Eors Szathmary

List of Publications by Year
in descending order

148 papers	7,055 citations	76326 40 h-index	76900 74 g-index
161 all docs	161 docs citations	161 times ranked	4102 citing authors

#	Article	IF	Citations
1	Bayes and Darwin: How replicator populations implement Bayesian computations. BioEssays, 2022, 44, e2100255.	2.5	6
2	Novelty and imitation within the brain: a Darwinian neurodynamic approach to combinatorial problems. Scientific Reports, 2021, 11, 12513.	3.3	3
3	From self-replication to replicator systems en route to de novo life. Nature Reviews Chemistry, 2020, 4, 386-403.	30.2	91
4	Evolution of linkage and genome expansion in protocells: The origin of chromosomes. PLoS Genetics, 2020, 16, e1009155.	3.5	15
5	Phenotypes to remember: Evolutionary developmental memory capacity and robustness. PLoS Computational Biology, 2020, 16, e1008425.	3.2	11
6	Phenotypes to remember: Evolutionary developmental memory capacity and robustness. , 2020, 16, e1008425.		0
7	Phenotypes to remember: Evolutionary developmental memory capacity and robustness. , 2020, 16, e1008425.		0
8	Phenotypes to remember: Evolutionary developmental memory capacity and robustness. , 2020, 16, e1008425.		0
9	Phenotypes to remember: Evolutionary developmental memory capacity and robustness. , 2020, 16, e1008425.		0
10	Multilevel selection as Bayesian inference, major transitions in individuality as structure learning. Royal Society Open Science, 2019, 6, 190202.	2.4	13
11	Encoding Temporal Regularities and Information Copying in Hippocampal Circuits. Scientific Reports, 2019, 9, 19036.	3.3	7
12	Moderate sex between protocells can balance between a decrease in assortment load and an increase in parasite spread. Journal of Theoretical Biology, 2019, 462, 304-310.	1.7	7
13	Farming the mitochondrial ancestor as a model of endosymbiotic establishment by natural selection. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, E1504-E1510.	7.1	29
14	Rethinking Life. The Frontiers Collection, 2018, , 475-488.	0.2	0
15	Ecological and evolutionary dynamics of interconnectedness and modularity. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 750-755.	7.1	10
16	Reply to Garg and Martin: The mechanism works. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, E4545-E4546.	7.1	0
17	An evolutionary perspective on the systems of adaptive immunity. Biological Reviews, 2018, 93, 505-528.	10.4	76
18	The evolutionary dynamics of language. BioSystems, 2018, 164, 128-137.	2.0	19

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19	Editorial: Insight and Intuition â€“ Two Sides of the Same Coin?. Frontiers in Psychology, 2018, 9, 689.	2.1	3
20	Caring for parents: an evolutionary rationale. BMC Biology, 2018, 16, 53.	3.8	6
21	Playing evolution in the laboratory: From the first major evolutionary transition to global warming. Europhysics Letters, 2018, 122, 38001.	2.0	8
22	Grand Views of Evolution. Trends in Ecology and Evolution, 2017, 32, 324-334.	8.7	34
23	Beyond Hamilton's rule. Science, 2017, 356, 485-486.	12.6	8
24	Insight into the ten-penny problem: guiding search by constraints and maximization. Psychological Research, 2017, 81, 925-938.	1.7	11
25	Cognitive Architecture with Evolutionary Dynamics Solves Insight Problem. Frontiers in Psychology, 2017, 8, 427.	2.1	19
26	Breath-giving cooperation: critical review of origin of mitochondria hypotheses. Biology Direct, 2017, 12, 19.	4.6	42
27	An Attractor Network-Based Model with Darwinian Dynamics. , 2016, , .		3
28	Transient compartmentalization of RNA replicators prevents extinction due to parasites. Science, 2016, 354, 1293-1296.	12.6	116
29	How Can Evolution Learn? â€“ A Reply to Responses. Trends in Ecology and Evolution, 2016, 31, 896-898.	8.7	2
30	How Can Evolution Learn?. Trends in Ecology and Evolution, 2016, 31, 147-157.	8.7	181
31	Fluid construction grammar as a biological system. Linguistics Vanguard: Multimodal Online Journal, 2016, 2, .	2.0	6
32	Breeding novel solutions in the brain: a model of Darwinian neurodynamics. F1000Research, 2016, 5, 2416.	1.6	10
33	Breeding novel solutions in the brain: A model of Darwinian neurodynamics. F1000Research, 2016, 5, 2416.	1.6	5
34	Neuronal boost to evolutionary dynamics. Interface Focus, 2015, 5, 20150074.	3.0	7
35	What can ecosystems learn? Expanding evolutionary ecology with learning theory. Biology Direct, 2015, 10, 69.	4.6	49
36	Fitness Landscapes of Functional RNAs. Life, 2015, 5, 1497-1517.	2.4	11

