

James M Hyman

List of Publications by Citations

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The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

146
papers

11,119
citations

49
h-index

104
g-index

154
ext. papers

12,455
ext. citations

3.8
avg, IF

6.45
L-index

#	Paper	IF	Citations
146	Compactons: Solitons with finite wavelength. <i>Physical Review Letters</i> , 1993 , 70, 564-567	7.4	783
145	Accelerating Markov Chain Monte Carlo Simulation by Differential Evolution with Self-Adaptive Randomized Subspace Sampling. <i>International Journal of Nonlinear Sciences and Numerical Simulation</i> , 2009 , 10,	1.8	662
144	Determining important parameters in the spread of malaria through the sensitivity analysis of a mathematical model. <i>Bulletin of Mathematical Biology</i> , 2008 , 70, 1272-96	2.1	606
143	A New Integrable Shallow Water Equation. <i>Advances in Applied Mechanics</i> , 1994 , 1-33	10	569
142	Treatment of input uncertainty in hydrologic modeling: Doing hydrology backward with Markov chain Monte Carlo simulation. <i>Water Resources Research</i> , 2008 , 44,	5.4	542
141	Self adjusting grid methods for one-dimensional hyperbolic conservation laws. <i>Journal of Computational Physics</i> , 1983 , 50, 235-269	4.1	535
140	Being Sensitive to Uncertainty. <i>Computing in Science and Engineering</i> , 2007 , 9, 10-20	1.5	412
139	The basic reproductive number of Ebola and the effects of public health measures: the cases of Congo and Uganda. <i>Journal of Theoretical Biology</i> , 2004 , 229, 119-26	2.3	377
138	Real-time forecasts of the COVID-19 epidemic in China from February 5th to February 24th, 2020. <i>Infectious Disease Modelling</i> , 2020 , 5, 256-263	15.7	373
137	On finite-difference approximations and entropy conditions for shocks. <i>Communications on Pure and Applied Mathematics</i> , 1976 , 29, 297-322	2.5	293
136	Self-Adaptive Multimethod Search for Global Optimization in Real-Parameter Spaces. <i>IEEE Transactions on Evolutionary Computation</i> , 2009 , 13, 243-259	15.6	253
135	Bifurcation Analysis of a Mathematical Model for Malaria Transmission. <i>SIAM Journal on Applied Mathematics</i> , 2006 , 67, 24-45	1.8	231
134	The Kuramoto-Sivashinsky equation: A bridge between PDE'S and dynamical systems. <i>Physica D: Nonlinear Phenomena</i> , 1986 , 18, 113-126	3.3	215
133	Using mathematical models to understand the AIDS epidemic. <i>Mathematical Biosciences</i> , 1988 , 90, 415-473	3.9	209
132	The differential infectivity and staged progression models for the transmission of HIV. <i>Mathematical Biosciences</i> , 1999 , 155, 77-109	3.9	197
131	Transmission dynamics of the great influenza pandemic of 1918 in Geneva, Switzerland: Assessing the effects of hypothetical interventions. <i>Journal of Theoretical Biology</i> , 2006 , 241, 193-204	2.3	189
130	Natural discretizations for the divergence, gradient, and curl on logically rectangular grids. <i>Computers and Mathematics With Applications</i> , 1997 , 33, 81-104	2.7	172

