Michael Doebeli

List of Publications by Year
in descending order

126 papers	13,606 citations	47006 47 h-index	24258 110 g-index
139 all docs	139 docs citations	139 times ranked	11068 citing authors

#	Article	IF	Citations
1	Decoupling function and taxonomy in the global ocean microbiome. Science, 2016, 353, 1272-1277.	12.6	2,001
2	On the origin of species by sympatric speciation. Nature, 1999, 400, 354-357.	27.8	1,485
3	Spatial structure often inhibits the evolution of cooperation in the snowdrift game. Nature, 2004, 428, 643-646.	27.8	1,254
4	Function and functional redundancy in microbial systems. Nature Ecology and Evolution, 2018, 2, 936-943.	7.8	912
5	Models of cooperation based on the Prisoner's Dilemma and the Snowdrift game. Ecology Letters, 2005, 8, 748-766.	6.4	681
6	Speciation along environmental gradients. Nature, 2003, 421, 259-264.	27.8	600
7	Evolutionary Branching and Sympatric Speciation Caused by Different Types of Ecological Interactions. American Naturalist, 2000, 156, S77-S101.	2.1	483
8	A simple and general explanation for the evolution of altruism. Proceedings of the Royal Society B: Biological Sciences, 2009, 276, 13-19.	2.6	420
9	Self-destructive cooperation mediated by phenotypic noise. Nature, 2008, 454, 987-990.	27.8	384
10	The Evolutionary Origin of Cooperators and Defectors. Science, 2004, 306, 859-862.	12.6	285
11	Synergy and discounting of cooperation in social dilemmas. Journal of Theoretical Biology, 2006, 239, 195-202.	1.7	273
12	Evolutionary games and population dynamics: maintenance of cooperation in public goods games. Proceedings of the Royal Society B: Biological Sciences, 2006, 273, 2565-2571.	2.6	236
13	SEXUAL DIMORPHISM AND ADAPTIVE SPECIATION: TWO SIDES OF THE SAME ECOLOGICAL COIN. Evolution; International Journal of Organic Evolution, 2003, 57, 2433-2449.	2.3	182
14	Parallel Evolutionary Dynamics of Adaptive Diversification in Escherichia coli. PLoS Biology, 2013, 11, e1001490.	5.6	180
15	EVOLUTION OF NICHE WIDTH AND ADAPTIVE DIVERSIFICATION. Evolution; International Journal of Organic Evolution, 2004, 58, 2599-2612.	2.3	169
16	EXPERIMENTAL EVIDENCE FOR SYMPATRIC ECOLOGICAL DIVERSIFICATION DUE TO FREQUENCY-DEPENDENT COMPETITION IN ESCHERICHIA COLI. Evolution; International Journal of Organic Evolution, 2004, 58, 245-260.	2.3	157
17	Evolution of Cooperation in Spatially Structured Populations. Journal of Theoretical Biology, 1999, 200, 405-417.	1.7	146
18	Effects of neighbourhood size and connectivity on the spatial Continuous Prisoner's Dilemma. Journal of Theoretical Biology, 2004, 231, 97-106.	1.7	146

