Anthony J Roberts

List of Publications by Year
in descending order

81 papers	1,630 citations	331670 21 h-index	330143 37 g-index
87 all docs	87 docs citations	87 times ranked	687 citing authors

#	Article	IF	Citations
1	A Centre Manifold Description of Contaminant Dispersion in Channels with Varying Flow Properties. SIAM Journal on Applied Mathematics, 1990, 50, 1547-1565.	1.8	140
2	Highly nonlinear short-crested water waves. Journal of Fluid Mechanics, 1983, 135, 301.	3.4	93
3	Average and deviation for slowâ€“fast stochastic partial differential equations. Journal of Differential Equations, 2012, 253, 1265-1286.	2.2	89
4	Normal form transforms separate slow and fast modes in stochastic dynamical systems. Physica A: Statistical Mechanics and Its Applications, 2008, 387, 12-38.	2.6	78
5	A lubrication model of coating flows over a curved substrate in space. Journal of Fluid Mechanics, 2002, 454, 235-261.	3.4	76
6	Standing waves in deep water: Their stability and extreme form. Physics of Fluids A, Fluid Dynamics, 1992, 4, 259-269.	1.6	61
7	Appropriate initial conditions for asymptotic descriptions of the long term evolution of dynamical systems. Journal of the Australian Mathematical Society Series B Applied Mathematics, 1989, 31, 48-75.	0.2	58
8	Low-dimensional modelling of dynamics via computer algebra. Computer Physics Communications, 1997, 100, 215-230.	7.5	56
9	The application of centre-manifold theory to the evolution of system which vary slowly in space. Journal of the Australian Mathematical Society Series B Applied Mathematics, 1988, 29, 480-500.	0.2	52
10	The Utility of an Invariant Manifold Description of the Evolution of a Dynamical System. SIAM Journal on Mathematical Analysis, 1989, 20, 1447-1458.	1.9	52
11	Initial conditions for models of dynamical systems. Physica D: Nonlinear Phenomena, 1995, 85, 126-141.	2.8	42
12	On the low-dimensional modelling of Stratonovich stochastic differential equations. Physica A: Statistical Mechanics and Its Applications, 1996, 225, 62-80.	2.6	40
13	Notes on long-crested water waves. Journal of Fluid Mechanics, 1983, 135, 323.	3.4	38
14	General Tooth Boundary Conditions for Equation Free Modeling. SIAM Journal of Scientific Computing, 2007, 29, 1495-1510.	2.8	37
15	Elementary Calculus of Financial Mathematics. , 2008, , .		35
16	Boundary conditions for approximate differential equations. Journal of the Australian Mathematical Society Series B Applied Mathematics, 1992, 34, 54-80.	0.2	32
17	An accurate and comprehensive model of thin fluid flows with inertia on curved substrates. Journal of Fluid Mechanics, 2006, 553, 33.	3.4	32
18	Slow manifold and averaging for slowâ€“fast stochastic differential system. Journal of Mathematical Analysis and Applications, 2013, 398, 822-839.	1.0	31

