T Le Borgne

List of Publications by Year
in descending order

105 papers	5,073 citations	61984 43 h-index	95266 68 g-index
108 all docs	108 docs citations	108 times ranked	2884 citing authors

#	Article	IF	Citations
1	Mixing, spreading and reaction in heterogeneous media: A brief review. Journal of Contaminant Hydrology, 2011, 120-121, 1-17.	3.3	407
2	Flow Intermittency, Dispersion, and Correlated Continuous Time Random Walks in Porous Media. Physical Review Letters, 2013, 110, 184502.	7.8	184
3	Lagrangian Statistical Model for Transport in Highly Heterogeneous Velocity Fields. Physical Review Letters, 2008, 101, 090601.	7.8	173
4	Mixing and Reaction Kinetics in Porous Media: An Experimental Pore Scale Quantification. Environmental Science & Technology, 2014, 48, 508-516.	10.0	155
5	Non-Fickian mixing: Temporal evolution of the scalar dissipation rate in heterogeneous porous media. Advances in Water Resources, 2010, 33, 1468-1475.	3.8	147
6	Assessment of preferential flow path connectivity and hydraulic properties at single-borehole and cross-borehole scales in a fractured aquifer. Journal of Hydrology, 2006, 328, 347-359.	5.4	134
7	OZCAR: The French Network of Critical Zone Observatories. Vadose Zone Journal, 2018, 17, 1-24.	2.2	126
8	Impact of velocity correlation and distribution on transport in fractured media: Field evidence and theoretical model. Water Resources Research, 2015, 51, 940-959.	4.2	124
9	Stretching, Coalescence, and Mixing in Porous Media. Physical Review Letters, 2013, 110, 204501.	7.8	117
10	Challenges in modeling unstable twoâ€phase flow experiments in porous micromodels. Water Resources Research, 2015, 51, 1381-1400.	4.2	112
11	Characterizing groundwater flow and heat transport in fractured rock using fiberâ€optic distributed temperature sensing. Geophysical Research Letters, 2013, 40, 2055-2059.	4.0	110
12	Spatial Markov Model of Anomalous Transport Through Random Lattice Networks. Physical Review Letters, 2011, 107, 180602.	7.8	96
13	The lamellar description of mixing in porousÂmedia. Journal of Fluid Mechanics, 2015, 770, 458-498.	3.4	96
14	Distributed <scp>T</scp>emperature <scp>S</scp>ensing as a downhole tool in hydrogeology. Water Resources Research, 2016, 52, 9259-9273.	4.2	91
15	Spatial Markov processes for modeling Lagrangian particle dynamics in heterogeneous porous media. Physical Review E, 2008, 78, 026308.	2.1	89
16	Equivalent mean flow models for fractured aquifers: Insights from a pumping tests scaling interpretation. Water Resources Research, 2004, 40, .	4.2	87
17	Random Walk Methods for Modeling Hydrodynamic Transport in Porous and Fractured Media from Pore to Reservoir Scale. Transport in Porous Media, 2016, 115, 345-385.	2.6	86
18	Nonâ€Fickian dispersion in porous media: 1. Multiscale measurements using singleâ€well injection withdrawal tracer tests. Water Resources Research, 2008, 44, .	4.2	84

