Peter Knabner

List of Publications by Year
in descending order

Source: https://exaly.com/author-pdf/8206137/publications.pdf

Version: 2024-02-01

118 papers	2,332 citations	172457 29 h-index	276875 41 g-index
131 all docs	131 docs citations	131 times ranked	1226 citing authors

#	Article	IF	Citations
1	Efficiency of Micro-Macro Models for Reactive Two-Mineral Systems. Multiscale Modeling and Simulation, 2022, 20, 433-461.	1.6	7
2	Global implicit solver for multiphase multicomponent flow in porous media with multiple gas components and general reactions. Computational Geosciences, 2022, 26, 697-724.	2.4	3
3	Comparison study of phase-field and level-set method for three-phase systems including two minerals. Computational Geosciences, 2022, 26, 545-570.	2.4	5
4	FESTUNG 1.0: Overview, usage, and example applications of the MATLAB/GNU Octave toolbox for discontinuous Galerkin methods. Computers and Mathematics With Applications, 2021, 81, 3-41.	2.7	6
5	Homogenization of Two-Phase Flow in Porous Media From Pore to Darcy Scale: A Phase-Field Approach. Multiscale Modeling and Simulation, 2021, 19, 320-343.	1.6	6
6	Robust simulation of mineral precipitationâ€“dissolution problems with variable mineral surface area. Journal of Engineering Mathematics, 2021, 129, 1.	1.2	0
7	The Finite Element Method for Linear Elliptic Boundary Value Problems of Second Order. Texts in Applied Mathematics, 2021, , 111-204.	0.4	0
8	Numerical Methods for Elliptic and Parabolic Partial Differential Equations. Texts in Applied Mathematics, 2021, , .	0.4	10
9	Iterative Methods for Systems of Linear Equations. Texts in Applied Mathematics, 2021, , 235-339.	0.4	0
10	For the Beginning: The Finite Difference Method for the Poisson Equation. Texts in Applied Mathematics, 2021, , 19-49.	0.4	0
11	Grid Generation and A Posteriori Error Estimation. Texts in Applied Mathematics, 2021, , 205-234.	0.4	0
12	Wavelet-Based Priors Accelerate Maximum-a-Posteriori Optimization in Bayesian Inverse Problems. Methodology and Computing in Applied Probability, 2020, 22, 853-879.	1.2	0
13	Efficiency and Accuracy of Microâ€Macro Models for Mineral Dissolution. Water Resources Research, 2020, 56, e2020WR027585.	4.2	21
14	Numerical benchmark study for flow in highly heterogeneous aquifers. Advances in Water Resources, 2020, 138, 103558.	3.8	6
15	Beyond Kozenyâ€“Carman: Predicting the Permeability in Porous Media. Transport in Porous Media, 2019, 130, 487-512.	2.6	69
16	Multiscale Approaches in Reactive Transport Modeling. Reviews in Mineralogy and Geochemistry, 2019, 85, 27-48.	4.8	45
17	2. Multiscale Approaches in Reactive Transport Modeling. , 2019, , 27-48.		1
18	Discontinuous Galerkin method for coupling hydrostatic free surface flows to saturated subsurface systems. Computers and Mathematics With Applications, 2019, 77, 2291-2309.	2.7	9

