Alexandre M Tartakovsky

List of Publications by Year
in descending order

107	4,269	136950	118850
papers	citations	32 h-index	62 g-index

109	109	109	3135
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Modeling and simulation of poreâ€scale multiphase fluid flow and reactive transport in fractured and porous media. Reviews of Geophysics, 2009, 47, .	23.0	279
2	Modeling of surface tension and contact angles with smoothed particle hydrodynamics. Physical Review E, 2005, 72, 026301.	2.1	234
3	Simulations of reactive transport and precipitation with smoothed particle hydrodynamics. Journal of Computational Physics, 2007, 222, 654-672.	3.8	200
4	Physicsâ€Informed Deep Neural Networks for Learning Parameters and Constitutive Relationships in Subsurface Flow Problems. Water Resources Research, 2020, 56, e2019WR026731.	4.2	194
5	Flow Intermittency, Dispersion, and Correlated Continuous Time Random Walks in Porous Media. Physical Review Letters, 2013, 110, 184502.	7.8	184
6	Pore scale modeling of immiscible and miscible fluid flows using smoothed particle hydrodynamics. Advances in Water Resources, 2006, 29, 1464-1478.	3.8	174
7	Mixingâ€induced precipitation: Experimental study and multiscale numerical analysis. Water Resources Research, 2008, 44, .	4.2	167
8	A smoothed particle hydrodynamics model for miscible flow in three-dimensional fractures and the two-dimensional Rayleighâ€“Taylor instability. Journal of Computational Physics, 2005, 207, 610-624.	3.8	154
9	Physics-informed neural networks for multiphysics data assimilation with application to subsurface transport. Advances in Water Resources, 2020, 141, 103610.	3.8	140
10	A smoothed particle hydrodynamics model for reactive transport and mineral precipitation in porous and fractured porous media. Water Resources Research, 2007, 43, .	4.2	128
11	Hybrid models of reactive transport in porous and fractured media. Advances in Water Resources, 2011, 34, 1140-1150.	3.8	119
12	Investigating the Effects of Anisotropic Mass Transport on Dendrite Growth in High Energy Density Lithium Batteries. Journal of the Electrochemical Society, 2016, 163, A318-A327.	2.9	110
13	Intercomparison of 3D pore-scale flow and solute transport simulation methods. Advances in Water Resources, 2016, 95, 176-189.	3.8	105
14	A new smoothed particle hydrodynamics non-Newtonian model for friction stir welding: Process modeling and simulation of microstructure evolution in a magnesium alloy. International Journal of Plasticity, 2013, 48, 189-204.	8.8	102
15	Pairwise Force Smoothed Particle Hydrodynamics model for multiphase flow: Surface tension and contact line dynamics. Journal of Computational Physics, 2016, 305, 1119-1146.	3.8	96
16	Stochastic Langevin Model for Flow and Transport in Porous Media. Physical Review Letters, 2008, 101, 044502.	7.8	81
17	Smoothed particle hydrodynamics and its applications for multiphase flow and reactive transport in porous media. Computational Geosciences, 2016, 20, 807-834.	2.4	79
18	The filamentary structure of mixing fronts and its control on reaction kinetics in porous media flows. Geophysical Research Letters, 2014, 41, 4586-4593.	4.0	76

