biology, 2007, 7, 229.	3.2	23
67	All of life is social. Current Biology, 2007, 17, R648-R650.	3.9	68
68	Maladaptation and the Paradox of Robustness in Evolution. PLoS ONE, 2007, 2, e1021.	2.5	41
69	Within-host dynamics of antigenic variation. Infection, Genetics and Evolution, 2006, 6, 141-146.	2.3	37
70	The Male-Female Pay Gap Driven by Coupling between Labor Markets and Mating Markets. Journal of Bioeconomics, 2006, 8, 269-274.	3.3	4
71	Pathogen escape from host immunity by a genome program for antigenic variation. Proceedings of the National Academy of Sciences of the United States of America, 2006, 103, 18290-18295.	7.1	101
72	Kinetics of cancer: a method to test hypotheses of genetic causation. BMC Cancer, 2005, 5, 163.	2.6	3

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73	Age-specific incidence of inherited versus sporadic cancers: A test of the multistage theory of carcinogenesis. Proceedings of the National Academy of Sciences of the United States of America, 2005, 102, 1071-1075.	7.1	72
74	Somatic Mutation of p53 Leads to Estrogen Receptor Î±-Positive and -Negative Mouse Mammary Tumors with High Frequency of Metastasis. Cancer Research, 2004, 64, 3525-3532.	0.9	114
75	Genetic variation in cancer predisposition: Mutational decay of a robust genetic control network. Proceedings of the National Academy of Sciences of the United States of America, 2004, 101, 8061-8065.	7.1	34
76	Commentary: Mathematical models of cancer progression and epidemiology in the age of high throughput genomics. International Journal of Epidemiology, 2004, 33, 1179-1181.	1.9	7
77	Genetic predisposition to cancer â€" insights from population genetics. Nature Reviews Genetics, 2004, 5, 764-772.	16.3	106
78	Age-Specific Acceleration of Cancer. Current Biology, 2004, 14, 242-246.	3.9	59
79	A multistage theory of age-specific acceleration in human mortality. BMC Biology, 2004, 2, 16.	3.8	17
80	Problems of somatic mutation and cancer. BioEssays, 2004, 26, 291-299.	2.5	107
81	Evolution and immunology of infectious diseases: whatâ€™s new?. Infection, Genetics and Evolution, 2004, 4, 69-75.	2.3	2
82	Inheritance of cancer. Discovery Medicine, 2004, 4, 396-400.	0.5	2
83	Somatic Mutation: Early Cancer Steps Depend on Tissue Architecture. Current Biology, 2003, 13, R261-R263.	3.9	20
84	Somatic selection for and against cancer. Journal of Theoretical Biology, 2003, 225, 377-382.	1.7	61
85	Genetic variation of polygenic characters and the evolution of genetic degeneracy. Journal of Evolutionary Biology, 2003, 16, 138-142.	1.7	32
86	Developmental predisposition to cancer. Nature, 2003, 422, 494-494.	27.8	81
87	Somatic mosaicism and cancer: inference based on a conditional Luriaâ€“DelbrÃ¼ck distribution. Journal of Theoretical Biology, 2003, 223, 405-412.	1.7	28
88	REPRESSION OF COMPETITION AND THE EVOLUTION OF COOPERATION. Evolution; International Journal of Organic Evolution, 2003, 57, 693-705.	2.3	228
89	PERSPECTIVE: REPRESSION OF COMPETITION AND THE EVOLUTION OF COOPERATION. Evolution; International Journal of Organic Evolution, 2003, 57, 693.	2.3	205
90	Programmed Cell Death and Hybrid Incompatibility. , 2003, 94, 181-183.		13