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37	Problem solving stages in the five square problem. Frontiers in Psychology, 2015, 6, 1050.	2.1	25
38	The dynamics of the RNA world: insights and challenges. Annals of the New York Academy of Sciences, 2015, 1341, 75-95.	3.8	47
39	â€œSynergistic selectionâ€: A Darwinian frame for the evolution of complexity. Journal of Theoretical Biology, 2015, 371, 45-58.	1.7	68
40	Metabolically Coupled Replicator Systems: Overview of an RNA-world model concept of prebiotic evolution on mineral surfaces. Journal of Theoretical Biology, 2015, 381, 39-54.	1.7	28
41	Phenotypic plasticity, the Baldwin effect, and the speeding up of evolution: The computational roots of an illusion. Journal of Theoretical Biology, 2015, 371, 127-136.	1.7	17
42	Toward major evolutionary transitions theory 2.0. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 10104-10111.	7.1	283
43	Founder of systems chemistry and foundational theoretical biologist: Tibor GÃ¡nti (1933â€“2009). Journal of Theoretical Biology, 2015, 381, 2-5.	1.7	5
44	Primordial evolvability: Impasses and challenges. Journal of Theoretical Biology, 2015, 381, 29-38.	1.7	21
45	Evolution of the Division of Labor between Genes and Enzymes in the RNA World. PLoS Computational Biology, 2014, 10, e1003936.	3.2	15
46	Local Neutral Networks Help Maintain Inaccurately Replicating Ribozymes. PLoS ONE, 2014, 9, e109987.	2.5	12
47	Modelling Reaction Times in Non-linear Classification Tasks. Lecture Notes in Computer Science, 2014, , 53-64.	1.3	2
48	On the propagation of a conceptual error concerning hypercycles and cooperation. Journal of Systems Chemistry, 2013, 4, .	1.7	27
49	Gause's Principle and the Effect of Resource Partitioning on the Dynamical Coexistence of Replicating Templates. PLoS Computational Biology, 2013, 9, e1003193.	3.2	11
50	Semantics boosts syntax in artificial grammar learning tasks with recursion.. Journal of Experimental Psychology: Learning Memory and Cognition, 2012, 38, 776-782.	0.9	15
51	Early evolution of efficient enzymes and genome organization. Biology Direct, 2012, 7, 38; discussion 38.	4.6	18
52	Evolution before genes. Biology Direct, 2012, 7, 1; discussion 1.	4.6	225
53	Selectionist and Evolutionary Approaches to Brain Function: A Critical Appraisal. Frontiers in Computational Neuroscience, 2012, 6, 24.	2.1	65
54	Natural Selection of Paths in Networks. Nature Precedings, 2011, , .	0.1	0

