Louis J Durlofsky

List of Publications by Year
in descending order

140 papers	7,676 citations	46984 47 h-index	56687 83 g-index
142 all docs	142 docs citations	142 times ranked	3168 citing authors

#	Article	IF	Citations
1	A two-stage optimization strategy for large-scale oil field development. Optimization and Engineering, 2022, 23, 361-395.	1.3	9
2	Multigroup strategy for well control optimization. Journal of Petroleum Science and Engineering, 2022, 214, 110448.	2.1	7
3	Deep-learning-based coupled flow-geomechanics surrogate model for CO2 sequestration. International Journal of Greenhouse Gas Control, 2022, 118, 103692.	2.3	22
4	Use of low-fidelity models with machine-learning error correction for well placement optimization. Computational Geosciences, 2022, 26, 1189-1206.	1.2	6
5	Effective treatment of geometric constraints in derivative-free well placement optimization. Journal of Petroleum Science and Engineering, 2022, 215, 110635.	2.1	6
6	Data-space inversion using a recurrent autoencoder for time-series parameterization. Computational Geosciences, 2021, 25, 411-432.	1.2	14
7	3D CNN-PCA: A deep-learning-based parameterization for complex geomodels. Computers and Geosciences, 2021, 148, 104676.	2.0	29
8	Field development optimization using a sequence of surrogate treatments. Computational Geosciences, 2021, 25, 35-65.	1.2	11
9	Deep-learning-based surrogate flow modeling and geological parameterization for data assimilation in 3D subsurface flow. Computer Methods in Applied Mechanics and Engineering, 2021, 376, 113636.	3.4	64
10	A Recurrent Neural Networkâ€“Based Proxy Model for Well-Control Optimization with Nonlinear Output Constraints. SPE Journal, 2021, 26, 1837-1857.	1.7	33
11	Data-Space Inversion With a Recurrent Autoencoder for Naturally Fractured Systems. Frontiers in Applied Mathematics and Statistics, 2021, 7, .	0.7	7
12	Computational optimization of solar thermal generation with energy storage. Sustainable Energy Technologies and Assessments, 2021, 47, 101342.	1.7	5
13	Treatment of model error in subsurface flow history matching using a data-space method. Journal of Hydrology, 2021, 603, 127063.	2.3	7
14	History Matching Complex 3D Systems Using Deep-Learning-Based Surrogate Flow Modeling and CNN-PCA Geological Parameterization. , 2021, , .		4
15	A data-space inversion procedure for well control optimization and closed-loop reservoir management. Computational Geosciences, 2020, 24, 361-379.	1.2	15
16	Multifidelity framework for uncertainty quantification with multiple quantities of interest. Computational Geosciences, 2020, 24, 761-773.	1.2	2
17	Well control optimization using a two-step surrogate treatment. Journal of Petroleum Science and Engineering, 2020, 187, 106565.	2.1	13
18	Reduced-Order Modeling of Coupled Flow and Quasistatic Geomechanics. SPE Journal, 2020, 25, 326-346.	1.7	5