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19	On the evolutionary origin of aging. Aging Cell, 2007, 6, 235-244.	6.7	139
20	A census-based estimate of Earth's bacterial and archaeal diversity. PLoS Biology, 2019, 17, e3000106.	5.6	139
21	The Continuous Prisonerâ€™s Dilemma and the Evolution of Cooperation through Reciprocal Altruism with Variable Investment. American Naturalist, 2002, 160, 421-438.	2.1	130
22	EVOLUTION OF DISPERSAL RATES IN METAPOPULATION MODELS: BRANCHING AND CYCLIC DYNAMICS IN PHENOTYPE SPACE. Evolution; International Journal of Organic Evolution, 1997, 51, 1730-1741.	2.3	116
23	Complexity and Diversity. Science, 2010, 328, 494-497.	12.6	108
24	Genetic Variation and Persistence of Predator-prey Interactions in the Nicholsonâ€“Bailey Model. Journal of Theoretical Biology, 1997, 188, 109-120.	1.7	98
25	An Explicit Genetic Model for Ecological Character Displacement. Ecology, 1996, 77, 510-520.	3.2	94
26	Integrating biogeochemistry with multiomic sequence information in a model oxygen minimum zone. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, E5925-E5933.	7.1	94
27	TOWARDS A GENERAL THEORY OF GROUP SELECTION. Evolution; International Journal of Organic Evolution, 2013, 67, 1561-1572.	2.3	93
28	Division of labour and the evolution of multicellularity. Proceedings of the Royal Society B: Biological Sciences, 2012, 279, 1768-1776.	2.6	87
29	Towards a mechanistic foundation of evolutionary theory. ELife, 2017, 6, .	6.0	87
30	Multimodal pattern formation in phenotype distributions of sexual populations. Proceedings of the Royal Society B: Biological Sciences, 2007, 274, 347-357.	2.6	83
31	Bacterial diversification through geological time. Nature Ecology and Evolution, 2018, 2, 1458-1467.	7.8	81
32	Experimental evidence for sympatric ecological diversification due to frequency-dependent competition in Escherichia coli. Evolution; International Journal of Organic Evolution, 2004, 58, 245-60.	2.3	81
33	Ecological public goods games: Cooperation and bifurcation. Theoretical Population Biology, 2008, 73, 257-263.	1.1	79
34	The Cultural Brain Hypothesis: How culture drives brain expansion, sociality, and life history. PLoS Computational Biology, 2018, 14, e1006504.	3.2	76
35	Fluctuating Population Dynamics Promotes the Evolution of Phenotypic Plasticity. American Naturalist, 2009, 174, 176-189.	2.1	75
36	The role of multilevel selection in host microbiome evolution. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 20591-20597.	7.1	72

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37	Consolidating Birth-Death and Death-Birth Processes in Structured Populations. PLoS ONE, 2013, 8, e54639.	2.5	66
38	EVOLUTION OF PHENOTYPIC CLUSTERS THROUGH COMPETITION AND LOCAL ADAPTATION ALONG AN ENVIRONMENTAL GRADIENT. Evolution; International Journal of Organic Evolution, 2008, 62, 807-822.	2.3	64
39	Adaptive Diversification in Genes That Regulate Resource Use in Escherichia coli. PLoS Genetics, 2007, 3, e15.	3.5	63
40	QUANTITATIVE GENETICS AND POPULATION DYNAMICS. Evolution; International Journal of Organic Evolution, 1996, 50, 532-546.	2.3	59
41	Functional structure of the bromeliad tank microbiome is strongly shaped by local geochemical conditions. Environmental Microbiology, 2017, 19, 3132-3151.	3.8	58
42	CHAOS AND UNPREDICTABILITY IN EVOLUTION. Evolution; International Journal of Organic Evolution, 2014, 68, 1365-1373.	2.3	56
43	GENETIC CORRELATIONS AND THE COEVOLUTIONARY DYNAMICS OF THREE-SPECIES SYSTEMS. Evolution; International Journal of Organic Evolution, 2004, 58, 1165-1177.	2.3	54
44	Calibration and analysis of genome-based models for microbial ecology. ELife, 2015, 4, e08208.	6.0	54
45	WHAT WE HAVE ALSO LEARNED: ADAPTIVE SPECIATION IS THEORETICALLY PLAUSIBLE. Evolution; International Journal of Organic Evolution, 2005, 59, 691-695.	2.3	51
46	Adaptive speciation when assortative mating is based on female preference for male marker traits. Journal of Evolutionary Biology, 2005, 18, 1587-1600.	1.7	49
47	Stabilization through spatial pattern formation in metapopulations with longâ€“range dispersal. Proceedings of the Royal Society B: Biological Sciences, 1998, 265, 1325-1332.	2.6	48
48	A tale of two cycles - distinguishing quasi-cycles and limit cycles in finite predator-prey populations. Oikos, 2007, 116, 53-64.	2.7	48
49	What we have also learned: adaptive speciation is theoretically plausible. Evolution; International Journal of Organic Evolution, 2005, 59, 691-5; discussion 696-9.	2.3	48
50	Limiting similarity, species packing, and the shape of competition kernels. Journal of Theoretical Biology, 2013, 339, 3-13.	1.7	46
51	Self-organized Criticality in Spatial Evolutionary Game Theory. Journal of Theoretical Biology, 1998, 191, 335-340.	1.7	45
52	Adaptation increases the likelihood of diversification in an experimental bacterial lineage. Proceedings of the National Academy of Sciences of the United States of America, 2008, 105, 1585-1589.	7.1	43
53	The Repeatability of Adaptive Radiation During Long-Term Experimental Evolution of Escherichia coli in a Multiple Nutrient Environment. PLoS ONE, 2010, 5, e14184.	2.5	39
54	Experimental demonstration of ecological character displacement. BMC Evolutionary Biology, 2008, 8, 34.	3.2	38