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55	Evolvability of Natural and Artificial Systems. Procedia Computer Science, 2011, 7, 73-76.	2.0	14
56	On origin of genetic code and tRNA before translation. Biology Direct, 2011, 6, 14.	4.6	85
57	Confrontational scavenging as a possible source for language and cooperation. BMC Evolutionary Biology, 2011, 11, 261.	3.2	46
58	Parsing recursive sentences with a connectionist model including a neural stack and synaptic gating. Journal of Theoretical Biology, 2011, 271, 100-105.	1.7	0
59	Comment on â€œA Bacterium That Can Grow by Using Arsenic Instead of Phosphorusâ€. Science, 2011, 332, 1149-1149.	12.6	20
60	To Group or Not to Group?. Science, 2011, 334, 1648-1649.	12.6	22
61	Two Different Template Replicators Coexisting in the Same Protocell: Stochastic Simulation of an Extended Chemoton Model. PLoS ONE, 2011, 6, e21380.	2.5	10
62	Evolvable Neuronal Paths: A Novel Basis for Information and Search in the Brain. PLoS ONE, 2011, 6, e23534.	2.5	18
63	Selfishness versus functional cooperation in a stochastic protocell model. Journal of Theoretical Biology, 2010, 267, 605-613.	1.7	17
64	A New Replicator: A theoretical framework for analysing replication. BMC Biology, 2010, 8, 21.	3.8	31
65	Lack of evolvability in self-sustaining autocatalytic networks constraints metabolism-first scenarios for the origin of life. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 1470-1475.	7.1	155
66	The Neuronal Replicator Hypothesis. Neural Computation, 2010, 22, 2809-2857.	2.2	48
67	Natural Selection in the Brain. On Thinking, 2010, , 291-322.	0.5	10
68	Chemical, Neuronal, and Linguistic Replicators. , 2010, , 209-250.		11
69	Evolution of Language as One of the Major Evolutionary Transitions. , 2010, , 37-53.		4
70	Analysis of Dark Albedo Features on a Southern Polar Dune Field of Mars. Astrobiology, 2009, 9, 90-103.	3.0	22
71	The Origin of Life: Chemical Evolution of a Metabolic System in a Mineral Honeycomb?. Journal of Molecular Evolution, 2009, 69, 458-469.	1.8	54
72	One ancestor for two codes viewed from the perspective of two complementary modes of tRNA aminoacylation. Biology Direct, 2009, 4, 4.	4.6	27

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73	Language: a social history of words. Nature, 2008, 456, 40-41.	27.8	16
74	Prebiotic replicase evolution in a surface-bound metabolic system: parasites as a source of adaptive evolution. BMC Evolutionary Biology, 2008, 8, 267.	3.2	54
75	Genetic hitchhiking can promote the initial spread of strong altruism. BMC Evolutionary Biology, 2008, 8, 281.	3.2	8
76	Computational identification of obligatorily autocatalytic replicators embedded in metabolic networks. Genome Biology, 2008, 9, R51.	9.6	60
77	Copying and Evolution of Neuronal Topology. PLoS ONE, 2008, 3, e3775.	2.5	43
78	Towards an Understanding of Language Origins. Biosemiotics Bookseries, 2008, , 287-317.	0.3	3
79	Catalytic Propensity of Amino Acids and the Origins of the Genetic Code and Proteins. Biosemiotics Bookseries, 2008, , 39-58.	0.3	5
80	In silico detection of tRNA sequence features characteristic to aminoacyl-tRNA synthetase class membership. Nucleic Acids Research, 2007, 35, 5593-5609.	14.5	19
81	Coevolution of metabolic networks and membranes: the scenario of progressive sequestration. Philosophical Transactions of the Royal Society B: Biological Sciences, 2007, 362, 1781-1787.	4.0	40
82	A Stochastic Model of Nonenzymatic Nucleic Acid Replication: â€œElongatorsâ€•Sequester Replicators. Journal of Molecular Evolution, 2007, 64, 572-585.	1.8	49
83	In silico Evolutionary Developmental Neurobiology and the Origin of Natural Language. , 2007, , 151-187.		7
84	Fitness Landscapes, Error Thresholds, and Cofactors in Aptamer Evolution. , 2006, , 54-92.		3
85	Selective scenarios for the emergence of natural language. Trends in Ecology and Evolution, 2006, 21, 555-561.	8.7	89
86	Coexistence and error propagation in pre-biotic vesicle models: A group selection approach. Journal of Theoretical Biology, 2006, 239, 247-256.	1.7	41
87	Summary: The Budapest meeting 2005 intensified networking on ethics of science. Science and Engineering Ethics, 2006, 12, 415-420.	2.9	1
88	The origin of replicators and reproducers. Philosophical Transactions of the Royal Society B: Biological Sciences, 2006, 361, 1761-1776.	4.0	175
89	EVOLUTION: Darwin for All Seasons. Science, 2006, 313, 306-307.	12.6	5
90	Birds as Aeroplanes: Remembering John Maynard Smith. Biological Theory, 2006, 1, 84-86.	1.5	0

