Dieter Bothe

List of Publications by Year
in descending order

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139 papers	3,072 citations	147726 31 h-index	197736 49 g-index
146 all docs	146 docs citations	146 times ranked	1833 citing authors

#	Article	IF	Citations
1	Fluid mixing in a T-shaped micro-mixer. Chemical Engineering Science, 2006, 61, 2950-2958.	1.9	276
2	Multivalued perturbations ofm-accretive differential inclusions. Israel Journal of Mathematics, 1998, 108, 109-138.	0.4	218
3	Chemo-enzymatic epoxidation of unsaturated plant oils. Chemical Engineering Science, 2001, 56, 427-432.	1.9	98
4	A Volume-of-Fluid-based method for mass transfer processes at fluid particles. Chemical Engineering Science, 2013, 101, 283-302.	1.9	91
5	Continuum thermodynamics of chemically reacting fluid mixtures. Acta Mechanica, 2015, 226, 1757-1805.	1.1	86
6	L_p-Theory for a Class of Non-Newtonian Fluids. SIAM Journal on Mathematical Analysis, 2007, 39, 379-421.	0.9	78
7	Computation of scales and quality of mixing in a T-shaped microreactor. Computers and Chemical Engineering, 2008, 32, 108-114.	2.0	75
8	Direct numerical simulation of thermocapillary flow based on the Volume of Fluid method. International Journal of Multiphase Flow, 2011, 37, 1045-1058.	1.6	71
9	A unified single-field model framework for Volume-Of-Fluid simulations of interfacial species transfer applied to bubbly flows. Chemical Engineering Science, 2016, 139, 173-195.	1.9	71
10	Collision between high and low viscosity droplets: Direct Numerical Simulations and experiments. International Journal of Multiphase Flow, 2013, 56, 81-92.	1.6	67
11	VOF-Simulation of the Lift Force for Single Bubbles in a Simple Shear Flow. Chemical Engineering and Technology, 2006, 29, 1048-1053.	0.9	62
12	On the Two-Phase Navierâ€“Stokes Equations with Boussinesqâ€“Scriven Surface Fluid. Journal of Mathematical Fluid Mechanics, 2010, 12, 133-150.	0.4	60
13	On the Maxwell-Stefan Approach to Multicomponent Diffusion. Progress in Nonlinear Differential Equations and Their Application, 2011, , 81-93.	0.4	55
14	A reactionâ€“diffusion system with fast reversible reaction. Journal of Mathematical Analysis and Applications, 2003, 286, 125-135.	0.5	49
15	Numerical modeling of thermocapillary two-phase flows with evaporation using a two-scalar approach for heat transfer. Journal of Computational Physics, 2013, 233, 552-573.	1.9	47
16	Unstructured un-split geometrical Volume-of-Fluid methods â€“ A review. Journal of Computational Physics, 2020, 420, 109695.	1.9	46
17	Numerical and experimental analysis of local flow phenomena in laminar Taylor flow in a square mini-channel. Physics of Fluids, 2016, 28, .	1.6	44
18	Direct Numerical Simulation of interfacial mass transfer into falling films. International Journal of Heat and Mass Transfer, 2014, 69, 343-357.	2.5	43