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19	Anomalous transport on regular fracture networks: Impact of conductivity heterogeneity and mixing at fracture intersections. Physical Review E, 2015, 92, 022148.	2.1	84
20	Continuous time random walks for the evolution of Lagrangian velocities. Physical Review Fluids, 2016, 1, .	2.5	84
21	Nonâ€Fickian dispersion in porous media explained by heterogeneous microscale matrix diffusion. Water Resources Research, 2008, 44, .	4.2	82
22	Poreâ€scale mechanisms for the enhancement of mixing in unsaturated porous media and implications for chemical reactions. Geophysical Research Letters, 2015, 42, 5316-5324.	4.0	79
23	Partitioning a regional groundwater flow system into shallow local and deep regional flow compartments. Water Resources Research, 2013, 49, 2274-2286.	4.2	78
24	Effective poreâ€scale dispersion upscaling with a correlated continuous time random walk approach. Water Resources Research, 2011, 47, .	4.2	75
25	Comparison of alternative methodologies for identifying and characterizing preferential flow paths in heterogeneous aquifers. Journal of Hydrology, 2007, 345, 134-148.	5.4	69
26	Nonâ€Fickian dispersion in porous media: 2. Model validation from measurements at different scales. Water Resources Research, 2008, 44, .	4.2	69
27	Temporal and spatial scaling of hydraulic response to recharge in fractured aquifers: Insights from a frequency domain analysis. Water Resources Research, 2013, 49, 3007-3023.	4.2	68
28	Persistence of incomplete mixing: A key to anomalous transport. Physical Review E, 2011, 84, 015301.	2.1	65
29	Modeling preasymptotic transport in flows with significant inertial and trapping effects â€“ The importance of velocity correlations and a spatial Markov model. Advances in Water Resources, 2014, 70, 89-103.	3.8	63
30	Passive temperature tomography experiments to characterize transmissivity and connectivity of preferential flow paths in fractured media. Journal of Hydrology, 2014, 512, 549-562.	5.4	60
31	Active-distributed temperature sensing to continuously quantify vertical flow in boreholes. Water Resources Research, 2014, 50, 3706-3713.	4.2	59
32	Impact of fluid deformation on mixingâ€induced chemical reactions in heterogeneous flows. Geophysical Research Letters, 2014, 41, 7898-7906.	4.0	59
33	Anomalous transport in disordered fracture networks: Spatial Markov model for dispersion with variable injection modes. Advances in Water Resources, 2017, 106, 80-94.	3.8	59
34	Solute dispersion in channels with periodically varying apertures. Physics of Fluids, 2009, 21, .	4.0	57
35	Impact of saturation on dispersion and mixing in porous media: Photobleaching pulse injection experiments and shearâ€enhanced mixing model. Water Resources Research, 2017, 53, 1457-1472.	4.2	56
36	Anomalous mixing and reaction induced by superdiffusive nonlocal transport. Physical Review E, 2010, 82, 021119.	2.1	51

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37	Heat as a tracer for understanding transport processes in fractured media: Theory and field assessment from multiscale thermal pushâ€pull tracer tests. Water Resources Research, 2016, 52, 5442-5457.	4.2	51
38	Hydrological behavior of a deep sub-vertical fault in crystalline basement and relationships with surrounding reservoirs. Journal of Hydrology, 2014, 509, 42-54.	5.4	48
39	Iron-oxidizer hotspots formed by intermittent oxicâ€“anoxic fluid mixing in fractured rocks. Nature Geoscience, 2020, 13, 149-155.	12.9	48
40	Conditioning of stochastic 3-D fracture networks to hydrological and geophysical data. Advances in Water Resources, 2013, 62, 79-89.	3.8	46
41	Enhanced reaction kinetics and reactive mixing scale dynamics in mixing fronts under shear flow for arbitrary DamkÃ¶hler numbers. Advances in Water Resources, 2017, 100, 78-95.	3.8	46
42	Velocity distributions, dispersion and stretching in three-dimensional porous media. Journal of Fluid Mechanics, 2020, 891, .	3.4	46
43	Time evolution of mixing in heterogeneous porous media. Water Resources Research, 2012, 48, .	4.2	45
44	Chaotic mixing in three-dimensional porous media. Journal of Fluid Mechanics, 2016, 803, 144-174.	3.4	45
45	Characterization of the velocity field organization in heterogeneous media by conditional correlation. Water Resources Research, 2007, 43, .	4.2	44
46	Fracture imaging within a granitic rock aquifer using multiple-offset single-hole and cross-hole GPR reflection data. Journal of Applied Geophysics, 2012, 78, 123-132.	2.1	43
47	Mixing and Reactive Fronts in the Subsurface. Reviews in Mineralogy and Geochemistry, 2019, 85, 111-142.	4.8	43
48	Cross-Borehole Flowmeter Tests for Transient Heads in Heterogeneous Aquifers. Ground Water, 2006, 44, 444-452.	1.3	40
49	Inferring transport characteristics in a fractured rock aquifer by combining singleâ€hole groundâ€penetrating radar reflection monitoring and tracer test data. Water Resources Research, 2012, 48, .	4.2	40
50	Single-hole GPR reflection imaging of solute transport in a granitic aquifer. Geophysical Research Letters, 2011, 38, n/a-n/a.	4.0	35
51	Inverse modeling of flow tomography experiments in fractured media. Water Resources Research, 2013, 49, 7255-7265.	4.2	32
52	Stretching and folding sustain microscale chemical gradients in porous media. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 13359-13365.	7.1	32
53	Hydrogeophysical characterization of transport processes in fractured rock by combining pushâ€pull and singleâ€hole ground penetrating radar experiments. Water Resources Research, 2016, 52, 938-953.	4.2	30
54	Reaction chain modeling of denitrification reactions during a pushâ€“pull test. Journal of Contaminant Hydrology, 2013, 148, 1-11.	3.3	29