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19	Multilevel Strategies and Geological Parameterizations for History Matching Complex Reservoir Models. SPE Journal, 2020, 25, 081-104.	1.7	16
20	Deep-learning-based surrogate model for reservoir simulation with time-varying well controls. Journal of Petroleum Science and Engineering, 2020, 192, 107273.	2.1	65
21	A deep-learning-based surrogate model for data assimilation in dynamic subsurface flow problems. Journal of Computational Physics, 2020, 413, 109456.	1.9	150
22	A Deep-Learning-Based Geological Parameterization for History Matching Complex Models. Mathematical Geosciences, 2019, 51, 725-766.	1.4	70
23	Reduced-Order Modeling of Coupled Flow-Geomechanics Problems. , 2019, , .		3
24	Multilevel Strategies and Geological Parameterizations for History Matching Complex Reservoir Models. , 2019, , .		3
25	Implementation and detailed assessment of a GNAT reduced-order model for subsurface flow simulation. Journal of Computational Physics, 2019, 379, 192-213.	1.9	20
26	Data-space approaches for uncertainty quantification of CO2 plume location in geological carbon storage. Advances in Water Resources, 2019, 123, 234-255.	1.7	32
27	Joint Optimization of Economic Project Life and Well Controls. SPE Journal, 2018, 23, 482-497.	1.7	16
28	A General Modeling Framework for Simulating Complex Recovery Processes in Fractured Reservoirs at Different Resolutions. SPE Journal, 2018, 23, 598-613.	1.7	34
29	Reduced-order modeling of CO2 storage operations. International Journal of Greenhouse Gas Control, 2018, 68, 49-67.	2.3	29
30	Gradient-based Pareto optimal history matching for noisy data of multiple types. Computational Geosciences, 2018, 22, 1465-1485.	1.2	8
31	Machine-learning-based modeling of coarse-scale error, with application to uncertainty quantification. Computational Geosciences, 2018, 22, 1093-1113.	1.2	19
32	Optimal design and operation of integrated solar combined cycles under emissions intensity constraints. Applied Energy, 2018, 226, 979-990.	5.1	25
33	Use of reduced-order models in well control optimization. Optimization and Engineering, 2017, 18, 105-132.	1.3	66
34	Joint Optimization of Economic Project Life and Well Controls. , 2017, , .		0
35	A New Data-Space Inversion Procedure for Efficient Uncertainty Quantification in Subsurface Flow Problems. Mathematical Geosciences, 2017, 49, 679-715.	1.4	56
36	Error modeling for surrogates of dynamical systems using machine learning. International Journal for Numerical Methods in Engineering, 2017, 112, 1801-1827.	1.5	49

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37	Production forecasting and uncertainty quantification for naturally fractured reservoirs using a new data-space inversion procedure. Computational Geosciences, 2017, 21, 1443-1458.	1.2	34
38	Operational optimization of an integrated solar combined cycle under practical time-dependent constraints. Energy, 2017, 141, 1569-1584.	4.5	27
39	Multilevel Field Development Optimization Under Uncertainty Using a Sequence of Upscaled Models. Mathematical Geosciences, 2017, 49, 307-339.	1.4	31
40	Localâ€“Global Upscaling for Compositional Subsurface Flow Simulation. Transport in Porous Media, 2016, 111, 701-730.	1.2	9
41	Assessment of advanced solvent-based post-combustion CO2 capture processes using a bi-objective optimization technique. Applied Energy, 2016, 179, 1209-1219.	5.1	18
42	Trajectory piecewise quadratic reduced-order model for subsurface flow, with application to PDE-constrained optimization. Journal of Computational Physics, 2016, 326, 446-473.	1.9	44
43	Analytical approximations for effective relative permeability in the capillary limit. Water Resources Research, 2016, 52, 7645-7667.	1.7	27
44	Regularized kernel PCA for the efficient parameterization of complex geological models. Journal of Computational Physics, 2016, 322, 859-881.	1.9	43
45	A general method to select representative models for decision making and optimization under uncertainty. Computers and Geosciences, 2016, 96, 109-123.	2.0	63
46	Use of above-zone pressure data to locate and quantify leaks during carbon storage operations. International Journal of Greenhouse Gas Control, 2016, 52, 32-43.	2.3	17
47	Upscaling for Compositional Reservoir Simulation. SPE Journal, 2016, 21, 0873-0887.	1.7	21
48	A new carbon capture proxy model for optimizing the design and time-varying operation of a coal-natural gas power station. International Journal of Greenhouse Gas Control, 2016, 48, 234-252.	2.3	18
49	Ensemble level upscaling for compositional flow simulation. Computational Geosciences, 2016, 20, 525-540.	1.2	17
50	Closed-Loop Field Development Optimization Under Uncertainty. , 2015, , .		24
51	Closed-Loop Field Development Under Uncertainty by Use of Optimization With Sample Validation. SPE Journal, 2015, 20, 908-922.	1.7	58
52	Developing and Validating Simplified Predictive Models for CO2 Geologic Sequestration. , 2015, , .		7
53	Multilevel Field-Development Optimization Using a Sequence of Upscaled Models. , 2015, , .		14
54	Optimization of carbon-capture-enabled coal-gas-solar power generation. Energy, 2015, 79, 149-162.	4.5	39