#	Article	IF	Citations
19	A global implicit solver for miscible reactive multiphase multicomponent flow in porous media. Computational Geosciences, 2019, 23, 127-148.	2.4	9
20	Analysis of a mixed discontinuous Galerkin method for instationary Darcy flow. Computational Geosciences, 2018, 22, 179-194.	2.4	12
21	A local discontinuous Galerkin scheme for Darcy flow with internal jumps. Computational Geosciences, 2018, 22, 1149-1159.	2.4	11
22	FESTUNG: AÂMATLAB/GNUÂOctaveÂtoolbox for the discontinuous Galerkin method. Part III: Hybridized discontinuous Galerkin (HDG) formulation. Computers and Mathematics With Applications, 2018, 75, 4505-4533.	2.7	15
23	Old and New Approaches Predicting the Diffusion in Porous Media. Transport in Porous Media, 2018, 124, 803-824.	2.6	37
24	Effective interface conditions for processes through thin heterogeneous layers with nonlinear transmission at the microscopic bulk-layer interface. Networks and Heterogeneous Media, 2018, 13, 609-640.	1.1	16
25	Derivation and analysis of an effective model for biofilm growth in evolving porous media. Mathematical Methods in the Applied Sciences, 2017, 40, 2930-2948.	2.3	24
26	Strong solvability up to clogging of an effective diffusionâ€“precipitation model in an evolving porous medium. European Journal of Applied Mathematics, 2017, 28, 179-207.	2.9	24
27	Derivation of an Effective Model for Metabolic Processes in Living Cells Including Substrate Channeling. Vietnam Journal of Mathematics, 2017, 45, 265-293.	0.8	7
28	Mathematical Modeling. Springer Undergraduate Mathematics Series, 2017, , .	0.1	17
29	Convergence order estimates of the local discontinuous Galerkin method for instationary Darcy flow. Numerical Methods for Partial Differential Equations, 2017, 33, 1374-1394.	3.6	12
30	An Effective Model for Biofilm Growth Made by Chemotactical Bacteria in Evolving Porous Media. SIAM Journal on Applied Mathematics, 2017, 77, 1653-1677.	1.8	15
31	Existence and Uniqueness of a Global Solution for Reactive Transport with Mineral Precipitation-Dissolution and Aquatic Reactions in Porous Media. SIAM Journal on Mathematical Analysis, 2017, 49, 4812-4837.	1.9	5
32	A Priori Error Analysis for the Galerkin Finite Element Semi-discretization of a Parabolic System with Non-Lipschitzian Nonlinearity. Vietnam Journal of Mathematics, 2017, 45, 179-198.	0.8	0
33	Convergence analysis of a BDF2â€‰/â€‰mixed finite element discretization of a Darcyâ€“Nernstâ€“Planckâ€“Poisson system. ESAIM: Mathematical Modelling and Numerical Analysis, 2017, 51, 1883-1902.	1.9	4
34	Derivation of effective transmission conditions for domains separated by a membrane for different scaling of membrane diffusivity. Discrete and Continuous Dynamical Systems - Series S, 2017, 10, 773-797.	1.1	8
35	Model-Based Design of Biochemical Microreactors. Frontiers in Bioengineering and Biotechnology, 2016, 4, 13.	4.1	2
36	Homogenization of Reaction--Diffusion Processes in a Two-Component Porous Medium with Nonlinear Flux Conditions at the Interface. SIAM Journal on Applied Mathematics, 2016, 76, 1819-1843.	1.8	39

#	Article	IF	Citations
37	Towards a filtered density function approach for reactive transport in groundwater. Advances in Water Resources, 2016, 90, 83-98.	3.8	13
38	Analysis of a Modified Second-Order Mixed Hybrid BDM_1 Finite Element Method for Transport Problems in Divergence Form. SIAM Journal on Numerical Analysis, 2016, 54, 2359-2378.	2.3	1
39	FESTUNG: AÂMATLAB/GNUÂOctaveÂtoolbox for the discontinuous Galerkin method, Part II: Advection operator and slope limiting. Computers and Mathematics With Applications, 2016, 72, 1896-1925.	2.7	21
40	A time dependent mixing model to close PDF equations for transport in heterogeneous aquifers. Advances in Water Resources, 2016, 96, 55-67.	3.8	7
41	A Fokkerâ€“Planck approach for probability distributions of species concentrations transported in heterogeneous media. Journal of Computational and Applied Mathematics, 2015, 289, 241-252.	2.0	19
42	FESTUNG: AÂMATLAB/GNUÂOctaveÂtoolbox for the discontinuous Galerkin method, Part I: Diffusion operator. Computers and Mathematics With Applications, 2015, 70, 11-46.	2.7	27
43	Upscaling the Flow and Transport in an Evolving Porous Medium with General Interaction Potentials. SIAM Journal on Applied Mathematics, 2015, 75, 2170-2192.	1.8	13
44	Multiscale modeling of colloidal dynamics in porous media including aggregation and deposition. Advances in Water Resources, 2015, 86, 209-216.	3.8	25
45	Solute transport in aquifers with evolving scale heterogeneity. Analele Stiintifice Ale Universitatii Ovidius Constanta, Seria Matematica, 2015, 23, 167-186.	0.3	5
46	Consistency issues in PDF methods. Analele Stiintifice Ale Universitatii Ovidius Constanta, Seria Matematica, 2015, 23, 187-208.	0.3	2
47	Analysis of an Upwind-Mixed Hybrid Finite Element Method for Transport Problems. SIAM Journal on Numerical Analysis, 2014, 52, 83-102.	2.3	15
48	Mathematical analysis of a discrete fracture model coupling Darcy flow in the matrix with Darcyâ€“Forchheimer flow in the fracture. ESAIM: Mathematical Modelling and Numerical Analysis, 2014, 48, 1451-1472.	1.9	27
49	Results of the MoMaS benchmark for gas phase appearance and disappearance using generalized MHFE. Advances in Water Resources, 2014, 73, 74-96.	3.8	5
50	A coupled finite elementâ€“global random walk approach to advection-dominated transport in porous media with random hydraulic conductivity. Journal of Computational and Applied Mathematics, 2013, 246, 27-37.	2.0	15
51	Fully coupled generalized hybrid-mixed finite element approximation of two-phase two-component flow in porous media. Part I: formulation and properties of the mathematical model. Computational Geosciences, 2013, 17, 431-442.	2.4	14
52	Special issue â€œMathematics of Porous Media,â€•dedicated to Professor C.J. van Duijn on the occasion of his 60th anniversary. Computational Geosciences, 2013, 17, 443-445.	2.4	0
53	Drug release from collagen matrices including an evolving microstructure. ZAMM Zeitschrift Fur Angewandte Mathematik Und Mechanik, 2013, 93, 811-822.	1.6	31
54	Existence and uniqueness of a global weak solution of a Darcyâ€Nernstâ€Planckâ€Poisson system. GAMM Mitteilungen, 2012, 35, 191-208.	5.5	12