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55	Impact of small-scale saline tracer heterogeneity on electrical resistivity monitoring in fully and partially saturated porous media: Insights from geoelectrical milli-fluidic experiments. Advances in Water Resources, 2018, 113, 295-309.	3.8	28
56	Insights about transport mechanisms and fracture flow channeling from multi-scale observations of tracer dispersion in shallow fractured crystalline rock. Journal of Contaminant Hydrology, 2017, 206, 18-33.	3.3	27
57	Hypermixing in linear shear flow. Water Resources Research, 2011, 47, .	4.2	26
58	Thermal Attenuation and Lag Time in Fractured Rock: Theory and Field Measurements From Joint Heat and Solute Tracer Tests. Water Resources Research, 2018, 54, 10,053.	4.2	26
59	Genome reconstruction reveals distinct assemblages of Gallionellaceae in surface and subsurface redox transition zones. FEMS Microbiology Ecology, 2020, 96, .	2.7	26
60	Continuous time random walks for non-local radial solute transport. Advances in Water Resources, 2015, 82, 16-26.	3.8	25
61	Effect of spatial concentration fluctuations on effective kinetics in diffusionâ€reaction systems. Water Resources Research, 2012, 48, .	4.2	23
62	Evolution of solute blobs in heterogeneous porous media. Journal of Fluid Mechanics, 2018, 853, 621-646.	3.4	23
63	Chaotic mixing in crystalline granular media. Journal of Fluid Mechanics, 2019, 871, 562-594.	3.4	23
64	Contribution of the finite volume point dilution method for measurement of groundwater fluxes in a fractured aquifer. Journal of Contaminant Hydrology, 2015, 182, 244-255.	3.3	22
65	Coupled continuous-time random walks for fluid stretching in two-dimensional heterogeneous media. Physical Review E, 2016, 94, 061102.	2.1	22
66	Network-driven anomalous transport is a fundamental component of brain microvascular dysfunction. Nature Communications, 2021, 12, 7295.	12.8	22
67	Space-Group Symmetries Generate Chaotic Fluid Advection in Crystalline Granular Media. Physical Review Letters, 2018, 120, 024501.	7.8	21
68	Temporal evolution of age data under transient pumping conditions. Journal of Hydrology, 2014, 511, 555-566.	5.4	20
69	Concentration statistics for transport in random media. Physical Review E, 2009, 80, 010101.	2.1	19
70	Mixing lamellae in a shear flow. Journal of Fluid Mechanics, 2018, 838, .	3.4	19
71	Anomalous kinetics in diffusion limited reactions linked to non-Gaussian concentration probability distribution function. Journal of Chemical Physics, 2011, 135, 174104.	3.0	18
72	Asymptotic dispersion for twoâ€dimensional highly heterogeneous permeability fields under temporally fluctuating flow. Water Resources Research, 2012, 48, .	4.2	18