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91	Path Dependence and Historical Contingency in Biology. , 2006, , 140-157.		8
92	Real ribozymes suggest a relaxed error threshold. Nature Genetics, 2005, 37, 1008-1011.	21.4	119
93	In search of the simplest cell. Nature, 2005, 433, 469-470.	27.8	61
94	John Maynard Smith (1920â€“2004). Nature, 2004, 429, 258-259.	27.8	3
95	From biological analysis to synthetic biology. Current Biology, 2004, 14, R145-R146.	3.9	6
96	Recombination in Primeval Genomes: A Step Forward but Still a Long Leap from Maintaining a Sizable Genome. Journal of Molecular Evolution, 2004, 59, 507-519.	1.8	31
97	Concepts and dynamics: a theoretical issue of OLEB. Origins of Life and Evolution of Biospheres, 2003, 33, 313-317.	1.9	5
98	Dark Dune Spots: possible biomarkers on Mars?. Origins of Life and Evolution of Biospheres, 2003, 33, 515-557.	1.9	20
99	Origin of sex revisited. Origins of Life and Evolution of Biospheres, 2003, 33, 405-432.	1.9	21
100	Why are there four letters in the genetic alphabet?. Nature Reviews Genetics, 2003, 4, 995-1001.	16.3	56
101	The biological significance of GÃ¡ntiâ€™s work in 1971 and today. , 2003, , 157-168.		6
102	â€œLivingâ€•Under the Challenge of Information Decay: The Stochastic Corrector Model vs. Hypercycles. Journal of Theoretical Biology, 2002, 217, 167-181.	1.7	64
103	In silico simulations reveal that replicators with limited dispersal evolve towards higher efficiency and fidelity. Nature, 2002, 420, 340-343.	27.8	129
104	Multicellularity: Evolution and the egg. Nature, 2002, 420, 745-745.	27.8	73
105	Biological Information, Kin Selection, and Evolutionary Transitions. Theoretical Population Biology, 2001, 59, 11-14.	1.1	6
106	Survival of Replicators with Parabolic Growth Tendency and Exponential Decay. Journal of Theoretical Biology, 2001, 212, 99-105.	1.7	36
107	Developmental circuits rewired. Nature, 2001, 411, 143-145.	27.8	38
108	MOLECULAR BIOLOGY AND EVOLUTION: Can Genes Explain Biological Complexity?. Science, 2001, 292, 1315-1316.	12.6	138