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19	Direct numerical simulation of binary off-center collisions of shear thinning droplets at high Weber numbers. Physics of Fluids, 2012, 24, .	1.6	41
20	A comparison of stabilisation approaches for finite-volume simulation of viscoelastic fluid flow. International Journal of Computational Fluid Dynamics, 2013, 27, 229-250.	0.5	41
21	Computational analysis of single rising bubbles influenced by soluble surfactant. Journal of Fluid Mechanics, 2018, 856, 709-763.	1.4	40
22	Colliding drops as coalescing and fragmenting liquid springs. Journal of Fluid Mechanics, 2017, 814, 277-300.	1.4	39
23	Fully resolved numerical simulation of reactive mixing in a T-shaped micromixer using parabolized species equations. Chemical Engineering Science, 2011, 66, 6424-6440.	1.9	38
24	Numerical study of head-on droplet collisions at high Weber numbers. Journal of Fluid Mechanics, 2016, 789, 785-805.	1.4	37
25	Direct numerical simulation of mass transfer in bubbly flows. Computers and Fluids, 2018, 172, 524-537.	1.3	37
26	An extended volume of fluid method and its application to single bubbles rising in a viscoelastic liquid. Journal of Computational Physics, 2019, 387, 326-355.	1.9	36
27	Validation of Interface Capturing and Tracking techniques with different surface tension treatments against a Taylor bubble benchmark problem. Computers and Fluids, 2014, 102, 336-352.	1.3	35
28	Advanced subgrid-scale modeling for convection-dominated species transport at fluid interfaces with application to mass transfer from rising bubbles. Journal of Computational Physics, 2017, 347, 261-289.	1.9	35
29	Load balanced 2D and 3D adaptive mesh refinement in OpenFOAM. SoftwareX, 2019, 10, 100317.	1.2	34
30	Quasi-steady-state approximation for a reactionâ€“diffusion system with fast intermediate. Journal of Mathematical Analysis and Applications, 2010, 368, 120-132.	0.5	33
31	A Volume-of-Fluid-based numerical method for multi-component mass transfer with local volume changes. Journal of Computational Physics, 2015, 301, 35-58.	1.9	33
32	Multivalued differential equations on graphs. Nonlinear Analysis: Theory, Methods & Applications, 1992, 18, 245-252.	0.6	32
33	Computational analysis of an instantaneous chemical reaction in a Tâ€microreactor. AICHE Journal, 2010, 56, 1406-1415.	1.8	32
34	Global Well-Posedness and Stability of Electrokinetic Flows. SIAM Journal on Mathematical Analysis, 2014, 46, 1263-1316.	0.9	32
35	Direct numerical simulation of mass transfer between rising gas bubbles and water. Heat and Mass Transfer, 2004, , 159-174.	0.2	31
36	Computational analysis of binary collisions of shear-thinning droplets. Journal of Non-Newtonian Fluid Mechanics, 2011, 166, 799-810.	1.0	30

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37	Simplified modeling of the influence of surfactants on the rise of bubbles in VOF-simulations. Chemical Engineering Science, 2013, 102, 514-523.	1.9	30
38	VOF-Simulations of Mass Transfer From Single Bubbles and Bubble Chains Rising in Aqueous Solutions. , 2003, , 423.		29
39	Flow invariance for perturbed nonlinear evolution equations. Abstract and Applied Analysis, 1996, 1, 417-433.	0.3	28
40	An enhanced un-split face-vertex flux-based VoF method. Journal of Computational Physics, 2018, 371, 967-993.	1.9	25
41	Influence of surface tension models on the hydrodynamics of wavy laminar falling films in Volume of Fluid-simulations. International Journal of Multiphase Flow, 2012, 43, 66-71.	1.6	24
42	Highly accurate two-phase species transfer based on ALE Interface Tracking. International Journal of Heat and Mass Transfer, 2017, 104, 759-773.	2.5	23
43	Well-posedness of a Two-phase Flow with Soluble Surfactant. , 2005, , 37-61.		23
44	A kinematic evolution equation for the dynamic contact angle and some consequences. Physica D: Nonlinear Phenomena, 2019, 394, 26-43.	1.3	22
45	Direct numerical simulations of thermocapillary migration of a droplet attached to a solid wall. International Journal of Multiphase Flow, 2015, 77, 209-221.	1.6	21
46	Direct Numerical Simulation of droplet formation processes under the influence of soluble surfactant mixtures. Computers and Fluids, 2015, 113, 93-105.	1.3	21
47	3D direct numerical simulations of reactive mass transfer from deformable single bubbles: An analysis of mass transfer coefficients and reaction selectivities. Chemical Engineering Science, 2018, 177, 523-536.	1.9	21
48	On a Class of Energy Preserving Boundary Conditions for Incompressible Newtonian Flows. SIAM Journal on Mathematical Analysis, 2013, 45, 3768-3822.	0.9	20
49	Cross-Diffusion Limit for a Reaction-Diffusion System with Fast Reversible Reaction. Communications in Partial Differential Equations, 2012, 37, 1940-1966.	1.0	19
50	Dynamic behaviour of buoyant high viscosity droplets rising in a quiescent liquid. Journal of Fluid Mechanics, 2015, 778, 485-533.	1.4	18
51	A subgrid-scale model for reactive concentration boundary layers for 3D mass transfer simulations with deformable fluid interfaces. International Journal of Heat and Mass Transfer, 2016, 101, 476-487.	2.5	18
52	On the applicability of Drop Profile Analysis Tensiometry at high flow rates using an interface tracking method. Colloids and Surfaces A: Physicochemical and Engineering Aspects, 2014, 441, 837-845.	2.3	17
53	Numerical method for coupled interfacial surfactant transport on dynamic surface meshes of general topology. Computers and Fluids, 2015, 109, 168-184.	1.3	17
54	Instantaneous limits of reversible chemical reactions in presence of macroscopic convection. Journal of Differential Equations, 2003, 193, 27-48.	1.1	16

