

Randall J Leveque

List of Publications by Year in descending order

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97
papers

14,095
citations

61984

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56724

83
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109
all docs

109
docs citations

109
times ranked

7765
citing authors

#	ARTICLE	IF	CITATIONS
1	Numerical Methods for Conservation Laws. , 1992, , .		1,847
2	The Immersed Interface Method for Elliptic Equations with Discontinuous Coefficients and Singular Sources. SIAM Journal on Numerical Analysis, 1994, 31, 1019-1044.	2.3	1,113
3	Balancing Source Terms and Flux Gradients in High-Resolution Godunov Methods: The Quasi-Steady Wave-Propagation Algorithm. Journal of Computational Physics, 1998, 146, 346-365.	3.8	662
4	High-Resolution Conservative Algorithms for Advection in Incompressible Flow. SIAM Journal on Numerical Analysis, 1996, 33, 627-665.	2.3	580
5	Wave Propagation Algorithms for Multidimensional Hyperbolic Systems. Journal of Computational Physics, 1997, 131, 327-353.	3.8	419
6	Numerical Methods for Conservation Laws. , 1990, , .		398
7	Immersed Interface Methods for Stokes Flow with Elastic Boundaries or Surface Tension. SIAM Journal of Scientific Computing, 1997, 18, 709-735.	2.8	353
8	An Immersed Interface Method for Incompressible Navier--Stokes Equations. SIAM Journal of Scientific Computing, 2003, 25, 832-856.	2.8	249
9	Tsunami modelling with adaptively refined finite volume methods. Acta Numerica, 2011, 20, 211-289.	10.7	223
10	Algorithms for Computing the Sample Variance: Analysis and Recommendations. American Statistician, 1983, 37, 242-247.	1.6	216
11	Adaptive Mesh Refinement Using Wave-Propagation Algorithms for Hyperbolic Systems. SIAM Journal on Numerical Analysis, 1998, 35, 2298-2316.	2.3	210
12	A Wave Propagation Method for Conservation Laws and Balance Laws with Spatially Varying Flux Functions. SIAM Journal of Scientific Computing, 2003, 24, 955-978.	2.8	210
13	Probabilistic Tsunami Hazard Analysis: Multiple Sources and Global Applications. Reviews of Geophysics, 2017, 55, 1158-1198.	23.0	170
14	The GeoClaw software for depth-averaged flows with adaptive refinement. Advances in Water Resources, 2011, 34, 1195-1206.	3.8	169
15	On the accuracy of stable schemes for 2D scalar conservation laws. Mathematics of Computation, 1985, 45, 15-21.	2.1	136
16	Solitaryâ€Wave Interactions in Elastic Rods. Studies in Applied Mathematics, 1986, 75, 95-121.	2.4	131
17	Fractional step methods applied to a chemotaxis model. Journal of Mathematical Biology, 2000, 41, 455-475.	1.9	131
18	The immersed interface method for acoustic wave equations with discontinuous coefficients. Wave Motion, 1997, 25, 237-263.	2.0	104