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19	Hybrid Simulations of Reaction-Diffusion Systems in Porous Media. SIAM Journal of Scientific Computing, 2008, 30, 2799-2816.	2.8	74
20	Pore-scale study of capillary trapping mechanism during CO2 injection in geological formations. International Journal of Greenhouse Gas Control, 2011, 5, 1566-1577.	4.6	70
21	Smoothed particle hydrodynamics pore-scale simulations of unstable immiscible flow in porous media. Advances in Water Resources, 2013, 62, 356-369.	3.8	63
22	Physics-informed CoKriging: A Gaussian-process-regression-based multifidelity method for data-model convergence. Journal of Computational Physics, 2019, 395, 410-431.	3.8	60
23	Simulation of Unsaturated Flow in Complex Fractures Using Smoothed Particle Hydrodynamics. Vadose Zone Journal, 2005, 4, 848-855.	2.2	55
24	Incomplete mixing and reactions with fractional dispersion. Advances in Water Resources, 2012, 37, 86-93.	3.8	49
25	Lagrangian particle model for multiphase flows. Computer Physics Communications, 2009, 180, 1874-1881.	7.5	46
26	Physicsâ€Informed Neural Network Method for Forward and Backward Advectionâ€Dispersion Equations. Water Resources Research, 2021, 57, e2020WR029479.	4.2	43
27	A novel method for modeling Neumann and Robin boundary conditions in smoothed particle hydrodynamics. Computer Physics Communications, 2010, 181, 2008-2023.	7.5	42
28	Transport dissipative particle dynamics model for mesoscopic advection-diffusion-reaction problems. Journal of Chemical Physics, 2015, 143, 014101.	3.0	41
29	Unsaturated flow in heterogeneous soils with spatially distributed uncertain hydraulic parameters. Journal of Hydrology, 2003, 275, 182-193.	5.4	38
30	Dispersion controlled by permeable surfaces: surface properties and scaling. Journal of Fluid Mechanics, 2016, 801, 13-42.	3.4	38
31	Pore-Scale Model for Reactive Transport and Biomass Growth. Journal of Porous Media, 2009, 12, 417-434.	1.9	38
32	Pore-scale simulations of drainage of heterogeneous and anisotropic porous media. Physics of Fluids, 2007, 19, .	4.0	37
33	Hydrodynamic dispersion in thin channels with micro-structured porous walls. Physics of Fluids, 2018, 30, .	4.0	30
34	Learning viscoelasticity models from indirect data using deep neural networks. Computer Methods in Applied Mechanics and Engineering, 2021, 387, 114124.	6.6	28
35	Diffuse-interface model for smoothed particle hydrodynamics. Physical Review E, 2009, 79, 036702.	2.1	27
36	Pore-scale modeling of competitive adsorption in porous media. Journal of Contaminant Hydrology, 2011, 120-121, 56-78.	3.3	26

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37	Effects of Peclet number on pore-scale mixing and channeling of a tracer and on directional advective porosity. Geophysical Research Letters, 2008, 35, .	4.0	25
38	Numerical Studies of Three-dimensional Stochastic Darcyâ€™s Equation and Stochastic Advection-Diffusion-Dispersion Equation. Journal of Scientific Computing, 2010, 43, 92-117.	2.3	25
39	Langevin model for reactive transport in porous media. Physical Review E, 2010, 82, 026302.	2.1	25
40	Learning unknown physics of non-Newtonian fluids. Physical Review Fluids, 2021, 6, .	2.5	25
41	Modeling variability in porescale multiphase flow experiments. Advances in Water Resources, 2017, 105, 29-38.	3.8	24
42	Dissipative-particle-dynamics model of biofilm growth. Physical Review E, 2011, 83, 066702.	2.1	23
43	Probability Density Function Method for Langevin Equations with Colored Noise. Physical Review Letters, 2013, 110, 140602.	7.8	23
44	CDF Solutions of Buckley–Leverett Equation with Uncertain Parameters. Multiscale Modeling and Simulation, 2013, 11, 118-133.	1.6	23
45	Hybrid multiscale simulation of a mixing-controlled reaction. Advances in Water Resources, 2015, 83, 228-239.	3.8	23
46	Immiscible front evolution in randomly heterogeneous porous media. Physics of Fluids, 2003, 15, 3331-3341.	4.0	22
47	Smoothed Particle Hydrodynamics Model of Non-Aqueous Phase Liquid Flow and Dissolution. Transport in Porous Media, 2009, 76, 11-34.	2.6	22
48	Simulation of the interplay between resident and infiltrating water in partially saturated porous media. Water Resources Research, 2009, 45, .	4.2	22
49	Smoothed particle hydrodynamics study of the roughness effect on contact angle and droplet flow. Physical Review E, 2017, 96, 033115.	2.1	22
50	Effect of Unsaturated Flow Modes on Partitioning Dynamics of Gravityâ€Driven Flow at a Simple Fracture Intersection: Laboratory Study and Threeâ€Dimensional Smoothed Particle Hydrodynamics Simulations. Water Resources Research, 2017, 53, 9496-9518.	4.2	21
51	Smoothed particle hydrodynamics continuous boundary force method for Navierâ€“Stokes equations subject to a Robin boundary condition. Journal of Computational Physics, 2014, 259, 242-259.	3.8	20
52	Title is missing!. Transport in Porous Media, 2002, 49, 41-58.	2.6	19
53	Integral approximations to classical diffusion and smoothed particle hydrodynamics. Computer Methods in Applied Mechanics and Engineering, 2015, 286, 216-229.	6.6	19
54	A Component-Based Framework for Smoothed Particle Hydrodynamics Simulations of Reactive Fluid Flow in Porous Media. International Journal of High Performance Computing Applications, 2010, 24, 228-239.	3.7	18