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55	Upscaling for Compositional Reservoir Simulation. , 2015, , .		7
56	Upscaling of CO2 injection into brine with capillary heterogeneity effects. Journal of Petroleum Science and Engineering, 2015, 134, 60-75.	2.1	46
57	Data assimilation and uncertainty assessment for complex geological models using a new PCA-based parameterization. Computational Geosciences, 2015, 19, 747-767.	1.2	54
58	Comprehensive framework for gradient-based optimization in closed-loop reservoir management. Computational Geosciences, 2015, 19, 877-897.	1.2	48
59	Fluid flow through porous sandstone with overprinting and intersecting geological structures of various types. Geological Society Special Publication, 2014, 374, 187-209.	0.8	4
60	A New Differentiable Parameterization Based on Principal Component Analysis for the Low-Dimensional Representation of Complex Geological Models. Mathematical Geosciences, 2014, 46, 775-813.	1.4	103
61	Biobjective optimization for general oil field development. Journal of Petroleum Science and Engineering, 2014, 119, 123-138.	2.1	75
62	Adjoint formulation and constraint handling for gradient-based optimization of compositional reservoir flow. Computational Geosciences, 2014, 18, 117-137.	1.2	49
63	Optimizing heat integration in a flexible coalâ€“natural gas power station with CO2 capture. International Journal of Greenhouse Gas Control, 2014, 31, 138-152.	2.3	23
64	A derivative-free methodology with local and global search for the constrained joint optimization of well locations and controls. Computational Geosciences, 2014, 18, 463-482.	1.2	138
65	Reduced-order modeling for thermal recovery processes. Computational Geosciences, 2014, 18, 401-415.	1.2	20
66	Reduced-Order Modeling for Compositional Simulation by Use of Trajectory Piecewise Linearization. SPE Journal, 2014, 19, 858-872.	1.7	63
67	Generalized Field-Development Optimization With Derivative-Free Procedures. SPE Journal, 2014, 19, 891-908.	1.7	93
68	Reduced-order flow modeling and geological parameterization for ensemble-based data assimilation. Computers and Geosciences, 2013, 55, 54-69.	2.0	47
69	Optimal Heat Integration in a Coal-Natural Gas Energy Park with CO2 Capture. Energy Procedia, 2013, 37, 2715-2726.	1.8	3
70	Optimization of shale gas field development using direct search techniques and reduced-physics models. Journal of Petroleum Science and Engineering, 2013, 108, 304-315.	2.1	66
71	Generalized Field Development Optimization Using Derivative-Free Procedures. , 2013, , .		21
72	Reduced-Order Modeling for Compositional Simulation Using Trajectory Piecewise Linearization. , 2013, , .		8

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73	Optimal Well Placement Under Uncertainty Using a Retrospective Optimization Framework. SPE Journal, 2012, 17, 112-121.	1.7	108
74	Joint optimization of oil well placement and controls. Computational Geosciences, 2012, 16, 1061-1079.	1.2	141
75	A fully-coupled flow-reactive-transport formulation based on element conservation, with application to CO2 storage simulations. Advances in Water Resources, 2012, 42, 47-61.	1.7	46
76	Optimization of well placement, CO2 injection rates, and brine cycling for geological carbon sequestration. International Journal of Greenhouse Gas Control, 2012, 10, 100-112.	2.3	63
77	Uncertainty Quantification for Subsurface Flow Problems Using Coarse-Scale Models. Lecture Notes in Computational Science and Engineering, 2012, , 163-202.	0.1	30
78	New models for heater wells in subsurface simulations, with application to the in situ upgrading of oil shale. Computational Geosciences, 2012, 16, 519-533.	1.2	16
79	Near-well upscaling for three-phase flows. Computational Geosciences, 2012, 16, 55-73.	1.2	13
80	Use of outcrop observations, geostatistical analysis, and flow simulation to investigate structural controls on secondary hydrocarbon migration in the Anacacho Limestone, Uvalde, Texas. AAPG Bulletin, 2011, 95, 1181-1206.	0.7	17
81	Application of derivative-free methodologies to generally constrained oil production optimisation problems. International Journal of Mathematical Modelling and Numerical Optimisation, 2011, 2, 134.	0.1	57
82	Use of Approximate Dynamic Programming for Production Optimization. , 2011, , .		6
83	Optimal Well Placement under Uncertainty using a Retrospective Optimization Framework. , 2011, , .		15
84	Enhanced linearized reduced-order models for subsurface flow simulation. Journal of Computational Physics, 2011, 230, 8313-8341.	1.9	64
85	Optimal operation of an integrated energy system including fossil fuel power generation, CO2 capture and wind. Energy, 2011, 36, 6806-6820.	4.5	69
86	Statistical assignment of upscaled flow functions for an ensemble of geological models. Computational Geosciences, 2011, 15, 35-51.	1.2	17
87	A multi-resolution workflow to generate high-resolution models constrained to dynamic data. Computational Geosciences, 2011, 15, 545-563.	1.2	18
88	Derivative-Free Optimization for Oil Field Operations. Studies in Computational Intelligence, 2011, , 19-55.	0.7	31
89	From outcrop to flow simulation: Constructing discrete fracture models from a LIDAR survey. AAPG Bulletin, 2011, 95, 1883-1905.	0.7	54
90	Global variable compact multipoint methods for accurate upscaling with full-tensor effects. Computational Geosciences, 2010, 14, 65-81.	1.2	14