#	Article	IF	Citations
55	Multiscale Modeling of Colloid and Fluid Dynamics in Porous Media Including an Evolving Microstructure. Transport in Porous Media, 2012, 95, 669-696.	2.6	40
56	Optimal order convergence of a modified BDM1 mixed finite element scheme for reactive transport in porous media. Advances in Water Resources, 2012, 35, 163-171.	3.8	18
57	A general reduction scheme for reactive transport in porous media. Computational Geosciences, 2012, 16, 1081-1099.	2.4	17
58	Fully coupled generalised hybrid-mixed finite element approximation of two-phase two-component flow in porous media. Part II: numerical scheme and numerical results. Computational Geosciences, 2012, 16, 691-708.	2.4	12
59	Rigorous homogenization of a Stokesâ€“Nernstâ€“Planckâ€“Poisson system. Journal of Mathematical Analysis and Applications, 2012, 390, 374-393.	1.0	43
60	Numerical investigation of homogenized Stokesâ€“Nernstâ€“Planckâ€“Poisson systems. Computing and Visualization in Science, 2011, 14, 385-400.	1.2	17
61	The semismooth Newton method for the solution ofÂreactive transport problems including mineral precipitation-dissolution reactions. Computational Optimization and Applications, 2011, 50, 193-221.	1.6	13
62	First-order convergence of multi-point flux approximation on triangular grids and comparison with mixed finite element methods. Numerische Mathematik, 2010, 116, 1-29.	1.9	10
63	Reactive transport benchmark of MoMaS. Computational Geosciences, 2010, 14, 385-392.	2.4	36
64	A parallel global-implicit 2-D solver for reactive transport problems in porous media based on a reduction scheme and its application to the MoMaS benchmark problem. Computational Geosciences, 2010, 14, 421-433.	2.4	30
65	Comparison of numerical methods for simulating strongly nonlinear and heterogeneous reactive transport problemsâ€”the MoMaS benchmark case. Computational Geosciences, 2010, 14, 483-502.	2.4	50
66	Error Estimates for a Finite Element Discretization of a Phase Field Model for Mixtures. SIAM Journal on Numerical Analysis, 2010, 47, 4429-4445.	2.3	2
67	Persistent memory of diffusing particles. Physical Review E, 2009, 80, 061134.	2.1	14
68	Numerical simulation of drug release from collagen matrices by enzymatic degradation. Computing and Visualization in Science, 2009, 12, 409-420.	1.2	9
69	Comment on â€œSpatial moments analysis of kinetically sorbing solutes in aquifer with bimodal permeability distributionâ€•by M. MassabÃ³, A. Bellin, and A. J. Valocchi. Water Resources Research, 2009, 45, .	4.2	3
70	Error estimates for a mixed finite element discretization of some degenerate parabolic equations. Numerische Mathematik, 2008, 109, 285-311.	1.9	66
71	Memory effects induced by dependence on initial conditions and ergodicity of transport in heterogeneous media. Water Resources Research, 2008, 44, .	4.2	16
72	A model describing the effect of enzymatic degradation on drug release from collagen minirods. European Journal of Pharmaceutics and Biopharmaceutics, 2007, 67, 349-360.	4.3	37