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19	Low-dimensional models of thin film fluid dynamics. Physics Letters, Section A: General, Atomic and Solid State Physics, 1996, 212, 63-71.	2.1	30
20	Large deviations and approximations for slowâ€"fast stochastic reactionâ€"diffusion equations. Journal of Differential Equations, 2012, 253, 3501-3522.	2.2	29
21	Phase transitions in shape memory alloys with hyperbolic heat conduction and differential-algebraic models. Computational Mechanics, 2002, 29, 16-26.	4.0	28
22	A holistic finite difference approach models linear dynamics consistently. Mathematics of Computation, 2002, 72, 247-263.	2.1	27
23	Holistic discretization ensures fidelity to Burgers' equation. Applied Numerical Mathematics, 2001, 37, 371-396.	2.1	22
24	Simple examples of the derivation of amplitude equations for systems of equations possessing bifurcations. Journal of the Australian Mathematical Society Series B Applied Mathematics, 1985, 27, 48-65.	0.2	21
25	An analysis of near-marginal, mildly penetrative convection with heat flux prescribed on the boundaries. Journal of Fluid Mechanics, 1985, 158, 71-93.	3.4	21
26	Linking Machine Learning with Multiscale Numerics: Data-Driven Discovery of Homogenized Equations. Jom, 2020, 72, 4444-4457.	1.9	20
27	A step towards holistic discretisation of stochastic partial differential equations. ANZIAM Journal, 0, 45, 1.	0.0	20
28	Modelling nonlinear dynamics of shape-memory-alloys with approximate models of coupled thermoelasticity. ZAMM Zeitschrift Fur Angewandte Mathematik Und Mechanik, 2003, 83, 93-104.	1.6	17
29	Centre manifolds of forced dynamical systems. Journal of the Australian Mathematical Society Series B Applied Mathematics, 1991, 32, 401-436.	0.2	16
30	On the observability of finite-depth short-crested water waves. Journal of Fluid Mechanics, 1996, 322, 1-19.	3.4	16
31	Nonlinear Analysis of Rubber-Based Polymeric Materials with Thermal Relaxation Models. Numerical Heat Transfer; Part A: Applications, 2005, 47, 549-569.	2.1	16
32	A dynamical systems approach to simulating macroscale spatial dynamics in multiple dimensions. Journal of Engineering Mathematics, 2014, 86, 175-207.	1.2	16
33	A description of the long-term behaviour of absorbing continuous-time Markov chains using a centre manifold. Advances in Applied Probability, 1990, 22, 111-128.	0.7	15
34	Resolving the Multitude of Microscale Interactions Accurately Models Stochastic Partial Differential Equations. LMS Journal of Computation and Mathematics, 2006, 9, 193-221.	0.9	15
35	Good coupling for the multiscale patch scheme on systems with microscale heterogeneity. Journal of Computational Physics, 2017, 337, 154-174.	3.8	14
36	Macroscale, slowly varying, models emerge from the microscale dynamics: Fig. 1.. IMA Journal of Applied Mathematics, 2015, 80, 1492-1518.	1.6	13

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37	LYAPUNOV EXPONENTS OF THE KURAMOTOâ€“SIVASHINSKY PDE. ANZIAM Journal, 2019, 61, 270-285.	0.2	13
38	Higher order accuracy in the gap-tooth scheme for large-scale dynamics using microscopic simulators. ANZIAM Journal, 0, 46, 637.	0.0	13
39	Holistic finite differences accurately model the dynamics of the Kuramoto-Sivashinsky equation. ANZIAM Journal, 0, 42, 918.	0.0	12
40	Simple and fast multigrid solution of Poisson's equation using diagonally oriented grids. ANZIAM Journal, 0, 43, 1.	0.0	12
41	Diffusion Approximation for Self-Similarity of Stochastic Advection in Burgersâ€™ Equation. Communications in Mathematical Physics, 2015, 333, 1287-1316.	2.2	11
42	Multiscale modelling couples patches of non-linear wave-like simulations. IMA Journal of Applied Mathematics, 2016, 81, 228-254.	1.6	11
43	Averaging approximation to singularly perturbed nonlinear stochastic wave equations. Journal of Mathematical Physics, 2012, 53, 062702.	1.1	10
44	Large Deviation Principle for Singularly Perturbed Stochastic Damped Wave Equations. Stochastic Analysis and Applications, 2014, 32, 50-60.	1.5	10
45	Equation-Free Computation: An Overview of Patch Dynamics. , 2009, , 216-246.		9
46	Surface deformation and shear flow in ligand mediated cell adhesion. Journal of Mathematical Biology, 2016, 73, 1035-1052.	1.9	8
47	A toolbox of equation-free functions in Matlab/Octave for efficient system level simulation. Numerical Algorithms, 2021, 87, 1729-1748.	1.9	8
48	Model Dynamics across Multiple Length and Time Scales on a Spatial Multigrid. Multiscale Modeling and Simulation, 2009, 7, 1525-1548.	1.6	7
49	Modeling of Sample Dynamics in Rectangular Asymmetrical Flow Field-Flow Fractionation Channels. Analytical Chemistry, 2000, 72, 4331-4345.	6.5	6
50	Self-Similarity and Attraction in Stochastic Nonlinear Reaction-Diffusion Systems. SIAM Journal on Applied Dynamical Systems, 2013, 12, 450-486.	1.6	6
51	Approximation of the random inertial manifold of singularly perturbed stochastic wave equations. Stochastics and Dynamics, 2014, 14, 1350018.	1.2	6
52	Derive boundary conditions for holistic discretisations of Burgers' equation. ANZIAM Journal, 0, 44, 664.	0.0	6
53	Multiscale modelling couples patches of wave-like simulations. ANZIAM Journal, 0, 54, 153.	0.0	6
54	Modelling the Dynamics of Turbulent Floods. SIAM Journal on Applied Mathematics, 2003, 63, 423-458.	1.8	5