129	The Numerical Solution of Diffusion Problems in Strongly Heterogeneous Non-isotropic Materials. <i>Journal of Computational Physics</i> , 1997 , 132, 130-148	4.1	159
128	Model parameters and outbreak control for SARS. <i>Emerging Infectious Diseases</i> , 2004 , 10, 1258-63	10.2	145
127	Order and complexity in the Kuramoto-Sivashinsky model of weakly turbulent interfaces. <i>Physica D: Nonlinear Phenomena</i> , 1986 , 23, 265-292	3.3	145
126	Estimation of the reproduction number of dengue fever from spatial epidemic data. <i>Mathematical Biosciences</i> , 2007 , 208, 571-89	3.9	142
125	Numerical methods for tracking interfaces. <i>Physica D: Nonlinear Phenomena</i> , 1984 , 12, 396-407	3.3	140
124	Short-term Forecasts of the COVID-19 Epidemic in Guangdong and Zhejiang, China: February 13-23, 2020. <i>Journal of Clinical Medicine</i> , 2020 , 9,	5.1	126
123	Mixing patterns between age groups in social networks. <i>Social Networks</i> , 2007 , 29, 539-554	3.9	125
122	Scaling laws for the movement of people between locations in a large city. <i>Physical Review E</i> , 2003 , 68, 066102	2.4	117
121	Effects of behavioral changes in a smallpox attack model. <i>Mathematical Biosciences</i> , 2005 , 195, 228-51	3.9	116
120	Mimetic Discretizations for Maxwell's Equations. <i>Journal of Computational Physics</i> , 1999 , 151, 881-909	4.1	110
119	Comparing dengue and chikungunya emergence and endemic transmission in <i>A. aegypti</i> and <i>A. albopictus</i> . <i>Journal of Theoretical Biology</i> , 2014 , 356, 174-91	2.3	104
118	Mathematical modeling of the effectiveness of facemasks in reducing the spread of novel influenza A (H1N1). <i>PLoS ONE</i> , 2010 , 5, e9018	3.7	99
117	Forecasting the 2013-2014 influenza season using Wikipedia. <i>PLoS Computational Biology</i> , 2015 , 11, e1004239	4.239	97
116	An age-structured model of hiv infection that allows for variations in the production rate of viral particles and the death rate of productively infected cells. <i>Mathematical Biosciences and Engineering</i> , 2004 , 1, 267-88	2.1	95
115	The Orthogonal Decomposition Theorems for Mimetic Finite Difference Methods. <i>SIAM Journal on Numerical Analysis</i> , 1999 , 36, 788-818	2.4	90
114	Adjoint operators for the natural discretizations of the divergence, gradient and curl on logically rectangular grids. <i>Applied Numerical Mathematics</i> , 1997 , 25, 413-442	2.5	89
113	An intuitive formulation for the reproductive number for the spread of diseases in heterogeneous populations. <i>Mathematical Biosciences</i> , 2000 , 167, 65-86	3.9	87
112	Nonnegativity-, monotonicity-, or convexity-preserving cubic and quintic Hermite interpolation. <i>Mathematics of Computation</i> , 1989 , 52, 471-471	1.6	78

111	A novel sub-epidemic modeling framework for short-term forecasting epidemic waves. <i>BMC Medicine</i> , 2019 , 17, 164	11.4	75
110	Compacton solutions in a class of generalized fifth-order Korteweg-de Vries equations. <i>Physical Review E</i> , 2001 , 64, 026608	2.4	69
109	The Western Africa ebola virus disease epidemic exhibits both global exponential and local polynomial growth rates. <i>PLOS Currents</i> , 2015 , 7,		67
108	Estimation of the reproductive number of the Spanish flu epidemic in Geneva, Switzerland. <i>Vaccine</i> , 2006 , 24, 6747-50	4.1	65
107	Modeling the impact of random screening and contact tracing in reducing the spread of HIV. <i>Mathematical Biosciences</i> , 2003 , 181, 17-54	3.9	61
106	Principles of Mimetic Discretizations of Differential Operators 2006 , 89-119		58
105	Risk behavior-based model of the cubic growth of acquired immunodeficiency syndrome in the United States. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 1989 , 86, 4793-7	11.5	58
104	Opinion: Mathematical models: a key tool for outbreak response. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2014 , 111, 18095-6	11.5	56
103	The Black Box Multigrid Numerical Homogenization Algorithm. <i>Journal of Computational Physics</i> , 1998 , 142, 80-108	4.1	53
102	High order finite volume approximations of differential operators on nonuniform grids. <i>Physica D: Nonlinear Phenomena</i> , 1992 , 60, 112-138	3.3	53
101	Modelling vertical transmission in vector-borne diseases with applications to Rift Valley fever. <i>Journal of Biological Dynamics</i> , 2013 , 7, 11-40	2.4	52
100	Spatial and temporal dynamics of dengue fever in Peru: 1994-2006. <i>Epidemiology and Infection</i> , 2008 , 136, 1667-77	4.3	52
99	A data-driven network model for the emerging COVID-19 epidemics in Wuhan, Toronto and Italy. <i>Mathematical Biosciences</i> , 2020 , 326, 108391	3.9	51
98	Epidemic Forecasting is Messier Than Weather Forecasting: The Role of Human Behavior and Internet Data Streams in Epidemic Forecast. <i>Journal of Infectious Diseases</i> , 2016 , 214, S404-S408	7	49
97	A spatial model of mosquito host-seeking behavior. <i>PLoS Computational Biology</i> , 2012 , 8, e1002500	5	46
96	Multidimensional compactons. <i>Physical Review Letters</i> , 2007 , 98, 024101	7.4	46
95	Mimetic Finite Difference Methods for Maxwell's Equations and the Equations of Magnetic Diffusion. <i>Progress in Electromagnetics Research</i> , 2001 , 32, 89-121	3.8	46
94	Mathematical models of contact patterns between age groups for predicting the spread of infectious diseases. <i>Mathematical Biosciences and Engineering</i> , 2013 , 10, 1475-97	2.1	43