#	Article	IF	Citations
73	A reduction scheme for coupled multicomponent transport-reaction problems in porous media: Generalization to problems with heterogeneous equilibrium reactions. Water Resources Research, 2007, 43, .	4.2	52
74	Error estimates for an Euler implicitâ€mixed finite element scheme for reactive transport in saturated/unsaturated soil. Proceedings in Applied Mathematics and Mechanics, 2007, 7, 1024705-1024706.	0.2	0
75	Unbiased identification of nonlinear sorption characteristics by soil column breakthrough experiments. Computational Geosciences, 2006, 9, 203-217.	2.4	2
76	Newtonâ€"Type Methods for the Mixed Finite Element Discretization of Some Degenerate Parabolic Equations. , 2006, , 1192-1200.		14
77	A new numerical reduction scheme for fully coupled multicomponent transport-reaction problems in porous media. Water Resources Research, 2005, 41, .	4.2	55
78	Numerical Methods for the Determination of Material Properties in Soil Science. Inverse Problems in Science and Engineering, 2004, 12, 361-378.	1.2	5
79	Inverse Estimation of the Unsaturated Soil Hydraulic Properties from Column Outflow Experiments Using Free-Form Parameterizations. Vadose Zone Journal, 2004, 3, 971-981.	2.2	23
80	Numerical simulation of contaminant biodegradation by higher order methods and adaptive time stepping. Computing and Visualization in Science, 2004, 7, 61-78.	1.2	27
81	On uniform convergence rates for Eulerian and Lagrangian finite element approximations of convection-dominated diffusion problems. Calcolo, 2004, 41, 1-26.	1.1	3
82	Computation of variably saturated subsurface flow by adaptive mixed hybrid finite element methods. Advances in Water Resources, 2004, 27, 565-581.	3.8	62
83	A priori error estimates for a mixed finite element discretization of the Richardsâ€™ equation. Numerische Mathematik, 2004, 98, 353-370.	1.9	36
84	Mixed finite elements for the Richardsâ€™ equation: linearization procedure. Journal of Computational and Applied Mathematics, 2004, 168, 365-373.	2.0	129
85	Order of Convergence Estimates for an Euler Implicit, Mixed Finite Element Discretization of Richards' Equation. SIAM Journal on Numerical Analysis, 2004, 42, 1452-1478.	2.3	79
86	Conditions for the invertibility of the isoparametric mapping for hexahedral finite elements. Finite Elements in Analysis and Design, 2003, 40, 159-172.	3.2	14
87	Experimental design for outflow experiments based on a multi-level identification method for material laws. Inverse Problems, 2003, 19, 1011-1030.	2.0	9
88	Uniform Error Analysis for Lagrange–Galerkin Approximations of Convection-Dominated Problems. SIAM Journal on Numerical Analysis, 2002, 39, 1954-1984.	2.3	31
89	Simulation of carrier-facilitated transport of phenanthrene in a layered soil profile. Journal of Contaminant Hydrology, 2002, 56, 209-225.	3.3	22
90	Modeling of Drug Release from Collagen Matrices. Journal of Pharmaceutical Sciences, 2002, 91, 964-972.	3.3	39