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19	A Wave Propagation Method for Three-Dimensional Hyperbolic Conservation Laws. Journal of Computational Physics, 2000, 165, 126-166.	3.8	96
20	A large Time Step Generalization of Godunov's Method for Systems of Conservation Laws. SIAM Journal on Numerical Analysis, 1985, 22, 1051-1073.	2.3	93
21	Reproducible research for scientific computing: Tools and strategies for changing the culture. Computing in Science and Engineering, 2012, 14, 13-17.	1.2	92
22	Numerical methods based on additive splittings for hyperbolic partial differential equations. Mathematics of Computation, 1983, 40, 469-497.	2.1	89
23	High resolution finite volume methods on arbitrary grids via wave propagation. Journal of Computational Physics, 1988, 78, 36-63.	3.8	83
24	Logically Rectangular Grids and Finite Volume Methods for PDEs in Circular and Spherical Domains. SIAM Review, 2008, 50, 723-752.	9.5	82
25	H-Box Methods for the Approximation of Hyperbolic Conservation Laws on Irregular Grids. SIAM Journal on Numerical Analysis, 2003, 41, 893-918.	2.3	81
26	An adaptive Cartesian mesh algorithm for the Euler equations in arbitrary geometries. , 1989, , .		78
27	Two-Dimensional Front Tracking Based on High Resolution Wave Propagation Methods. Journal of Computational Physics, 1996, 123, 354-368.	3.8	77
28	Algorithms for Computing the Sample Variance: Analysis and Recommendations. American Statistician, 1983, 37, 242.	1.6	76
29	A Class of Approximate Riemann Solvers and Their Relation to Relaxation Schemes. Journal of Computational Physics, 2001, 172, 572-591.	3.8	73
30	A Geometric Approach to High Resolution TVD Schemes. SIAM Journal on Numerical Analysis, 1988, 25, 268-284.	2.3	72
31	A Cartesian Grid Finite-Volume Method for the Advection-Diffusion Equation in Irregular Geometries. Journal of Computational Physics, 2000, 157, 143-180.	3.8	67
32	Large Time Step Shock-Capturing Techniques for Scalar Conservation Laws. SIAM Journal on Numerical Analysis, 1982, 19, 1091-1109.	2.3	66
33	Kinematic rupture scenarios and synthetic displacement data: An example application to the Cascadia subduction zone. Journal of Geophysical Research: Solid Earth, 2016, 121, 6658-6674.	3.4	66
34	Clawpack: building an open source ecosystem for solving hyperbolic PDEs. PeerJ Computer Science, 0, 2, e68.	4.5	62
35	On the resolvent condition in the Kreiss Matrix Theorem. BIT Numerical Mathematics, 1984, 24, 584-591.	2.0	59
36	The Geomorphic Impact of Outburst Floods: Integrating Observations and Numerical Simulations of the 2000 Yigong Flood, Eastern Himalaya. Journal of Geophysical Research F: Earth Surface, 2019, 124, 1056-1079.	2.8	58

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37	A High-Resolution Rotated Grid Method for Conservation Laws with Embedded Geometries. SIAM Journal of Scientific Computing, 2005, 26, 785-809.	2.8	57
38	A Modified Fractional Step Method for the Accurate Approximation of Detonation Waves. SIAM Journal of Scientific Computing, 2000, 22, 1489-1510.	2.8	55
39	High-Resolution Finite Volume Methods for Dusty Gas Jets and Plumes. SIAM Journal of Scientific Computing, 2006, 28, 1335-1360.	2.8	55
40	Solitary Waves in Layered Nonlinear Media. SIAM Journal on Applied Mathematics, 2003, 63, 1539-1560.	1.8	54
41	High-resolution finite-volume methods for acoustic waves in periodic and random media. Journal of the Acoustical Society of America, 1999, 106, 17-28.	1.1	52
42	A wave propagation algorithm for hyperbolic systems on curved manifolds. Journal of Computational Physics, 2004, 199, 631-662.	3.8	51
43	One-Dimensional Front Tracking Based on High Resolution Wave Propagation Methods. SIAM Journal of Scientific Computing, 1995, 16, 348-377.	2.8	49
44	High-Order Wave Propagation Algorithms for Hyperbolic Systems. SIAM Journal of Scientific Computing, 2013, 35, A351-A377.	2.8	49
45	THE DYNAMICS OF PRESSURELESS DUST CLOUDS AND DELTA WAVES. Journal of Hyperbolic Differential Equations, 2004, 01, 315-327.	0.5	47
46	Finite-volume methods for non-linear elasticity in heterogeneous media. International Journal for Numerical Methods in Fluids, 2002, 40, 93-104.	1.6	45
47	Analysis of the SOR Iteration for the 9-Point Laplacian. SIAM Journal on Numerical Analysis, 1988, 25, 1156-1180.	2.3	43
48	HIGH-RESOLUTION FINITE VOLUME METHODS FOR THE SHALLOW WATER EQUATIONS WITH BATHYMETRY AND DRY STATES. Series on Quality, Reliability and Engineering Statistics, 2008, , 43-73.	0.2	42
49	Validating Velocities in the GeoClaw Tsunami Model Using Observations near Hawaii from the 2011 Tohoku Tsunami. Pure and Applied Geophysics, 2015, 172, 849-867.	1.9	42
50	Generating Random Earthquake Events for Probabilistic Tsunami Hazard Assessment. Pure and Applied Geophysics, 2016, 173, 3671-3692.	1.9	42
51	Nonlinear Conservation Laws and Finite Volume Methods. , 1998, , 1-159.		41
52	Transport Reversal for Model Reduction of Hyperbolic Partial Differential Equations. SIAM-ASA Journal on Uncertainty Quantification, 2018, 6, 118-150.	2.0	40
53	On least squares exponential sum approximation with positive coefficients. Mathematics of Computation, 1980, 34, 203-211.	2.1	39
54	Convergence of a large time step generalization of Godunov's method for conservation laws. Communications on Pure and Applied Mathematics, 1984, 37, 463-477.	3.1	33