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55	Physics-constrained deep neural network method for estimating parameters in a redox flow battery. Journal of Power Sources, 2022, 528, 231147.	7.8	18
56	Divergence of solutions to solute transport moment equations. Geophysical Research Letters, 2008, 35, .	4.0	17
57	Uncertainty Quantification in Scaleâ€Dependent Models of Flow in Porous Media. Water Resources Research, 2017, 53, 9392-9401.	4.2	17
58	Enforcing constraints for interpolation and extrapolation in Generative Adversarial Networks. Journal of Computational Physics, 2019, 397, 108844.	3.8	17
59	Highly-scalable, Physics-Informed GANs for Learning Solutions of Stochastic PDEs. , 2019, , .		17
60	Transient Flow in a Heterogeneous Vadose Zone with Uncertain Parameters. Vadose Zone Journal, 2004, 3, 154-163.	2.2	16
61	A hybrid micro-scale model for transport in connected macro-pores in porous media. Journal of Contaminant Hydrology, 2011, 126, 61-71.	3.3	16
62	Poreâ€scale simulation of intragranular diffusion: Effects of incomplete mixing on macroscopic manifestations. Water Resources Research, 2013, 49, 4277-4294.	4.2	16
63	Conditional Karhunen-LoÃ¨ve expansion for uncertainty quantification and active learning in partial differential equation models. Journal of Computational Physics, 2020, 418, 109604.	3.8	15
64	A conservative level set method for N-phase flows with a free-energy-based surface tension model. Journal of Computational Physics, 2021, 426, 109955.	3.8	14
65	Smoothed particle hydrodynamics model for Landau-Lifshitz-Navier-Stokes and advection-diffusion equations. Journal of Chemical Physics, 2014, 141, 224112.	3.0	13
66	Approximate Bayesian model inversion for PDEs with heterogeneous and state-dependent coefficients. Journal of Computational Physics, 2019, 395, 247-262.	3.8	13
67	Physics-informed machine learning with conditional Karhunen-LoÃ¨ve expansions. Journal of Computational Physics, 2021, 426, 109904.	3.8	13
68	Modeling electrokinetic flows by consistent implicit incompressible smoothed particle hydrodynamics. Journal of Computational Physics, 2017, 334, 125-144.	3.8	12
69	Dimension reduction method for ODE fluid models. Journal of Computational Physics, 2011, 230, 8554-8572.	3.8	11
70	A smoothed-particle hydrodynamics model for ice-sheet and ice-shelf dynamics. Journal of Glaciology, 2012, 58, 216-222.	2.2	11
71	Smoothed dissipative particle dynamics model for mesoscopic multiphase flows in the presence of thermal fluctuations. Physical Review E, 2016, 94, 023304.	2.1	11
72	Stochastic analysis of immiscible displacement of the fluids with arbitrary viscosities and its dependence on support scale of hydrological data. Advances in Water Resources, 2004, 27, 1151-1166.	3.8	10