93	Effective vaccination strategies for realistic social networks. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2007 , 386, 780-785	3.3	42
92	Differential susceptibility epidemic models. <i>Journal of Mathematical Biology</i> , 2005 , 50, 626-44	2	40
91	Bounded and unbounded patterns of the Benney equation. <i>Physics of Fluids A, Fluid Dynamics</i> , 1992 , 4, 1102-1104		39
90	Digital Removal of Random Media Image Degradations by Solving the Diffusion Equation Backwards in Time. <i>SIAM Journal on Numerical Analysis</i> , 1978 , 15, 344-367	2.4	39
89	Behavior Changes in SIS STD Models with Selective Mixing. <i>SIAM Journal on Applied Mathematics</i> , 1997 , 57, 1082-1094	1.8	37
88	Approximation of boundary conditions for mimetic finite-difference methods. <i>Computers and Mathematics With Applications</i> , 1998 , 36, 79-99	2.7	37
87	The reproductive number for an HIV model with differential infectivity and staged progression. <i>Linear Algebra and Its Applications</i> , 2005 , 398, 101-116	0.9	36
86	Nonlinear pattern selection in a mechanical model for morphogenesis. <i>Journal of Mathematical Biology</i> , 1986 , 24, 525-41	2	36
85	Fourth- and sixth-order conservative finite difference approximations of the divergence and gradient. <i>Applied Numerical Mathematics</i> , 2001 , 37, 171-187	2.5	35
84	Periodic Solutions of a Logistic Difference Equation. <i>SIAM Journal on Applied Mathematics</i> , 1977 , 32, 73-818		35
83	Nonlinear waves and solitons in physical systems. <i>Physica D: Nonlinear Phenomena</i> , 1998 , 123, 1-20	3.3	33
82	Modeling the Effectiveness of Isolation Strategies in Preventing STD Epidemics. <i>SIAM Journal on Applied Mathematics</i> , 1998 , 58, 912-925	1.8	33
81	The Effect of Social Mixing Patterns on the Spread of AIDS. <i>Lecture Notes in Biomathematics</i> , 1989 , 190-219		32
80	Ebola: mobility data. <i>Science</i> , 2014 , 346, 433	33.3	31
79	The initialization and sensitivity of multigroup models for the transmission of HIV. <i>Journal of Theoretical Biology</i> , 2001 , 208, 227-49	2.3	31
78	Lessons from Nigeria: the role of roads in the geo-temporal progression of avian influenza (H5N1) virus. <i>Epidemiology and Infection</i> , 2010 , 138, 192-8	4.3	29
77	Predicting scorpion sting incidence in an endemic region using climatological variables. <i>International Journal of Environmental Health Research</i> , 2005 , 15, 425-35	3.6	28
76	Epidemiological Models for Mutating Pathogens. <i>SIAM Journal on Applied Mathematics</i> , 2004 , 65, 1-23	1.8	28