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91	Stochastic elimination of cancer cells. Proceedings of the Royal Society B: Biological Sciences, 2003, 270, 2017-2024.	2.6	49
92	Patterns of Cell Division and the Risk of Cancer. Genetics, 2003, 163, 1527-1532.	2.9	56
93	Immune Response to Parasitic Attack: Evolution of a Pulsed Character. Journal of Theoretical Biology, 2002, 219, 281-290.	1.7	27
94	A TOUCHSTONE IN THE STUDY OF ADAPTATION. Evolution; International Journal of Organic Evolution, 2002, 56, 2561-2564.	2.3	8
95	Multiplicity of infection and the evolution of hybrid incompatibility in segmented viruses. Heredity, 2001, 87, 522-529.	2.6	34
96	The probability of severe disease in zoonotic and commensal infections. Proceedings of the Royal Society B: Biological Sciences, 2001, 268, 53-60.	2.6	15
97	Specific and Non-specific Defense against Parasitic Attack. Journal of Theoretical Biology, 2000, 202, 283-304.	1.7	53
98	Within-host Spatial Dynamics of Viruses and Defective Interfering Particles. Journal of Theoretical Biology, 2000, 206, 279-290.	1.7	54
99	Polymorphism of attack and defense. Trends in Ecology and Evolution, 2000, 15, 167-171.	8.7	50
100	A model for the sequential dominance of antigenic variants in African trypanosome infections. Proceedings of the Royal Society B: Biological Sciences, 1999, 266, 1397-1401.	2.6	36
101	Population and Quantitative Genetics of Regulatory Networks. Journal of Theoretical Biology, 1999, 197, 281-294.	1.7	46
102	Dynamics of Cytoplasmic Incompatability with MultipleWolbachiaInfections. Journal of Theoretical Biology, 1998, 192, 213-218.	1.7	63
103	Increasing resource specialization among competitors shifts control of diversity from local to spatial processes. Ecology Letters, 1998, 1, 3-5.	6.4	7
104	Increasing resource specialization among competitors shifts control of diversity from local to spatial processes. Ecology Letters, 1998, 1, 3-5.	6.4	6
105	THE PRICE EQUATION, FISHER'S FUNDAMENTAL THEOREM, KIN SELECTION, AND CAUSAL ANALYSIS. Evolution; International Journal of Organic Evolution, 1997, 51, 1712-1729.	2.3	223
106	The Price Equation, Fisher's Fundamental Theorem, Kin Selection, and Causal Analysis. Evolution; International Journal of Organic Evolution, 1997, 51, 1712.	2.3	127
107	Developmental selection and self-organization. BioSystems, 1997, 40, 237-243.	2.0	16
108	The Design of Adaptive Systems: Optimal Parameters for Variation and Selection in Learning and Development. Journal of Theoretical Biology, 1997, 184, 31-39.	1.7	59

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109	Cytoplasmic Incompatibility and Population Structure. Journal of Theoretical Biology, 1997, 184, 327-330.	1.7	41
110	Multivariate Analysis of Correlated Selection and Kin Selection, with an ESS Maximization Method. Journal of Theoretical Biology, 1997, 189, 307-316.	1.7	67
111	Recognition and polymorphism in host-parasite genetics. , 1997, , 13-23.		3
112	Models of Parasite Virulence. Quarterly Review of Biology, 1996, 71, 37-78.	0.1	1,191
113	Policing and group cohesion when resources vary. Animal Behaviour, 1996, 52, 1163-1169.	1.9	91
114	How to Make a Kin Selection Model. Journal of Theoretical Biology, 1996, 180, 27-37.	1.7	514
115	Statistical properties of polymorphism in host?parasite genetics. Evolutionary Ecology, 1996, 10, 307-317.	1.2	62
116	Problems inferring the specificity of plant?pathogen genetics. Evolutionary Ecology, 1996, 10, 323-325.	1.2	35
117	Host Control of Symbiont Transmission: The Separation of Symbionts Into Germ and Soma. American Naturalist, 1996, 148, 1113-1124.	2.1	59
118	Sex Allocation in Solitary Bees and Wasps. American Naturalist, 1995, 146, 316-323.	2.1	27
119	George Priceâ€™s contributions to evolutionary genetics. Journal of Theoretical Biology, 1995, 175, 373-388.	1.7	264
120	The Origin of Synergistic Symbiosis. Journal of Theoretical Biology, 1995, 176, 403-410.	1.7	69
121	Mutual policing and repression of competition in the evolution of cooperative groups. Nature, 1995, 377, 520-522.	27.8	328
122	Coevolutionary genetics of hosts and parasites with quantitative inheritance. Evolutionary Ecology, 1994, 8, 74-94.	1.2	81
123	Spatial polymorphism of bacteriocins and other allelopathic traits. Evolutionary Ecology, 1994, 8, 369-386.	1.2	127
124	Genetics of Mutualism: The Evolution of Altruism between Species. Journal of Theoretical Biology, 1994, 170, 393-400.	1.7	178
125	POLYMORPHISM OF BACTERIAL RESTRICTIONâ€MODIFICATION SYSTEMS: THE ADVANTAGE OF DIVERSITY. Evolution; International Journal of Organic Evolution, 1994, 48, 1470-1477.	2.3	15
126	Coevolutionary genetics of plants and pathogens. Evolutionary Ecology, 1993, 7, 45-75.	1.2	186