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55	High-Resolution Finite Volume Modeling of Wave Propagation in Orthotropic Poroelastic Media. SIAM Journal of Scientific Computing, 2013, 35, B176-B206.	2.8	33
56	Stability of Godunov's Method for a Class of 2×2 Systems of Conservation Laws. Transactions of the American Mathematical Society, 1985, 288, 115.	0.9	30
57	On the Interaction of Nearly Equal Solitons in the KdV Equation. SIAM Journal on Applied Mathematics, 1987, 47, 254-262.	1.8	27
58	Wave Propagation Methods for Conservation Laws with Source Terms. , 1999, , 609-618.		27
59	Second Order Accuracy of Brenier's Time-Discrete Method for Nonlinear Systems of Conservation Laws. SIAM Journal on Numerical Analysis, 1988, 25, 1-7.	2.3	25
60	On the Accuracy of Stable Schemes for 2D Scalar Conservation Laws. Mathematics of Computation, 1985, 45, 15.	2.1	24
61	Fourier Analysis of the SOR Iteration. IMA Journal of Numerical Analysis, 1988, 8, 273-279.	2.9	23
62	A Well-Balanced Path-Integral f-Wave Method for Hyperbolic Problems with Source Terms. Journal of Scientific Computing, 2011, 48, 209-226.	2.3	23
63	A comparison of a two-dimensional depth-averaged flow model and a three-dimensional RANS model for predicting tsunami inundation and fluid forces. Natural Hazards and Earth System Sciences, 2018, 18, 2489-2506.	3.6	23
64	A Boussinesq type extension of the GeoClaw model - a study of wave breaking phenomena applying dispersive long wave models. Coastal Engineering, 2017, 122, 75-86.	4.0	21
65	Solution of a Two-Dimensional Cochlea Model with Fluid Viscosity. SIAM Journal on Applied Mathematics, 1988, 48, 191-213.	1.8	20
66	On the uniform power-boundedness of a family of matrices and the applications to one-leg and linear multistep methods. Numerische Mathematik, 1983, 42, 1-13.	1.9	18
67	Generating Random Earthquake Events for Probabilistic Tsunami Hazard Assessment. Pageoph Topical Volumes, 2016, , 3671-3692.	0.2	18
68	Intermediate boundary conditions for time-split methods applied to hyperbolic partial differential equations. Mathematics of Computation, 1986, 47, 37-37.	2.1	17
69	Python Tools for Reproducible Research on Hyperbolic Problems. Computing in Science and Engineering, 2009, 11, 19-27.	1.2	17
70	Cartesian Grid Methods for Fluid Flow in Complex Geometries. The IMA Volumes in Mathematics and Its Applications, 2001, , 117-143.	0.5	17
71	The Pattern Method for incorporating tidal uncertainty into probabilistic tsunami hazard assessment (PTHA). Natural Hazards, 2015, 76, 19-39.	3.4	16
72	Comparison of Machine Learning Approaches for Tsunami Forecasting from Sparse Observations. Pure and Applied Geophysics, 2021, 178, 5129-5153.	1.9	16