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55	Spatial structure leads to ecological breakdown and loss of diversity. Proceedings of the Royal Society B: Biological Sciences, 2009, 276, 2065-2070.	2.6	35
56	Diversity and Coevolutionary Dynamics in High-Dimensional Phenotype Spaces. American Naturalist, 2017, 189, 105-120.	2.1	35
57	Metabolic Changes Associated With Adaptive Diversification in <i>Escherichia coli</i>. Genetics, 2008, 178, 1049-1060.	2.9	34
58	Transient dynamics of competitive exclusion in microbial communities. Environmental Microbiology, 2016, 18, 1863-1874.	3.8	34
59	Population Dynamics and the Evolution of Virulence in Epidemiological Models with Discrete Host Generations. Journal of Theoretical Biology, 1999, 198, 461-475.	1.7	31
60	Taxonomic variability and functional stability in microbial communities infected by phages. Environmental Microbiology, 2017, 19, 3863-3878.	3.8	31
61	Unparallel diversification in bacterial microcosms. Proceedings of the Royal Society B: Biological Sciences, 2005, 272, 1393-1398.	2.6	29
62	Chaos in high-dimensional dissipative dynamical systems. Scientific Reports, 2015, 5, 12506.	3.3	29
63	Diversity of Cooperation in the Tragedy of the Commons. Biological Theory, 2010, 5, 3-6.	1.5	26
64	ORGANISMAL COMPLEXITY AND THE POTENTIAL FOR EVOLUTIONARY DIVERSIFICATION. Evolution; International Journal of Organic Evolution, 2014, 68, 3248-3259.	2.3	26
65	In the red zone. Nature, 1996, 380, 589-590.	27.8	25
66	Genetic Variability in Sensitivity to Population Density Affects the Dynamics of Simple Ecological Models. Theoretical Population Biology, 1999, 55, 37-52.	1.1	25
67	Individual-based models for adaptive diversification in high-dimensional phenotype spaces. Journal of Theoretical Biology, 2016, 390, 97-105.	1.7	25
68	Reputation-Based Conditional Interaction Supports Cooperation in Well-Mixed Prisonerâ€™s Dilemmas. PLoS ONE, 2012, 7, e36260.	2.5	24
69	Metapopulation dynamics with quasi-local competition. Theoretical Population Biology, 2003, 64, 397-416.	1.1	22
70	Hamilton's rule in multi-level selection models. Journal of Theoretical Biology, 2012, 299, 55-63.	1.7	19
71	Evolution of diversity in metabolic strategies. ELife, 2021, 10, .	6.0	19
72	SPECIATION DUE TO HYBRID NECROSIS IN PLANT-PATHOGEN MODELS. Evolution; International Journal of Organic Evolution, 2009, 63, 3076-3084.	2.3	18