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55	VOF-based simulation of reactive mass transfer across deformable interfaces. Progress in Computational Fluid Dynamics, 2009, 9, 325.	0.1	16
56	lentFoam â€“ A hybrid Level Set/Front Tracking method on unstructured meshes. Computers and Fluids, 2015, 113, 20-31.	1.3	16
57	VOF-based simulation of conjugate mass transfer from freely moving fluid particles. WIT Transactions on Engineering Sciences, 2009, , .	0.0	16
58	The instantaneous limit for reaction-diffusion systems with a fast irreversible reaction. Discrete and Continuous Dynamical Systems - Series S, 2012, 5, 49-59.	0.6	15
59	A comparative study of transient capillary rise using direct numerical simulations. Applied Mathematical Modelling, 2020, 86, 142-165.	2.2	15
60	A numerical stabilization framework for viscoelastic fluid flow using the finite volume method on general unstructured meshes. International Journal for Numerical Methods in Fluids, 2018, 86, 131-166.	0.9	14
61	Mass transfer from single carbon-dioxide bubbles in surfactant-electrolyte mixed aqueous solutions in vertical pipes. International Journal of Multiphase Flow, 2020, 124, 103207.	1.6	14
62	Periodic solutions of non-smooth friction oscillators. Zeitschrift Fur Angewandte Mathematik Und Physik, 1999, 50, 779.	0.7	13
63	Experimental and numerical investigation of reactive species transport around a small rising bubble. Chemical Engineering Science: X, 2019, 1, 100007.	1.5	13
64	Stability of Equilibria for Two-Phase Flows with Soluble Surfactant. Quarterly Journal of Mechanics and Applied Mathematics, 2010, 63, 177-199.	0.5	11
65	SkalenÃ¼bergreifende Beschreibung der Transportprozesse bei Gas/FlÃ¼ssig-Reaktionen. Chemie-Ingenieur-Technik, 2011, 83, 1084-1095.	0.4	10
66	A continuum model of heterogeneous catalysis: Thermodynamic framework for multicomponent bulk and surface phenomena coupled by sorption. International Journal of Engineering Science, 2019, 138, 82-117.	2.7	10
67	Numerical simulation of non-isothermal viscoelastic flows at high Weissenberg numbers using a finite volume method on general unstructured meshes. Journal of Non-Newtonian Fluid Mechanics, 2021, 287, 104451.	1.0	10
68	Nonlinear evolutions with Carathï¿½odory forcing. Journal of Evolution Equations, 2003, 3, 375-394.	0.6	9
69	Investigation of the Mixingâ€•and Devolatilization Behavior in a Continuous Twinâ€Shaft Kneader. Macromolecular Symposia, 2010, 289, 155-164.	0.4	9
70	Numerical modeling and investigation of viscoelastic fluidâ€“structure interaction applying an implicit partitioned coupling algorithm. Journal of Fluids and Structures, 2015, 54, 390-421.	1.5	9
71	Global Existence for a Class of Reaction-Diffusion Systems with Mass Action Kinetics and Concentration-Dependent Diffusivities. Acta Applicandae Mathematicae, 2015, 139, 25-57.	0.5	9
72	Global wellposedness for a class of reactionâ€“advectionâ€“anisotropic-diffusion systems. Journal of Evolution Equations, 2017, 17, 101-130.	0.6	9