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73	Logically rectangular finite volume methods with adaptive refinement on the sphere. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2009, 367, 4483-4496.	3.4	14
74	Accelerating an Adaptive Mesh Refinement Code for Depth-Averaged Flows Using GPUs. Journal of Advances in Modeling Earth Systems, 2019, 11, 2606-2628.	3.8	12
75	Shock dynamics in layered periodic media. Communications in Mathematical Sciences, 2012, 10, 859-874.	1.0	12
76	Stability of Godunov's method for a class of 2 \times 2 systems of conservation laws. Transactions of the American Mathematical Society, 1985, 288, 115-123.	0.9	11
77	Solution of a Two-Dimensional Cochlea Model Using Transform Techniques. SIAM Journal on Applied Mathematics, 1985, 45, 450-464.	1.8	11
78	A Source Clustering Approach for Efficient Inundation Modeling and Regional Scale Probabilistic Tsunami Hazard Assessment. Frontiers in Earth Science, 2020, 8, .	1.8	11
79	Scalar Conservation Laws. , 1990, , 19-40.		10
80	Computational models of material interfaces for the study of extracorporeal shock wave therapy. Communications in Applied Mathematics and Computational Science, 2013, 8, 159-194.	1.8	7
81	Wave propagation software, computational science, and reproducible research. , 2007, , 1227-1253.		7
82	Correction to the article "A comparison of the extended finite element method with the immersed interface method for elliptic equations with discontinuous coefficients and singular sources" by Vaughan et al.. Communications in Applied Mathematics and Computational Science, 2008, 3, 95-101.	1.8	4
83	A High-Resolution Finite Volume Seismic Model to Generate Seafloor Deformation for Tsunami Modeling. Journal of Scientific Computing, 2017, 73, 1204-1215.	2.3	3
84	Shoaling on Steep Continental Slopes: Relating Transmission and Reflection Coefficients to Green's Law. Pure and Applied Geophysics, 2020, 177, 1659-1674.	1.9	3
85	Phase Plane Behavior of Solitary Waves in Nonlinear Layered Media. , 2003, , 43-51.		3
86	Computational study of shock waves propagating through air-plastic-water interfaces. Bulletin of the Brazilian Mathematical Society, 2016, 47, 685-700.	0.8	2
87	Developing a Warning System for Inbound Tsunamis from the Cascadia Subduction Zone. , 2018, , .		2
88	Multiscale evaluation method of the drag effect on shallow water flow through coastal forests based on 3D numerical simulations. International Journal for Numerical Methods in Fluids, 2022, 94, 32-58.	1.6	2
89	Analysis and Performance Evaluation of Adjoint-guided Adaptive Mesh Refinement for Linear Hyperbolic PDEs Using Clawpack. ACM Transactions on Mathematical Software, 2020, 46, 1-28.	2.9	2
90	Advanced Problems: 6460-6462. American Mathematical Monthly, 1984, 91, 371.	0.3	1

#	ARTICLE	IF	CITATIONS
91	Designing an offshore geophysical network in the Pacific Northwest for earthquake and tsunami early warning and hazard research. , 2016, , .		1
92	Multi-Scale Modeling of a 500-Year CSZ Tsunami Inundation with Constructed Environment. , 2017, , .		1
93	High Resolution Finite Volume Methods on Arbitrary Grids via Wave Propagation. , 1988, , 491-518.		1
94	Hyperbolic Conservation Laws. Oberwolfach Reports, 2005, 1, 915-962.	0.0	0
95	Modeling Hazardous Mass Flows Geoflows09: Mathematical and Computational Aspects of Modeling Hazardous Geophysical Mass Flows; Seattle, Washington, 9â€“11 March 2009. Eos, 2009, 90, 201.	0.1	0
96	Wave Propagation Algorithms for Hyperbolic Systems on Curved Manifolds. , 2001, , 129-138.		0
97	Reproducibility: Methods. , 2015, , 1254-1257.		0