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73	The experimental evolution of aging in fruitflies. Experimental Gerontology, 1998, 33, 785-792.	2.8	17
74	Limits of Hamilton's rule. Journal of Evolutionary Biology, 2006, 19, 1386-1388.	1.7	17
75	Intermittent Chaos in Population Dynamics. Journal of Theoretical Biology, 1994, 166, 325-330.	1.7	16
76	A Bit of Sex Stabilizes Hostâ€"Parasite Dynamics. Journal of Theoretical Biology, 2001, 212, 345-354.	1.7	16
77	â€˜Raise the stakesâ€™ evolves into a defector. Nature, 1999, 400, 518-518.	27.8	15
78	WHAT WE HAVE ALSO LEARNED: ADAPTIVE SPECIATION IS THEORETICALLY PLAUSIBLE. Evolution; International Journal of Organic Evolution, 2005, 59, 691.	2.3	15
79	Controlling spatial chaos in metapopulations with long-range dispersal. Bulletin of Mathematical Biology, 1997, 59, 497-515.	1.9	14
80	Boom-bust population dynamics increase diversity in evolving competitive communities. Communications Biology, 2021, 4, 502.	4.4	14
81	Heuristic optimization of the general life history problem: A novel approach. Evolutionary Ecology, 1996, 10, 81-96.	1.2	13
82	Epistasis and frequency dependence influence the fitness of an adaptive mutation in a diversifying lineage. Molecular Ecology, 2010, 19, no-no.	3.9	13
83	Detecting cyclicity in ecological time series. Ecology, 2015, 96, 1724-1732.	3.2	13
84	Symmetric competition as a general model for single-species adaptive dynamics. Journal of Mathematical Biology, 2013, 67, 169-184.	1.9	12
85	Assessing host extinction risk following exposure to <i>Batrachochytrium dendrobatidis</i>. Proceedings of the Royal Society B: Biological Sciences, 2014, 281, 20132783.	2.6	12
86	Updating Gillespie with Controlled Chaos. American Naturalist, 1995, 146, 479-487.	2.1	12
87	Phenotypic variation, sexual reproduction and evolutionary population dynamics. Journal of Evolutionary Biology, 1995, 8, 173-194.	1.7	11
88	Circumventing kinetics in biogeochemical modeling. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 11329-11338.	7.1	11
89	A simple genetic model with non-equilibrium dynamics. Journal of Mathematical Biology, 1998, 36, 550-556.	1.9	10
90	Adaptive diversification of a plastic trait in a predictably fluctuating environment. Journal of Theoretical Biology, 2011, 285, 58-68.	1.7	10

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91	Distinguishing intrinsic limit cycles from forced oscillations in ecological time series. Theoretical Ecology, 2014, 7, 381-390.	1.0	10
92	Rethinking the evolution of specialization: A model for the evolution of phenotypic heterogeneity. Journal of Theoretical Biology, 2017, 435, 248-264.	1.7	10
93	Effects of forced taxonomic transitions on metabolic composition and function in microbial microcosms. Environmental Microbiology Reports, 2020, 12, 514-524.	2.4	10
94	Continuously stable strategies as evolutionary branching points. Journal of Theoretical Biology, 2010, 266, 529-535.	1.7	9
95	Reaction-centric modeling of microbial ecosystems. Ecological Modelling, 2016, 335, 74-86.	2.5	9
96	Acculturation drives the evolution of intergroup conflict. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 14089-14097.	7.1	9
97	Multilevel selection favors fragmentation modes that maintain cooperative interactions in multispecies communities. PLoS Computational Biology, 2021, 17, e1008896.	3.2	9
98	A model for the evolutionary diversification of religions. Journal of Theoretical Biology, 2010, 267, 676-684.	1.7	8
99	Evolutionary predictions from invariant physical measures of dynamic processes. Journal of Theoretical Biology, 1995, 173, 377-387.	1.7	7
100	Assortment is a more fundamental explanation for the evolution of altruism than inclusive fitness or multilevel selection: reply to Bijma and Aanen. Proceedings of the Royal Society B: Biological Sciences, 2010, 277, 677-678.	2.6	7
101	Omnivory can both enhance and dampen perturbations in food webs. Theoretical Ecology, 2011, 4, 55-67.	1.0	7
102	The joint evolution of cooperation and competition. Journal of Theoretical Biology, 2019, 480, 1-12.	1.7	7
103	Competition-driven evolution of organismal complexity. PLoS Computational Biology, 2019, 15, e1007388.	3.2	6
104	Evolution to alternative levels of stable diversity leaves areas of niche space unexplored. PLoS Computational Biology, 2021, 17, e1008650.	3.2	6
105	Spatial social dilemmas promote diversity. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	7.1	6
106	Scale-free extinction dynamics in spatially structured hostâ€“parasitoid systems. Journal of Theoretical Biology, 2006, 241, 745-750.	1.7	5
107	A comment on â€œTowards a rigorous framework for studying 2-player continuous gamesâ€•by Shade T. Shutters, Journal of Theoretical Biology 321, 40â€“43, 2013. Journal of Theoretical Biology, 2013, 336, 240-241.	1.7	5
108	The influence of habitat boundaries on evolutionary branching along environmental gradients. Evolutionary Ecology, 2018, 32, 563-585.	1.2	5