75	Two-sex mosquito model for the persistence of Wolbachia. <i>Journal of Biological Dynamics</i> , 2017 , 11, 216-227	2.7	27
74	The sensitivity and accuracy of fourth order finite-difference schemes on nonuniform grids in one dimension. <i>Computers and Mathematics With Applications</i> , 1995 , 30, 41-55	2.7	27
73	A network-patch methodology for adapting agent-based models for directly transmitted disease to mosquito-borne disease. <i>Journal of Biological Dynamics</i> , 2015 , 9, 52-72	2.4	25
72	Differential susceptibility and infectivity epidemic models. <i>Mathematical Biosciences and Engineering</i> , 2006 , 3, 89-100	2.1	25
71	Comparing the effectiveness of different strains of Wolbachia for controlling chikungunya, dengue fever, and zika. <i>PLoS Neglected Tropical Diseases</i> , 2018 , 12, e0006666	4.8	24
70	Estimating the reproduction number from the initial phase of the Spanish flu pandemic waves in Geneva, Switzerland. <i>Mathematical Biosciences and Engineering</i> , 2007 , 4, 457-70	2.1	24
69	The role of spatial mixing in the spread of foot-and-mouth disease. <i>Preventive Veterinary Medicine</i> , 2006 , 73, 297-314	3.1	23
68	The basic reproduction number R_0 and effectiveness of reactive interventions during dengue epidemics: the 2002 dengue outbreak in Easter Island, Chile. <i>Mathematical Biosciences and Engineering</i> , 2013 , 10, 1455-74	2.1	21
67	Modelling the transmission dynamics of acute haemorrhagic conjunctivitis: application to the 2003 outbreak in Mexico. <i>Statistics in Medicine</i> , 2006 , 25, 1840-57	2.3	20
66	Threshold conditions for the spread of the HIV infection in age-structured populations of homosexual men. <i>Journal of Theoretical Biology</i> , 1994 , 166, 9-31	2.3	19
65	Modified asymptotic approach to modeling a dilute-binary-alloy solidification front. <i>Physical Review B</i> , 1988 , 37, 7603-7608	3.3	19
64	Modeling the Transmission of Wolbachia in Mosquitoes for Controlling Mosquito-Borne Diseases. <i>SIAM Journal on Applied Mathematics</i> , 2018 , 78, 826-852	1.8	18
63	Sensitivity Analysis for Uncertainty Quantification in Mathematical Models 2009 , 195-247		18
62	The convergence of mimetic discretization for rough grids. <i>Computers and Mathematics With Applications</i> , 2004 , 47, 1565-1610	2.7	17
61	An adaptive moving mesh method with static rezoning for partial differential equations. <i>Computers and Mathematics With Applications</i> , 2003 , 46, 1511-1524	2.7	17
60	The effect of inner products for discrete vector fields on the accuracy of mimetic finite difference methods. <i>Computers and Mathematics With Applications</i> , 2001 , 42, 1527-1547	2.7	17
59	Connecting network properties of rapidly disseminating epizoonotics. <i>PLoS ONE</i> , 2012 , 7, e39778	3.7	16
58	Disease transmission models with biased partnership selection. <i>Applied Numerical Mathematics</i> , 1997 , 24, 379-392	2.5	16