#	Article	IF	Citations
91	A Two-Scale Method for the Computation of Solidâ€“Liquid Phase Transitions with Dendritic Microstructure. Journal of Computational Physics, 2002, 178, 58-80.	3.8	17
92	An efficient method for solving an inverse problem for the Richards equation. Journal of Computational and Applied Mathematics, 2002, 147, 153-173.	2.0	35
93	Two-Scale Models for Liquid-Solid Phase Transitions in Binary Material with Equiaxed Microstructure. , 2002, , 175-187.		0
94	The invertibility of the isoparametric mapping for pyramidal and prismatic finite elements. Numerische Mathematik, 2001, 88, 661-681.	1.9	9
95	Adaptivity in the finite volume discretization of variable density flows in porous media. Physics and Chemistry of the Earth, 2001, 26, 319-324.	0.3	3
96	Solute transport in porous media with equilibrium and nonequilibrium multiple-site adsorption: uniqueness of weak solutions. Nonlinear Analysis: Theory, Methods & Applications, 2000, 42, 381-403.	1.1	20
97	An error estimator for a finite volume discretization of density driven flow in porous media. Applied Numerical Mathematics, 1998, 26, 179-191.	2.1	13
98	An analysis of crystal dissolution fronts in flows through porous media part 2: incompatible boundary conditions. Advances in Water Resources, 1998, 22, 1-16.	3.8	16
99	An Improved Error Bound for a Lagrange--Galerkin Method for Contaminant Transport with Non-Lipschitzian Adsorption Kinetics. SIAM Journal on Numerical Analysis, 1998, 35, 1862-1882.	2.3	16
100	Finite Element Approximation of the Transport of Reactive Solutes in Porous Media. Part 1: Error Estimates for Nonequilibrium Adsorption Processes. SIAM Journal on Numerical Analysis, 1997, 34, 201-227.	2.3	38
101	Finite Element Approximation of The Transport of Reactive Solutes in Porous Media. Part II: Error Estimates for Equilibrium Adsorption Processes. SIAM Journal on Numerical Analysis, 1997, 34, 455-479.	2.3	39
102	The modeling of reactive solute transport with sorption to mobile and immobile sorbents: 2. Model discussion and numerical simulation. Water Resources Research, 1996, 32, 1623-1634.	4.2	34
103	The modeling of reactive solute transport with sorption to mobile and immobile sorbents: 1. Experimental evidence and model development. Water Resources Research, 1996, 32, 1611-1622.	4.2	61
104	An analysis of crystal dissolution fronts in flows through porous media. Part 1: Compatible boundary conditions. Advances in Water Resources, 1995, 18, 171-185.	3.8	61
105	Flow and reactive transport in porous media induced by well injection: Similarity solution. IMA Journal of Applied Mathematics, 1994, 52, 177-200.	1.6	6
106	Travelling waves during the transport of reactive solute in porous media: Combination of Langmuir and Freundlich isotherms. Advances in Water Resources, 1993, 16, 97-105.	3.8	15
107	Travelling waves in the transport of reactive solutes through porous media: Adsorption and binary ion exchange â€" Part 1. Transport in Porous Media, 1992, 8, 167-194.	2.6	65
108	Travelling waves in the transport of reactive solutes through porous media: Adsorption and binary ion exchange â€" Part 2. Transport in Porous Media, 1992, 8, 199-225.	2.6	32

#	Article	IF	Citations
109	A transport model with micro- and macro-structure. Journal of Differential Equations, 1992, 98, 328-354.	2.2	8
110	Adaptive methods for parameter identification in ground water hydrology. Advances in Water Resources, 1991, 14, 220-239.	3.8	2
111	International workshop on mathematical modeling for flow and transport through porous media. Transport in Porous Media, 1991, 6, 473.	2.6	0
112	The optimal stability estimate for some ill-posed Cauchy problems for a parabolic equation. Mathematical Methods in the Applied Sciences, 1988, 10, 575-583.	2.3	29
113	STABILITY ESTIMATES FOR ILL-POSED CAUCHY PROBLEMS FOR PARABOLIC EQUATIONS. , 1987, , 351-368.		9
114	Stabilization of ill-posed Cauchy problems for parabolic equations. Annali Di Matematica Pura Ed Applicata, 1987, 149, 393-409.	1.0	26
115	A Free Boundary Problem Arising from the Leaching of Saine Soils. SIAM Journal on Mathematical Analysis, 1986, 17, 610-625.	1.9	5
116	Global existence in a general Stefan-like problem. Journal of Mathematical Analysis and Applications, 1986, 115, 543-559.	1.0	2
117	Control of stefan problems by means of linear-quadratic defect minimization. Numerische Mathematik, 1985, 46, 429-442.	1.9	16
118	Regularization of the cauchy problem for the heat equation by norm bounds. Applicable Analysis, 1984, 17, 295-311.	1.3	10