David A Benson

List of Publications by Year
in descending order

78 papers	6,688 citations	101384 36 h-index	76769 74 g-index
79 all docs	79 docs citations	79 times ranked	3015 citing authors

#	Article	IF	Citations
1	Application of a fractional advection-dispersion equation. Water Resources Research, 2000, 36, 1403-1412.	1.7	989
2	The fractional-order governing equation of LÃ©vy Motion. Water Resources Research, 2000, 36, 1413-1423.	1.7	625
3	Fractal mobile/immobile solute transport. Water Resources Research, 2003, 39, .	1.7	426
4	Fractional Dispersion, LÃ©vy Motion, and the MADE Tracer Tests. Transport in Porous Media, 2001, 42, 211-240.	1.2	372
5	Eulerian derivation of the fractional advectionâ€“dispersion equation. Journal of Contaminant Hydrology, 2001, 48, 69-88.	1.6	302
6	Stochastic solution of space-time fractional diffusion equations. Physical Review E, 2002, 65, 041103.	0.8	280
7	Time and space nonlocalities underlying fractional-derivative models: Distinction and literature review of field applications. Advances in Water Resources, 2009, 32, 561-581.	1.7	277
8	Multidimensional advection and fractional dispersion. Physical Review E, 1999, 59, 5026-5028.	0.8	232
9	Particle tracking and the diffusionâ€reaction equation. Water Resources Research, 2013, 49, 1-6.	1.7	192
10	Subordinated advection-dispersion equation for contaminant transport. Water Resources Research, 2001, 37, 1543-1550.	1.7	179
11	Fractional calculus in hydrologic modeling: A numerical perspective. Advances in Water Resources, 2013, 51, 479-497.	1.7	148
12	Multiscaling fractional advection-dispersion equations and their solutions. Water Resources Research, 2003, 39, .	1.7	145
13	A simple and efficient random walk solution of multi-rate mobile/immobile mass transport equations. Advances in Water Resources, 2009, 32, 532-539.	1.7	131
14	Space-fractional advection-dispersion equations with variable parameters: Diverse formulas, numerical solutions, and application to the Macrodispersion Experiment site data. Water Resources Research, 2007, 43, .	1.7	113
15	Simulating Scaleâ€Dependent Solute Transport in Soils with the Fractional Advectiveâ€“Dispersive Equation. Soil Science Society of America Journal, 2000, 64, 1234-1243.	1.2	111
16	Simulation of chemical reaction via particle tracking: Diffusionâ€limited versus thermodynamic rateâ€limited regimes. Water Resources Research, 2008, 44, .	1.7	106
17	Fractional dispersion in a sand bed river. Journal of Geophysical Research, 2010, 115, .	3.3	101
18	Operator LÃ©vy motion and multiscaling anomalous diffusion. Physical Review E, 2001, 63, 021112.	0.8	100

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19	Governing equations and solutions of anomalous random walk limits. Physical Review E, 2002, 66, 060102.	0.8	100
20	On Using Random Walks to Solve the Space-Fractional Advection-Dispersion Equations. Journal of Statistical Physics, 2006, 123, 89-110.	0.5	88
21	Modeling bimolecular reactions and transport in porous media via particle tracking. Advances in Water Resources, 2013, 53, 56-65.	1.7	79
22	Predicting the Tails of Breakthrough Curves in Regional-Scale Alluvial Systems. Ground Water, 2007, 45, 473-484.	0.7	74
23	Advection and dispersion in time and space. Physica A: Statistical Mechanics and Its Applications, 2005, 350, 245-262.	1.2	73
24	Transport of conservative solutes in simulated fracture networks: 1. Synthetic data generation. Water Resources Research, 2008, 44, .	1.7	66
25	Connecting the dots: Semi-analytical and random walk numerical solutions of the diffusionâ€“reaction equation with stochastic initial conditions. Journal of Computational Physics, 2014, 263, 91-112.	1.9	65
26	Lagrangian simulation of multidimensional anomalous transport at the MADE site. Geophysical Research Letters, 2008, 35, .	1.5	63
27	A comparison of Eulerian and Lagrangian transport and non-linear reaction algorithms. Advances in Water Resources, 2017, 99, 15-37.	1.7	61
28	Random walk approximation of fractional-order multiscaling anomalous diffusion. Physical Review E, 2006, 74, 026706.	0.8	58
29	Aquifer operator scaling and the effect on solute mixing and dispersion. Water Resources Research, 2006, 42, .	1.7	57
30	Anomalous mixing and reaction induced by superdiffusive nonlocal transport. Physical Review E, 2010, 82, 021119.	0.8	51
31	Hydraulic conductivity, velocity, and the order of the fractional dispersion derivative in a highly heterogeneous system. Water Resources Research, 2002, 38, 9-1-9-13.	1.7	49
32	Incomplete mixing and reactions with fractional dispersion. Advances in Water Resources, 2012, 37, 86-93.	1.7	49
33	Transport of conservative solutes in simulated fracture networks: 2. Ensemble solute transport and the correspondence to operatorâ€stable limit distributions. Water Resources Research, 2008, 44, .	1.7	48
34	Fractional Dispersion, LÃ©vy Motion, and the MADE Tracer Tests. , 2001, , 211-240.		47
35	Comparison of instantaneous and constantâ€rate stream tracer experiments through nonâ€parametric analysis of residence time distributions. Water Resources Research, 2008, 44, .	1.7	46
36	A particle number conserving <scp>L</scp>agrangian method for mixingâ€driven reactive transport. Water Resources Research, 2016, 52, 1518-1527.	1.7	43