57	Infection-age structured epidemic models with behavior change or treatment. <i>Journal of Biological Dynamics</i> , 2007 , 1, 109-31	2.4	15
56	Identifying coherent structures in nonlinear wave propagation. <i>Chaos</i> , 1991 , 1, 77-94	3.3	15
55	A mathematical model for the spread of west nile virus in migratory and resident birds. <i>Mathematical Biosciences and Engineering</i> , 2016 , 13, 401-24	2.1	15
54	ACC Theta Improves Hippocampal Contextual Processing during Remote Recall. <i>Cell Reports</i> , 2019 , 27, 2313-2327.e4	10.6	14
53	10. Modeling the Spread of Influenza among Cities 2003 , 211-236		14
52	Towards an early warning system for forecasting human west nile virus incidence. <i>PLOS Currents</i> , 2014 , 6,		14
51	A modified Hai-Murphy model of uterine smooth muscle contraction. <i>Bulletin of Mathematical Biology</i> , 2012 , 74, 143-58	2.1	13
50	Patch dynamics for multiscale problems. <i>Computing in Science and Engineering</i> , 2005 , 7, 47-53	1.5	13
49	Plasma diffusion across a magnetic field. <i>Physica D: Nonlinear Phenomena</i> , 1986 , 20, 444-446	3.3	13
48	Towards an early warning system for forecasting human west nile virus incidence. <i>PLOS Currents</i> , 2014 , 6,		13
47	Disease properties, geography, and mitigation strategies in a simulation spread of rinderpest across the United States. <i>Veterinary Research</i> , 2011 , 42, 55	3.8	12
46	Pulsating multiplet solutions of quintic wave equations. <i>Physica D: Nonlinear Phenomena</i> , 1998 , 123, 502-512	3.3	12
45	Feedback-based, system-level properties of vertebrate-microbial interactions. <i>PLoS ONE</i> , 2013 , 8, e53984	3.7	12
44	Understanding the Impact of Face Mask Usage Through Epidemic Simulation of Large Social Networks. <i>Intelligent Systems Reference Library</i> , 2014 , 97-115	0.8	11
43	A New Age-Structured Multiscale Model of the Hepatitis C Virus Life-Cycle During Infection and Therapy With Direct-Acting Antiviral Agents. <i>Frontiers in Microbiology</i> , 2018 , 9, 601	5.7	10
42	Human-mediated foot-and-mouth disease epidemic dispersal: disease and vector clusters. <i>Zoonoses and Public Health</i> , 2006 , 53, 1-10		10
41	Analysis of nonlinear mass and energy diffusion. <i>Physical Review A</i> , 1985 , 32, 2370-2373	2.6	10
40	Identification of case clusters and counties with high infective connectivity in the 2001 epidemic of foot-and-mouth disease in Uruguay. <i>American Journal of Veterinary Research</i> , 2006 , 67, 102-13	1.1	9

39	Mimetic finite difference operators for second-order tensors on unstructured grids. <i>Computers and Mathematics With Applications</i> , 2002 , 44, 157-173	2.7	9
38	Coupling Vector-host Dynamics with Weather Geography and Mitigation Measures to Model Rift Valley Fever in Africa. <i>Mathematical Modelling of Natural Phenomena</i> , 2014 , 9, 161-177	3	8
37	An Algorithm for Aligning a Quadrilateral Grid with Internal Boundaries. <i>Journal of Computational Physics</i> , 2000 , 163, 133-149	4.1	8
36	The numerical differentiation of discrete functions using polynomial interpolation methods. <i>Applied Mathematics and Computation</i> , 1982 , 10-11, 487-506	2.7	8
35	Optimizing human activity patterns using global sensitivity analysis. <i>Computational and Mathematical Organization Theory</i> , 2014 , 20, 394-416	2.1	7
34	The origin of acquired immune deficiency syndrome: Darwinian or Lamarckian?. <i>Philosophical Transactions of the Royal Society B: Biological Sciences</i> , 2001 , 356, 877-87	5.8	7
33	Dynamic rezone methods for partial differential equations in one space dimension. <i>Applied Numerical Mathematics</i> , 1989 , 5, 435-450	2.5	7
32	Generating Bipartite Networks with a Prescribed Joint Degree Distribution. <i>Journal of Complex Networks</i> , 2017 , 5, 839-857	1.7	6
31	Constructing rigorous and broad biosurveillance networks for detecting emerging zoonotic outbreaks. <i>PLoS ONE</i> , 2015 , 10, e0124037	3.7	6
30	Modelling HIV/AIDS and monkeypox co-infection. <i>Applied Mathematics and Computation</i> , 2012 , 218, 9504-9518	4.9	6
29	Analytical effective coefficient and a first-order approximation for linear flow through block permeability inclusions. <i>Computers and Mathematics With Applications</i> , 2008 , 55, 2118-2133	2.7	6
28	Stability, Relaxation, and Oscillation of Biodegradation Fronts. <i>SIAM Journal on Applied Mathematics</i> , 2000 , 61, 472-505	1.8	6
27	The Biosurveillance Analytics Resource Directory (BARD): Facilitating the Use of Epidemiological Models for Infectious Disease Surveillance. <i>PLoS ONE</i> , 2016 , 11, e0146600	3.7	6
26	Mathematical applications associated with the deliberate release of infectious agents. <i>Contemporary Mathematics</i> , 2006 , 51-71	1.6	6
25	Multi-model forecasts of the ongoing Ebola epidemic in the Democratic Republic of Congo, March-October 2019. <i>Journal of the Royal Society Interface</i> , 2020 , 17, 20200447	4.1	6
24	A Risk-based Model for Predicting the Impact of using Condoms on the Spread of Sexually Transmitted Infections. <i>Infectious Disease Modelling</i> , 2017 , 2, 100-112	15.7	5
23	On the quasi-continuous approximation of the Toda lattice. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 1987 , 124, 287-289	2.3	5
22	Epidemic models with differential susceptibility and staged progression and their dynamics. <i>Mathematical Biosciences and Engineering</i> , 2009 , 6, 321-32	2.1	5