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127	A Model of Inducible Defense. Evolution; International Journal of Organic Evolution, 1993, 47, 325.	2.3	19
128	A MODEL OF INDUCIBLE DEFENSE. Evolution; International Journal of Organic Evolution, 1993, 47, 325-327.	2.3	40
129	EVOLUTION OF HOSTâ€PARASITE DIVERSITY. Evolution; International Journal of Organic Evolution, 1993, 47, 1721-1732.	2.3	74
130	Fisher's fundamental theorem of natural selection. Trends in Ecology and Evolution, 1992, 7, 92-95.	8.7	199
131	Divergence of Meiotic Drive-Suppression Systems as an Explanation for Sex- Biased Hybrid Sterility and Inviability. Evolution; International Journal of Organic Evolution, 1991, 45, 262.	2.3	115
132	DIVERGENCE OF MEIOTIC DRIVEâ€SUPPRESSION SYSTEMS AS AN EXPLANATION FOR SEXâ€BIASED HYBRID STERILITY AND INVIABILITY. Evolution; International Journal of Organic Evolution, 1991, 45, 262-267.	2.3	221
133	HALDANE'S RULE: A DEFENSE OF THE MEIOTIC DRIVE THEORY. Evolution; International Journal of Organic Evolution, 1991, 45, 1714-1717.	2.3	30
134	Ecological and genetic models of host-pathogen coevolution. Heredity, 1991, 67, 73-83.	2.6	119
135	Spatial variation in coevolutionary dynamics. Evolutionary Ecology, 1991, 5, 193-217.	1.2	61
136	The distribution of allelic effects under mutation and selection. Genetical Research, 1990, 55, 111-117.	0.9	32
137	When to copy or avoid an opponent's strategy. Journal of Theoretical Biology, 1990, 145, 41-46.	1.7	9
138	Evolution in a Variable Environment. American Naturalist, 1990, 136, 244-260.	2.1	222
139	Sex Allocation Theory for Birds and Mammals. Annual Review of Ecology, Evolution, and Systematics, 1990, 21, 13-55.	6.7	374
140	The Evolutionary Dynamics of Cytoplasmic Male Sterility. American Naturalist, 1989, 133, 345-376.	2.1	323
141	Sex ratio under conditional sex expression. Journal of Theoretical Biology, 1988, 135, 415-418.	1.7	73
142	DEMOGRAPHY AND SEX RATIO IN SOCIAL SPIDERS. Evolution; International Journal of Organic Evolution, 1987, 41, 1267-1281.	2.3	72
143	Weapons and fighting in fig wasps. Trends in Ecology and Evolution, 1987, 2, 259-260.	8.7	14
144	Individual and population sex allocation patterns. Theoretical Population Biology, 1987, 31, 47-74.	1.1	161

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145	Variable sex ratio among colonies of ants. Behavioral Ecology and Sociobiology, 1987, 20, 195-201.	1.4	124
146	Hierarchical selection theory and sex ratios I. General solutions for structured populations. Theoretical Population Biology, 1986, 29, 312-342.	1.1	215
147	Dispersal polymorphisms in subdivided populations. Journal of Theoretical Biology, 1986, 122, 303-309.	1.7	208
148	The genetic value of sons and daughters. Heredity, 1986, 56, 351-354.	2.6	63
149	HIERARCHICAL SELECTION THEORY AND SEX RATIOS. II. ON APPLYING THE THEORY, AND A TEST WITH FIG WASPS. Evolution; International Journal of Organic Evolution, 1985, 39, 949-964.	2.3	136
150	Are Mating and Mate Competition by the Fig Wasp Pegoscapus assuetus (Agaonidae) Random within a Fig?. Biotropica, 1985, 17, 170.	1.6	16
151	A Hierarchical View of Sex-Ratio Patterns. Florida Entomologist, 1983, 66, 42.	0.5	22
152	Evolution of Antigenic Variation. , 0, , 225-242.		0
153	How to Read Probability Distributions as Statements About Process. SSRN Electronic Journal, 0, , .	0.4	2
154	Universal Expressions of Population Change by the Price Equation: Natural Selection, Information, and Maximum Entropy Production. SSRN Electronic Journal, 0, , .	0.4	0
155	Occupational Immunity and Natural Vaccination. SSRN Electronic Journal, 0, , .	0.4	0
156	How to Understand Common Patterns in Big Data: The Case of Human Collective Memory. SSRN Electronic Journal, 0, , .	0.4	0