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73	Lagrangian simulations of unstable gravity-driven flow of fluids with variable density in randomly heterogeneous porous media. Stochastic Environmental Research and Risk Assessment, 2010, 24, 993-1002.	4.0	10
74	Probabilistic Density Function Method for Stochastic ODEs of Power Systems with Uncertain Power Input. SIAM-ASA Journal on Uncertainty Quantification, 2015, 3, 873-896.	2.0	10
75	Surface energy-driven ex situ hierarchical assembly of low-dimensional nanomaterials on graphene aerogels: a versatile strategy. Journal of Materials Chemistry A, 2018, 6, 18551-18560.	10.3	10
76	A Comparison of Closures for Stochastic Advection-Diffusion Equations. SIAM-ASA Journal on Uncertainty Quantification, 2013, 1, 319-347.	2.0	9
77	Uncertainty quantification for the impact of injection rate fluctuation on the geomechanical response of geological carbon sequestration. International Journal of Greenhouse Gas Control, 2014, 20, 160-167.	4.6	9
78	Probabilistic density function method for nonlinear dynamical systems driven by colored noise. Physical Review E, 2016, 93, 052121.	2.1	9
79	Investigation of Gravityâ€Driven Infiltration Instabilities in Smooth and Rough Fractures Using a Pairwiseâ€Force Smoothed Particle Hydrodynamics Model. Vadose Zone Journal, 2019, 18, 1-12.	2.2	9
80	Basis adaptation and domain decomposition for steady-state partial differential equations with random coefficients. Journal of Computational Physics, 2017, 351, 203-215.	3.8	8
81	Comparison of surface tension generation methods in smoothed particle hydrodynamics for dynamic systems. Computers and Fluids, 2020, 203, 104540.	2.5	8
82	Stochastically Forced Ensemble Dynamic Mode Decomposition for Forecasting and Analysis of Near-Periodic Systems. IEEE Access, 2022, 10, 33440-33448.	4.2	8
83	Physicsâ€Informed Machine Learning Method for Largeâ€Scale Data Assimilation Problems. Water Resources Research, 2022, 58, .	4.2	8
84	Enhanced physics-constrained deep neural networks for modeling vanadium redox flow battery. Journal of Power Sources, 2022, 542, 231807.	7.8	7
85	Hybrid Multiscale Finite Volume Method for Advection-Diffusion Equations Subject to Heterogeneous Reactive Boundary Conditions. Multiscale Modeling and Simulation, 2016, 14, 1341-1376.	1.6	6
86	Gaussian process regression and conditional polynomial chaos for parameter estimation. Journal of Computational Physics, 2020, 416, 109520.	3.8	6
87	Multiscale Smoothed Particle Hydrodynamics Model Development for Simulating Preferential Flow Dynamics in Fractured Porous Media. Water Resources Research, 2021, 57, e2020WR027323.	4.2	6
88	Transient Flow in a Heterogeneous Vadose Zone with Uncertain Parameters. Vadose Zone Journal, 2004, 3, 154-163.	2.2	6
89	Divergence of solutions to perturbation-based advectionâ€“dispersion moment equations. Advances in Water Resources, 2011, 34, 659-670.	3.8	5
90	Numerical and Analytical Modeling of Flow Partitioning in Partially Saturated Fracture Networks. Water Resources Research, 2021, 57, e2020WR028775.	4.2	5

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91	Physics-informed CoKriging model of a redox flow battery. Journal of Power Sources, 2022, 542, 231668.	7.8	5
92	Hydrogeophysical Approach for Identification of Layered Structures of the Vadose Zone from Electrical Resistivity Data. Vadose Zone Journal, 2008, 7, 1253-1260.	2.2	4
93	Effect of wettability alteration on long-term behavior of fluids in subsurface. Computational Particle Mechanics, 2016, 3, 277-289.	3.0	4
94	Stochastic Basis Adaptation and Spatial Domain Decomposition for Partial Differential Equations with Random Coefficients. SIAM-ASA Journal on Uncertainty Quantification, 2018, 6, 273-301.	2.0	4
95	Sliced-Inverse-Regression--Aided Rotated Compressive Sensing Method for Uncertainty Quantification. SIAM-ASA Journal on Uncertainty Quantification, 2018, 6, 1532-1554.	2.0	4
96	Physics Information Aided Kriging using Stochastic Simulation Models. SIAM Journal of Scientific Computing, 2021, 43, A3862-A3891.	2.8	4
97	A Phase-Field Model Coupled with Lattice Kinetics Solver for Modeling Crystal Growth in Furnaces. Communications in Computational Physics, 2014, 15, 76-92.	1.7	3
98	Discrete Models of Fluids: Spatial Averaging, Closure, and Model Reduction. SIAM Journal on Applied Mathematics, 2014, 74, 477-515.	1.8	3
99	Probability and Cumulative Density Function Methods for the Stochastic Advection-Reaction Equation. SIAM-ASA Journal on Uncertainty Quantification, 2018, 6, 180-212.	2.0	3
100	Non-local model for surface tension in fluid-fluid simulations. Journal of Computational Physics, 2020, 421, 109732.	3.8	3
101	Physics-informed Karhunen-LoÃ©ve and neural network approximations for solving inverse differential equation problems. Journal of Computational Physics, 2022, 462, 111230.	3.8	3
102	Learning Coarse-Grained Potentials for Binary Fluids. Journal of Chemical Information and Modeling, 2020, 60, 3731-3745.	5.4	2
103	Explaining persistent incomplete mixing in multicomponent reactive transport with Eulerian stochastic model. Advances in Water Resources, 2020, 145, 103729.	3.8	2
104	Method of model reduction and multifidelity models for solute transport in random layered porous media. Physical Review E, 2017, 96, 033314.	2.1	1
105	Particle-Based Methods for Mesoscopic Transport Processes. , 2018, , 1-20.		0
106	Transient Flow in a Heterogeneous Vadose Zone with Uncertain Parameters. Vadose Zone Journal, 2004, 3, 154.	2.2	0
107	Particle-Based Methods for Mesoscopic Transport Processes. , 2020, , 2573-2592.		0