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73	Boundedness-preserving implicit correction of mesh-induced errors for VOF based heat and mass transfer. Journal of Computational Physics, 2018, 352, 285-300.	1.9	9
74	Dataâ€Driven Subgridâ€Scale Modeling for Convectionâ€Dominated Concentration Boundary Layers. Chemical Engineering and Technology, 2019, 42, 1349-1356.	0.9	9
75	Toward the predictive simulation of bouncing versus coalescence in binary droplet collisions. Acta Mechanica, 2019, 230, 623-644.	1.1	9
76	Small-Scale Phenomena in Reactive Bubbly Flows: Experiments, Numerical Modeling, and Applications. Annual Review of Chemical and Biomolecular Engineering, 2021, 12, 625-643.	3.3	9
77	Reaction-diffusion systems with discontinuities. A viability approach. Nonlinear Analysis: Theory, Methods & Applications, 1997, 30, 677-686.	0.6	8
78	3D Direct Numerical Simulation of Air Bubbles in Water at High Reynolds Number. , 2002, , 823.		8
79	Flow invariance for nonlinear accretive evolutions under range conditions. Journal of Evolution Equations, 2005, 5, 227-252.	0.6	8
80	Evaluations of Eulerâ€“Euler Simulations of Bubble Columns Based on Numerical Tracer Experiments. Chemical Engineering Research and Design, 2007, 85, 1491-1496.	2.7	8
81	Global strong solutions for a class of heterogeneous catalysis models. Journal of Mathematical Analysis and Applications, 2017, 445, 677-709.	0.5	8
82	Face-based Volume-of-Fluid interface positioning in arbitrary polyhedra. Journal of Computational Physics, 2022, 449, 110776.	1.9	8
83	On the molecular mechanism behind the bubble rise velocity jump discontinuity in viscoelastic liquids. Journal of Non-Newtonian Fluid Mechanics, 2022, 302, 104748.	1.0	8
84	Global existence for diffusionâ€“electromigration systems in space dimension three and higher. Nonlinear Analysis: Theory, Methods & Applications, 2014, 99, 152-166.	0.6	7
85	Mass transport in multicomponent compressible fluids: Local and global well-posedness in classes of strong solutions for general class-one models. Nonlinear Analysis: Theory, Methods & Applications, 2021, 210, 112389.	0.6	7
86	Global linear stability analysis of falling films with inlet and outlet. Journal of Fluid Mechanics, 2014, 745, 444-486.	1.4	6
87	Numerical and experimental analysis of short-scale Marangoni convection on heated structured surfaces. International Journal of Heat and Mass Transfer, 2015, 86, 764-779.	2.5	6
88	Spectroscopic and Computational Analyses of Liquidâ€“Liquid Interfacial Reaction Mechanism of Boric Acid Esterification with 2,2,4-Trimethyl-1,3-pentanediol in Boron Extraction Processes. Journal of Physical Chemistry C, 2018, 122, 10423-10429.	1.5	6
89	Highly accurate computation of volume fractions using differential geometry. Journal of Computational Physics, 2019, 396, 761-784.	1.9	6
90	SAAMPLE: A Segregated Accuracy-driven Algorithm for Multiphase Pressure-Linked Equations. Computers and Fluids, 2020, 200, 104450.	1.3	6