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73	Scalar gradients in stirred mixtures and the deconstruction of random fields. Journal of Fluid Mechanics, 2017, 812, 578-610.	3.4	18
74	Shear Flows Accelerate Mixing Dynamics in Hyporheic Zones and Hillslopes. Geophysical Research Letters, 2018, 45, 11,659.	4.0	18
75	A methodology for using borehole temperature-depth profiles under ambient, single and cross-borehole pumping conditions to estimate fracture hydraulic properties. Journal of Hydrology, 2011, , .	5.4	17
76	Thermal-plume fibre optic tracking (T-POT) test for flow velocity measurement in groundwater boreholes. Geoscientific Instrumentation, Methods and Data Systems, 2015, 4, 197-202.	1.6	17
77	Scalar Signatures of Chaotic Mixing in Porous Media. Physical Review Letters, 2021, 126, 034505.	7.8	16
78	Temporal scaling of groundwater discharge in dual and multicontinuum catchment models. Water Resources Research, 2013, 49, 8552-8564.	4.2	15
79	Scaling forms of particle densities for LÃ©vy walks and strong anomalous diffusion. Physical Review E, 2015, 92, 032128.	2.1	15
80	Pore-Scale Mechanisms for Spectral Induced Polarization of Calcite Precipitation Inferred from Geo-Electrical Millifluidics. Environmental Science & Technology, 2022, 56, 4998-5008.	10.0	15
81	Effective transport in random shear flows. Physical Review E, 2008, 77, 020101.	2.1	14
82	Neutrally buoyant tracers in hydrogeophysics: Field demonstration in fractured rock. Geophysical Research Letters, 2017, 44, 3663-3671.	4.0	14
83	MuSET: A multiparameter and high precision sensor for downhole spontaneous electrical potential measurements. Comptes Rendus - Geoscience, 2009, 341, 957-964.	1.2	13
84	Continuous Dissolved Gas Tracing of Fractureâ€Matrix Exchanges. Geophysical Research Letters, 2020, 47, e2020GL088944.	4.0	13
85	CoFIS and TELog: New downhole tools for characterizing dispersion processes in aquifers by single-well injection-withdrawal tracer tests. Comptes Rendus - Geoscience, 2009, 341, 965-975.	1.2	10
86	Hydrodynamic Dispersion and Lamb Surfaces in Darcy Flow. Transport in Porous Media, 2019, 130, 903-922.	2.6	9
87	Probabilistic inference of fracture-scale flow paths and aperture distribution from hydrogeophysically-monitored tracer tests. Journal of Hydrology, 2018, 567, 305-319.	5.4	8
88	Fluid deformation in random steady three-dimensional flow. Journal of Fluid Mechanics, 2018, 855, 770-803.	3.4	8
89	The diffusing-velocity random walk: a spatial-Markov formulation of heterogeneous advection and diffusion. Journal of Fluid Mechanics, 2021, 910, .	3.4	8
90	Geoelectrical Signatures of Reactive Mixing: A Theoretical Assessment. Geophysical Research Letters, 2018, 45, 3489-3498.	4.0	6

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91	Sharp Transition to Strongly Anomalous Transport in Unsaturated Porous Media. Geophysical Research Letters, 2022, 49, e2021GL096280.	4.0	6
92	The Lagrangian kinematics of three-dimensional Darcy flow. Journal of Fluid Mechanics, 2021, 918, .	3.4	5
93	Multipoint concentration statistics for transport in stratified random velocity fields. Physical Review E, 2009, 80, 036306.	2.1	4
94	Dipole and Convergent Single-Well Thermal Tracer Tests for Characterizing the Effect of Flow Configuration on Thermal Recovery. Geosciences (Switzerland), 2019, 9, 440.	2.2	4
95	Enhanced and non-monotonic effective kinetics of solute pulses under michaelisâ€“Menten reactions. Advances in Water Resources, 2020, 146, 103739.	3.8	4
96	Effective kinetics driven by dynamic concentration gradients under coupled transport and reaction. Geochimica Et Cosmochimica Acta, 2021, 306, 189-209.	3.9	4
97	The chemical continuous time random walk framework for upscaling transport limitations in fluidâ€“solid reactions. Advances in Water Resources, 2021, 154, 103981.	3.8	4
98	The impact of stretching-enhanced mixing and coalescence on reactivity in mixing-limited reactive flows. Physics of Fluids, 2020, 32, .	4.0	3
99	GPR-inferred fracture aperture widening in response to a high-pressure tracer injection test at the Ã„spÃ¶ Hard Rock Laboratory, Sweden. Engineering Geology, 2021, 292, 106249.	6.3	3
100	Subsurface Mixing Dynamics Across the Saltâ€Freshwater Interface. Geophysical Research Letters, 2022, 49, .	4.0	3
101	5. Mixing and Reactive Fronts in the Subsurface. , 2019, , 111-142.		2
102	Electrical Signatures of Diffusion-Limited Mixing: Insights from a Milli-fluidic Tracer Experiment. Transport in Porous Media, 0, , 1.	2.6	2
103	Electrical Resistivity Monitoring of Saline Tracer Fingering at Pore Scale under Partially Saturated Conditions. , 2016, , .		2
104	Coupled electrohydrodynamic transport in rough fractures: a generalized lubrication theory. Journal of Fluid Mechanics, 2022, 942, .	3.4	2
105	Dilution of Reactive Plumes: Evolution of Concentration Statistics Under Diffusion and Nonlinear Reaction. Transport in Porous Media, 0, , 1.	2.6	1