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37	Lagrangian simulation of mixing and reactions in complex geochemical systems. Water Resources Research, 2017, 53, 3513-3522.	1.7	39
38	Modeling Vapor Extraction and General Transport in the Presence of NAPL Mixtures and Nonideal Conditions. Ground Water, 1993, 31, 437-445.	0.7	38
39	Radial fractional-order dispersion through fractured rock. Water Resources Research, 2004, 40, .	1.7	38
40	Recurrence of extreme events with powerâ€law interarrival times. Geophysical Research Letters, 2007, 34, .	1.5	37
41	Predicting flow and transport in highly heterogeneous alluvial aquifers. Geophysical Research Letters, 2014, 41, 7560-7565.	1.5	35
42	Apparent directional mass-transfer capacity coefficients in three-dimensional anisotropic heterogeneous aquifers under radial convergent transport. Water Resources Research, 2014, 50, 1205-1224.	1.7	35
43	Arbitrarily complex chemical reactions on particles. Water Resources Research, 2016, 52, 9190-9200.	1.7	35
44	Hydraulic conductivity fields: Gaussian or not?. Water Resources Research, 2013, 49, 4730-4737.	1.7	34
45	Elimination of the Reaction Rate â€œScale Effectâ€• Application of the Lagrangian Reactive Particleâ€Tracking Method to Simulate Mixingâ€Limited, Fieldâ€Scale Biodegradation at the Schoolcraft (MI,) Tj ETQq1 1 0.784314 rgB		
46	Relationship between flux and resident concentrations for anomalous dispersion. Geophysical Research Letters, 2006, 33, n/a-n/a.	1.5	28
47	Moment analysis for spatiotemporal fractional dispersion. Water Resources Research, 2008, 44, .	1.7	27
48	Predicting the enhancement of mixing-driven reactions in nonuniform flows using measures of flow topology. Physical Review E, 2014, 90, 051001.	0.8	27
49	On the separate treatment of mixing and spreading by the reactive-particle-tracking algorithm: An example of accurate upscaling of reactive Poiseuille flow. Advances in Water Resources, 2019, 123, 40-53.	1.7	27
50	Residence time distributions in surface transient storage zones in streams: Estimation via signal deconvolution. Water Resources Research, 2011, 47, .	1.7	26
51	A Kernel-based Lagrangian method for imperfectly-mixed chemical reactions. Journal of Computational Physics, 2017, 336, 288-307.	1.9	26
52	Numerical advective flux in highly variable velocity fields exemplified by saltwater intrusion. Journal of Contaminant Hydrology, 1998, 34, 207-233.	1.6	23
53	Simulating biodegradation under mixing-limited conditions using Michaelisâ€“Menten (Monod) kinetic expressions in a particle tracking model. Advances in Water Resources, 2015, 76, 109-119.	1.7	22
54	Accelerating and Parallelizing Lagrangian Simulations of Mixingâ€Limited Reactive Transport. Water Resources Research, 2019, 55, 3556-3566.	1.7	20