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109	Selection versus Coexistence of Parabolic Replicators Spreading on Surfaces. Selection, 2001, 1, 173-180.	0.8	23
110	The concept of fitness and individuality revisited. Darwinian Dynamics: Evolutionary Transitions in Fitness and Individuality. By Richard E. Michod. Princeton University Press, New Jersey. 1999. $45.00/f27.50. ISBN 0-691-02699-8.. Journal of Evolutionary Biology, 2000, 13, 352-355.	1.7	0
111	Reply: certain uncertainties about the origin of the genetic code. Trends in Genetics, 2000, 16, 18-19.	6.7	1
112	Coexistence of Replicators in Prebiotic Evolution. , 2000, , 116-134.		36
113	In Humboldtâ€™s footsteps. Trends in Ecology and Evolution, 2000, 15, 178-179.	8.7	0
114	The evolution of replicators. Philosophical Transactions of the Royal Society B: Biological Sciences, 2000, 355, 1669-1676.	4.0	97
115	3. The First Replicators. , 2000, , 31-52.		4
116	The origin of the genetic code: amino acids as cofactors in an RNA world. Trends in Genetics, 1999, 15, 223-229.	6.7	180
117	Merging lines and emerging levels. Nature, 1998, 392, 439-441.	27.8	5
118	Useful stuff. Trends in Ecology and Evolution, 1998, 13, 251-252.	8.7	1
119	The first two billion years. Nature, 1997, 387, 662-663.	27.8	15
120	An extremum principle for parabolic competition. Bulletin of Mathematical Biology, 1997, 59, 1145-1154.	1.9	17
121	An extremum principle for parabolic competition. Bulletin of Mathematical Biology, 1997, 59, 1145-1154.	1.9	4
122	From Replicators to Reproducers: the First Major Transitions Leading to Life. Journal of Theoretical Biology, 1997, 187, 555-571.	1.7	267
123	The Major Transitions in Evolution. , 1997, , .		683
124	On the likelihood of habitable worlds. Nature, 1996, 384, 107-107.	27.8	8
125	The major evolutionary transitions. Nature, 1995, 374, 227-232.	27.8	872
126	Language and life. , 1995, , 67-78.		0

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127	The evolution of information storage and heredity. Trends in Ecology and Evolution, 1995, 10, 206-211.	8.7	67
128	Toy Models for Simple Forms of Multicellularity, Soma and Germ. Journal of Theoretical Biology, 1994, 169, 125-132.	1.7	15
129	Co-operation and Defection: Playing the Field in Virus Dynamics. Journal of Theoretical Biology, 1993, 165, 341-356.	1.7	28
130	Molecular variation and evolution of viruses. Trends in Ecology and Evolution, 1993, 8, 8-9.	8.7	1
131	Beginnings of cellular life: Metabolism recapitulates biogenesis. Trends in Ecology and Evolution, 1993, 8, 304-305.	8.7	0
132	Coding coenzyme handles: a hypothesis for the origin of the genetic code.. Proceedings of the National Academy of Sciences of the United States of America, 1993, 90, 9916-9920.	7.1	122
133	Viral sex, levels of selection, and the origin of life. Journal of Theoretical Biology, 1992, 159, 99-109.	1.7	32
134	Natural selection and dynamical coexistence of defective and complementing virus segments. Journal of Theoretical Biology, 1992, 157, 383-406.	1.7	72
135	Common interest and novel evolutionary units. Trends in Ecology and Evolution, 1991, 6, 407-408.	8.7	3
136	Simple growth laws and selection consequences. Trends in Ecology and Evolution, 1991, 6, 366-370.	8.7	64
137	Variational principles, behavioural adaptations and selection hierarchies. Behavioral and Brain Sciences, 1991, 14, 107-108.	0.7	0
138	A theoretical test of the DNA repair hypothesis for the maintenance of sex in eukaryotes. Genetical Research, 1991, 58, 157-165.	0.9	6
139	Codon swapping as a possible evolutionary mechanism. Journal of Molecular Evolution, 1991, 32, 178-182.	1.8	22
140	Towards the evolution of ribozymes. Nature, 1990, 344, 115-115.	27.8	14
141	Sub-exponential growth and coexistence of non-enzymatically replicating templates. Journal of Theoretical Biology, 1989, 138, 55-58.	1.7	147
142	The cost of splicing and the late origin of introns. Trends in Ecology and Evolution, 1989, 4, 109-110.	8.7	0
143	The integration of the earliest genetic information. Trends in Ecology and Evolution, 1989, 4, 200-204.	8.7	46
144	A hypercyclic illusion. Journal of Theoretical Biology, 1988, 134, 561-563.	1.7	8

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145	Early evolution of microtubules and undulipodia. BioSystems, 1987, 20, 115-131.	2.0	11
146	Group selection of early replicators and the origin of life. Journal of Theoretical Biology, 1987, 128, 463-486.	1.7	346
147	Evolutionary Potential and Requirements for Minimal Protocells. , 0, , 167-211.		64
148	Ecosystem Memory Is Emergent from Local-Level Natural Selection. , 0, , .		0