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109	Controlling spatial chaos in metapopulations with long-range dispersal. Bulletin of Mathematical Biology, 1997, 59, 497-515.	1.9	4
110	THE COEVOLUTIONARY DYNAMICS OF ANTAGONISTIC INTERACTIONS MEDIATED BY QUANTITATIVE TRAITS WITH EVOLVING VARIANCES. Evolution; International Journal of Organic Evolution, 2005, 59, 2073.	2.3	4
111	Quasi-Local Competition in Stage-Structured Metapopulations: A New Mechanism of Pattern Formation. Bulletin of Mathematical Biology, 2007, 69, 1649-1672.	1.9	4
112	A note on the complexity of evolutionary dynamics in a classic consumer-resource model. Theoretical Ecology, 2020, 13, 79-84.	1.0	3
113	On the Ecological Significance of Phenotypic Heterogeneity in Microbial Populations Undergoing Starvation. Microbiology Spectrum, 2022, 10, e0045021.	3.0	3
114	On the Evolution of Decoys in Plant Immune Systems. Biological Theory, 2010, 5, 256-263.	1.5	2
115	Evolutionary adaptation of highâ€diversity communities to changing environments. Ecology and Evolution, 2020, 10, 11941-11953.	1.9	2
116	Response to â€œVast (but avoidable) underestimation of global biodiversityâ€. PLoS Biology, 2021, 19, e3001362.	5.6	2
117	Linear models for reductive group actions on affine quadrics. Bulletin De La Societe Mathematique De France, 1994, 122, 505-531.	0.2	2
118	Pod systems: an equivariant ordinary differential equation approach to dynamical systems on a spatial domain. Nonlinearity, 2008, 21, 1507-1531.	1.4	1
119	On the importance of evolving phenotype distributions on evolutionary diversification. PLoS Computational Biology, 2021, 17, e1008733.	3.2	1
120	Modeling evolutionary transitions in social insects. ELife, 2016, 5, e12721.	6.0	1
121	Fluctuating population dynamics promotes the evolution of phenotypic plasticity. Nature Precedings, 2007, , .	0.1	0
122	Adaptive evolution and then what?. Nature Precedings, 2007, , .	0.1	0
123	Ecological dynamics and the basis of sympatric phenotypic diversification. Nature Precedings, 2009, , .	0.1	0
124	Positive Frequency Dependence in Graffiti: An Empirical Case Study of Cultural Evolution. Journal of Cognition and Culture, 2013, 13, 287-311.	0.4	0
125	Studying the emergence of complicated group-level cultural traits requires a mathematical framework. Behavioral and Brain Sciences, 2014, 37, 258-259.	0.7	0
126	Reply to Daybog and Kolodny: Necessary requirements for holobiont-level selection are robust to model assumptions. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 11864-11864.	7.1	0