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55	On the accuracy of simulating mixing by random-walk particle-based mass-transfer algorithms. Advances in Water Resources, 2018, 117, 115-119.	1.7	19
56	Mixing-driven equilibrium reactions in multidimensional fractional advectionâ€“dispersion systems. Physica A: Statistical Mechanics and Its Applications, 2013, 392, 2513-2525.	1.2	17
57	Numerical equivalence between SPH and probabilistic mass transfer methods for Lagrangian simulation of dispersion. Advances in Water Resources, 2019, 126, 108-115.	1.7	17
58	Comparison of Fickian and temporally nonlocal transport theories over many scales in an exhaustively sampled sandstone slab. Water Resources Research, 2011, 47, .	1.7	16
59	Influence of fracture statistics on advective transport and implications for geologic repositories. Water Resources Research, 2008, 44, .	1.7	14
60	Upscaling chemical reactions in multicontinuum systems: When might time fractional equations work?. Chaos, Solitons and Fractals, 2017, 102, 414-425.	2.5	14
61	Testing the limits of the spatial Markov model for upscaling transport: The role of nonmonotonic effective velocity autocorrelations. Physical Review E, 2016, 94, 043107.	0.8	12
62	Nonparametric, data-based kernel interpolation for particle-tracking simulations and kernel density estimation. Advances in Water Resources, 2021, 152, 103889.	1.7	11
63	Role of Volatilization in Changing TBA and MTBE Concentrations at MTBE-Contaminated Sites. Environmental Science & Technology, 2007, 41, 6822-6827.	4.6	8
64	Communication: A full solution of the annihilation reaction A + B â†’ âˆ… based on time-subordination. Journal of Chemical Physics, 2013, 138, 131101.	1.2	8
65	A Lagrangian method for reactive transport with solid/aqueous chemical phase interaction. Journal of Computational Physics: X, 2019, 2, 100021.	1.1	8
66	A model of water streaking down a wall. Water Resources Research, 2001, 37, 427-430.	1.7	7
67	Ensemble solute transport in twoâ€dimensional operatorâ€scaling random fields. Water Resources Research, 2008, 44, .	1.7	7
68	Reactive particle-tracking solutions to a benchmark problem on heavy metal cycling in lake sediments. Journal of Contaminant Hydrology, 2020, 234, 103642.	1.6	7
69	Entropy: (1) The former trouble with particle-tracking simulation, and (2) A measure of computational information penalty. Advances in Water Resources, 2020, 137, 103509.	1.7	7
70	Reply to comment by T. R. Ginn on â€œComparison of Fickian and temporally nonlocal transport theories over many scales in an exhaustively sampled sandstone slabâ€• Water Resources Research, 2013, 49, 1196-1196.	1.7	6
71	Aging and mixing as pseudo-chemical-reactions between, and on, particles: Perspectives on particle interaction and multi-modal ages in hillslopes and streams. Advances in Water Resources, 2019, 132, 103386.	1.7	4
72	Reply to comment by A. Fiori et al. on â€œComparison of Fickian and temporally nonlocal transport theories over many scales in an exhaustively sampled sandstone slabâ€• Water Resources Research, 2012, 48, .	1.7	3

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73	Optimal Time Step Length for Lagrangian Interacting-Particle Simulations of Diffusive Mixing. Transport in Porous Media, 2023, 146, 413-433.	1.2	3
74	Transport of Water and Solutes in Soils as in Fractal Porous Media. SSSA Special Publication Series, 2015, , 51-75.	0.2	2
75	Publisher's Note: Random walk approximation of fractional-order multiscaling anomalous diffusion [Phys. Rev. E74, 026706 (2006)]. Physical Review E, 2006, 74, .	0.8	1
76	REPLY TO the preceding Discussion by Gary R. Walter of "Modeling of Vapor Extraction and General Transport in the Presence of NAPL Mixtures and Nonideal Conditions". Ground Water, 1994, 32, 148-150.	0.7	0
77	Chemical Reactions in Diffusion-Limited Environments at the Pore-Scale. World Scientific Series in Nanoscience and Nanotechnology, 2015, , 203-222.	0.1	0
78	A Computational Information Criterion for Particle-Tracking with Sparse or Noisy Data. Advances in Water Resources, 2021, 151, 103893.	1.7	0