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55	Accurately Model the Kuramoto--Sivashinsky Dynamics with Holistic Discretization. SIAM Journal on Applied Dynamical Systems, 2006, 5, 365-402.	1.6	5
56	Resolution of subgrid microscale interactions enhances the discretisation of nonautonomous partial differential equations. Applied Mathematics and Computation, 2017, 304, 164-179.	2.2	5
57	Slowly varying, macroscale models emerge from microscale dynamics over multiscale domains. IMA Journal of Applied Mathematics, 2017, 82, 971-1012.	1.6	5
58	Largeâ€scale simulation of shallow water waves via computation only on small staggered patches. International Journal for Numerical Methods in Fluids, 2021, 93, 953-977.	1.6	5
59	A variational approach to the problem of deep-water waves forming a circular caustic. Journal of Fluid Mechanics, 1988, 194, 581.	3.4	4
60	Choose inter-element coupling to preserve self-adjoint dynamics in multiscale modelling and computation. Applied Numerical Mathematics, 2010, 60, 949-973.	2.1	4
61	Accuracy of Patch Dynamics with Mesoscale Temporal Coupling for Efficient Massively Parallel Simulations. SIAM Journal of Scientific Computing, 2016, 38, C335-C371.	2.8	4
62	Modelling suspended sediment in environmental turbulent fluids. Journal of Engineering Mathematics, 2016, 98, 187-204.	1.2	4
63	Holistic discretisation of shear dispersion in a two-dimensional channel. ANZIAM Journal, 0, 44, 512.	0.0	4
64	Equation-free patch scheme for efficient computational homogenisation via self-adjoint coupling. Numerische Mathematik, 2021, 149, 229-272.	1.9	4
65	Reflection of nonlinear deep-water waves incident onto a wedge of arbitrary angle. Journal of the Australian Mathematical Society Series B Applied Mathematics, 1990, 32, 61-96.	0.2	3
66	Bowâ€"like free surfaces under gravity. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 1997, 355, 665-677.	3.4	3
67	The inertial dynamics of thin film flow of non-Newtonian fluids. Physics Letters, Section A: General, Atomic and Solid State Physics, 2008, 372, 1607-1611.	2.1	3
68	COUPLE MICROSCALE PERIODIC PATCHES TO SIMULATE MACROSCALE EMERGENT DYNAMICS. ANZIAM Journal, 2018, 59, 313-334.	0.2	3
69	Boundary conditions for macroscale waves in an elastic system with microscale heterogeneity. IMA Journal of Applied Mathematics, 2018, 83, 347-379.	1.6	3
70	Numerical integration of ordinary differential equations with rapidly oscillatory factors. Journal of Computational and Applied Mathematics, 2015, 282, 54-70.	2.0	2
71	Smooth subgrid fields underpin rigorous closure in spatial discretisation of reactionâ€"advectionâ€"diffusion PDEs. Applied Numerical Mathematics, 2018, 132, 91-110.	2.1	2
72	Normal forms and invariant manifolds for nonlinear, non-autonomous PDEs, viewed as ODEs in infinite dimensions. Journal of Differential Equations, 2019, 267, 7263-7312.	2.2	2

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73	An Equation Free Algorithm Accurately Simulates Macroscale Shocks Arising From Heterogeneous Microscale Systems. IEEE Journal on Multiscale and Multiphysics Computational Techniques, 2021, 6, 8-15.	2.2	2
74	The dynamics of the vertical structure of turbulence in flood flows. ANZIAM Journal, 0, 48, 573.	0.0	2
75	Advectionâ€dispersion in symmetric fieldâ€flow fractionation channels. Journal of Mathematical Chemistry, 1999, 26, 27-46.	1.5	1
76	Nonlinear emergent macroscale PDEs, with error bound, for nonlinear microscale systems. SN Applied Sciences, 2021, 3, 1.	2.9	1
77	Slow-burning instabilities of Dufort-Frankel finite differencing. ANZIAM Journal, 0, 63, 23-38.	0.0	1
78	Macroscopic discrete modelling of stochastic reaction-diffusion equations on a periodic domain. Discrete and Continuous Dynamical Systems, 2011, 31, 253-273.	0.9	1
79	Internal structure of extreme standing waves on deep water. Physics of Fluids, 1996, 8, 697-703.	4.0	0
80	Rigorous modelling of nonlocal interactions determines a macroscale advection-diffusion PDE. MATRIX Book Series, 2021, , 423-437.	0.2	0
81	Couple microscale periodic patches to simulate macroscale emergent dynamics. ANZIAM Journal, 0, 59, 313.	0.0	0