21	Modeling the influence of polls on elections: a population dynamics approach. <i>Public Choice</i> , 2009 , 140, 395-420	1.4	4
20	Coherence and Chaos in the Kuramoto-Velarde Equation 1987 , 89-111		4
19	Human-Mosquito Contact: A Missing Link in Our Understanding of Mosquito-Borne Disease Transmission Dynamics. <i>Annals of the Entomological Society of America</i> , 2021 , 114, 397-414	2	4
18	Generating a Hierarchy of Reduced Models for a System of Differential Equations Modeling the Spread of Wolbachia in Mosquitoes. <i>SIAM Journal on Applied Mathematics</i> , 2019 , 79, 1675-1699	1.8	4
17	Numerical Methods for Nonlinear Differential Equations. <i>North-Holland Mathematics Studies</i> , 1982 , 91-107		3
16	Sub-epidemic model forecasts for COVID-19 pandemic spread in the USA and European hotspots, February-May 2020		3
15	Improving the damage accumulation in a biomechanical bone remodelling model. <i>Computer Methods in Biomechanics and Biomedical Engineering</i> , 2009 , 12, 341-52	2.1	2
14	MOVING MESH METHODS FOR PARTIAL DIFFERENTIAL EQUATIONS 1988 , 129-153		2
13	Critical response to post-outbreak vaccination against foot-and-mouth disease. <i>Contemporary Mathematics</i> , 2006 , 73-87	1.6	2
12	A Multi-risk Model for Understanding the Spread of Chlamydia 2016 , 249-268		1
11	Comment on paper Multi-strategy ensemble evolutionary algorithm for dynamic multi-objective optimization by Wang and Li. <i>Memetic Computing</i> , 2010 , 2, 161-162	3.4	1
10	A strategy for detecting extreme eigenvalues bounding gaps in the discrete spectrum of self-adjoint operators. <i>Computers and Mathematics With Applications</i> , 2007 , 53, 1271-1283	2.7	1
9	Mimetic Finite Difference Methods for Maxwell's Equations and the Equations of Magnetic Diffusion - Abstract. <i>Journal of Electromagnetic Waves and Applications</i> , 2001 , 15, 107-108	1.3	1
8	A divide-and-conquer algorithm for grid generation. <i>Applied Numerical Mathematics</i> , 1994 , 14, 125-134	2.5	1
7	Biased preference models for partnership formation 1996 , 3137-3148		1
6	An Investigation of Human-Mosquito Contact Using Surveys and Its Application in Assessing Dengue Viral Transmission Risk. <i>Journal of Medical Entomology</i> , 2020 , 57, 1942-1954	2.2	1
5	Mask-Ematics: Modeling the Effects of Masks in COVID-19 Transmission in High-Risk Environments. <i>Epidemiologia</i> , 2021 , 2, 207-226	2.8	1
4	Modeling the Impact of Behavior Change on the Spread of Ebola 2016 , 5-23		1

3	Staged progression epidemic models for the transmission of invasive nontyphoidal (iNTS) with treatment. <i>Mathematical Biosciences and Engineering</i> , 2021 , 18, 1529-1549	2.1	0
2	Learning from the past to prepare for the future: Modeling the impact of hypothetical interventions during the great influenza pandemic of 1918. <i>Chance</i> , 2008 , 21, 55-60	1	
1	Sub-epidemic Model Forecasts During the First Wave of the COVID-19 Pandemic in the USA and European Hotspots. <i>Fields Institute Communications</i> , 2022 , 85-137	0.4	