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91	Application of a particle swarm optimization algorithm for determining optimum well location and type. Computational Geosciences, 2010, 14, 183-198.	1.2	367
92	Accurate Representation of Near-well Effects in Coarse-Scale Models of Primary Oil Production. Transport in Porous Media, 2010, 83, 741-770.	1.2	18
93	Linearized reduced-order models for subsurface flow simulation. Journal of Computational Physics, 2010, 229, 681-700.	1.9	110
94	Use of retrospective optimization for placement of oil wells under uncertainty. , 2010, , .		7
95	Multiscale Mixed-Finite-Element Modeling of Coupled Wellbore/Near-Well Flow. SPE Journal, 2009, 14, 78-87.	1.7	7
96	Use of Reduced-Order Modeling Procedures for Production Optimization. , 2009, , .		6
97	Detailed Near-Well Darcy-Forchheimer Flow Modeling and Upscaling on Unstructured 3D Grids. , 2009, , .		3
98	Adaptive Local-Global VCMP Methods for Coarse-Scale Reservoir Modeling. , 2009, , .		6
99	Nonlinear two-point flux approximation for modeling full-tensor effects in subsurface flow simulations. Computational Geosciences, 2008, 12, 317-335.	1.2	38
100	Kernel Principal Component Analysis for Efficient, Differentiable Parameterization of Multipoint Geostatistics. Mathematical Geosciences, 2008, 40, 3-32.	1.4	188
101	Ensemble-Level Upscaling for Efficient Estimation of Fine-Scale Production Statistics. SPE Journal, 2008, 13, 400-411.	1.7	26
102	Upscaling Discrete Fracture Characterizations to Dual-Porosity, Dual-Permeability Models for Efficient Simulation of Flow With Strong Gravitational Effects. SPE Journal, 2008, 13, 58-67.	1.7	120
103	Production Optimization With Adjoint Models Under Nonlinear Control-State Path Inequality Constraints. SPE Reservoir Evaluation and Engineering, 2008, 11, 326-339.	1.1	109
104	A New Approach to Automatic History Matching Using Kernel PCA. , 2007, , .		42
105	Permeability upscaling of fault zones in the Aztec Sandstone, Valley of Fire State Park, Nevada, with a focus on slip surfaces and slip bands. Hydrogeology Journal, 2007, 15, 1239-1250.	0.9	21
106	Efficient Incorporation of Global Effects in Upscaled Models of Two-Phase Flow and Transport in Heterogeneous Formations. Multiscale Modeling and Simulation, 2006, 5, 445-475.	0.6	31
107	Efficient 3D Implementation of Local-Global Upscaling for Reservoir Simulation. SPE Journal, 2006, 11, 443-453.	1.7	40
108	Sequentially Adapted Flow-Based PEBI Grids for Reservoir Simulation. SPE Journal, 2006, 11, 317-327.	1.7	45

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109	Unstructured grid optimization for improved monotonicity of discrete solutions of elliptic equations with highly anisotropic coefficients. Journal of Computational Physics, 2006, 216, 337-361.	1.9	66
110	Adaptive Localâ€“Global Upscaling for General Flow Scenarios in Heterogeneous Formations. Transport in Porous Media, 2006, 62, 157-185.	1.2	171
111	Efficient real-time reservoir management using adjoint-based optimal control and model updating. Computational Geosciences, 2006, 10, 3-36.	1.2	231
112	Optimization of nonconventional wells under uncertainty using statistical proxies. Computational Geosciences, 2006, 10, 389-404.	1.2	91
113	Two-Stage Upscaling of Two-Phase Flow: From Core to Simulation Scale. SPE Journal, 2006, 11, 304-316.	1.7	45
114	Development and Application of a New Technique for Upscaling Miscible Displacements. SPE Reservoir Evaluation and Engineering, 2005, 8, 189-195.	1.1	12
115	Efficient Closed-loop Production Optimization Under Uncertainty. , 2005, , .		42
116	Drift-Flux Parameters for Three-Phase Steady-State Flow in Wellbores. SPE Journal, 2005, 10, 130-137.	1.7	78
117	Optimizing the performance of smart wells in complex reservoirs using continuously updated geological models. Journal of Petroleum Science and Engineering, 2005, 48, 254-264.	2.1	65
118	Unstructured 3D gridding and upscaling for coarse modelling of geometrically complex reservoirs. Petroleum Geoscience, 2005, 11, 339-345.	0.9	61
119	Drift-Flux Modeling of Two-Phase Flow in Wellbores. SPE Journal, 2005, 10, 24-33.	1.7	210
120	MODELING FLUID FLOW IN OIL RESERVOIRS. Annual Review of Fluid Mechanics, 2005, 37, 211-238.	10.8	211
121	Upscaled models of flow and transport in faulted sandstone: boundary condition effects and explicit fracture modelling. Petroleum Geoscience, 2004, 10, 173-181.	0.9	32
122	Development and Application of a New Technique for Upscaling Miscible Processes. , 2004, , .		3
123	Accurate Subgrid Models for Two-Phase Flow in Heterogeneous Reservoirs. SPE Journal, 2004, 9, 219-226.	1.7	26
124	Calculation of Well Index for Nonconventional Wells on Arbitrary Grids. Computational Geosciences, 2003, 7, 61-82.	1.2	39
125	Optimization of Nonconventional Well Type, Location, and Trajectory. SPE Journal, 2003, 8, 200-210.	1.7	252
126	Modeling Flow in Geometrically Complex Reservoirs Using Hexahedral Multiblock Grids. SPE Journal, 2002, 7, 149-157.	1.7	36

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127	Title is missing!. Computational Geosciences, 2002, 6, 29-47.	1.2	12
128	Approximate Finite Difference Modeling of the Performance of Horizontal Wells in Heterogeneous Reservoirs. , 2000, , .		3
129	An Approximate Model for Well Productivity in Heterogeneous Porous Media. Mathematical Geosciences, 2000, 32, 421-438.	0.9	30
130	Use of Higher Moments for the Description of Upscaled, Process Independent Relative Permeabilities. SPE Journal, 1997, 2, 474-484.	1.7	30
131	A nonuniform coarsening approach for the scale-up of displacement processes in heterogeneous porous media. Advances in Water Resources, 1997, 20, 335-347.	1.7	170
132	Accuracy of mixed and control volume finite element approximations to Darcy velocity and related quantities. Water Resources Research, 1994, 30, 965-973.	1.7	175
133	A Triangle Based Mixed Finite Elementâ€”Finite Volume Technique for Modeling Two Phase Flow through Porous Media. Journal of Computational Physics, 1993, 105, 252-266.	1.9	150
134	Modeling Fluid Flow Through Complex Reservoir Beds. SPE Formation Evaluation, 1992, 7, 315-322.	0.5	24
135	Representation of grid block permeability in coarse scale models of randomly heterogeneous porous media. Water Resources Research, 1992, 28, 1791-1800.	1.7	59
136	Triangle based adaptive stencils for the solution of hyperbolic conservation laws. Journal of Computational Physics, 1992, 98, 64-73.	1.9	130
137	Numerical calculation of equivalent grid block permeability tensors for heterogeneous porous media. Water Resources Research, 1991, 27, 699-708.	1.7	658
138	Dynamic simulation of bounded suspensions of hydrodynamically interacting particles. Journal of Fluid Mechanics, 1989, 200, 39-67.	1.4	91
139	The sedimentation rate of disordered suspensions. Physics of Fluids, 1988, 31, 717.	1.4	102
140	On rotating disk flow. Journal of Fluid Mechanics, 1987, 175, 363.	1.4	107