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91	Instationary Shrinking-Core Models for Heterogeneous Ionic Reactions. Chemical Engineering and Technology, 2001, 24, 809-814.	0.9	5
92	Direct Numerical Simulation of Air Bubbles in Water/Glycerol Mixtures: Shapes and Velocity Fields. , 2003, , 415.		5
93	On the Kinematics of Contact Line Motion. Proceedings in Applied Mathematics and Mechanics, 2018, 18, e201800451.	0.2	5
94	Robust Direct Numerical Simulation of Viscoelastic Flows. Chemie-Ingenieur-Technik, 2019, 91, 522-528.	0.4	5
95	Evaluating the Quality of a Mixture: Degree of Homogeneity and Scale of Segregation. Heat and Mass Transfer, 2010, , 17-35.	0.2	5
96	On moving hypersurfaces and the discontinuous ODE-system associated with two-phase flows. Nonlinearity, 2020, 33, 5425-5456.	0.6	5
97	triSurfaceImmersion: Computing volume fractions and signed distances from triangulated surfaces immersed in unstructured meshes. Computer Physics Communications, 2022, 273, 108249.	3.0	5
98	Mixing in a T-shaped microreactor: scales and quality of mixing. Computer Aided Chemical Engineering, 2006, , 351-357.	0.3	4
99	Applicability of the linearized theory of the Maxwellâ€“Stefan equations. AICHE Journal, 2016, 62, 2929-2946.	1.8	4
100	Contact Line Advection using the Level Set Method. Proceedings in Applied Mathematics and Mechanics, 2019, 19, e201900476.	0.2	4
101	Contact line advection using the geometrical Volume-of-Fluid method. Journal of Computational Physics, 2020, 407, 109221.	1.9	4
102	Breakup dynamics of capillary bridges on hydrophobic stripes. International Journal of Multiphase Flow, 2021, 140, 103582.	1.6	4
103	Thermodynamically Consistent Modeling for Dissolution/Growth of Bubbles in an Incompressible Solvent. Advances in Mathematical Fluid Mechanics, 2016, , 111-134.	0.1	4
104	Modeling and analysis of reactive multi-component two-phase flows with mass transfer and phase transition the isothermal incompressible case. Discrete and Continuous Dynamical Systems - Series S, 2017, 10, 673-696.	0.6	4
105	Upper Semicontinuous Perturbations of m-accretive Operators and Differential Inclusions with Dissipative Right-hand Side. Banach Center Publications, 1996, 35, 139-148.	0.1	4
106	Nonlinear evolutions with CarathÃ©odory forcing. , 2003, , 375-394.		4
107	Multicomponent incompressible fluidsâ€”An asymptotic study. ZAMM Zeitschrift Fur Angewandte Mathematik Und Mechanik, 2023, 103, .	0.9	4
108	Efficient computation of the flow around single fluid particles using an artificial boundary condition. International Journal for Numerical Methods in Fluids, 2014, 75, 184-204.	0.9	3

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109	Strong well-posedness for a class of dynamic outflow boundary conditions for incompressible Newtonian flows. Journal of Evolution Equations, 2017, 17, 131-171.	0.6	3
110	Direct Numerical Simulations of Taylor Bubbles in a Square Mini-Channel: Detailed Shape and Flow Analysis with Experimental Validation. Advances in Mathematical Fluid Mechanics, 2017, , 663-679.	0.1	3
111	Boundary conditions for dynamic wetting - A mathematical analysis. European Physical Journal: Special Topics, 2020, 229, 1849-1865.	1.2	3
112	Well-posedness analysis of multicomponent incompressible flow models. Journal of Evolution Equations, 2021, 21, 4039-4093.	0.6	3
113	Reflections on the article â€œMoving contact lines and dynamic contact angles: a â€˜litmus testâ€™ for mathematical models and some new challengesâ€•by Yulii D. Shikhmurzaev. European Physical Journal: Special Topics, 2020, 229, 1979-1987.	1.2	3
114	The Instantaneous Limit of a Reaction-Diffusion System. , 2019, , 215-224.		3
115	Dynamics of a core-shell reaction-diffusion system. Communications in Partial Differential Equations, 1999, 24, 463-497.	1.0	2
116	Direct Numerical Simulation of Reactive Mixing in a T-Shaped Micro-Reactor. , 2007, , 601.		2
117	Modellbasierte Bestimmung lokal gÃ¼ltiger Kinetiken chemischer Reaktionen in FlÃ¼ssigphase mittels Flachbettmikroreaktor*. Chemie-Ingenieur-Technik, 2010, 82, 251-258.	0.4	2
118	Abstract reaction-diffusion systems with m-completely accretive diffusion operators and measurable reaction rates. Communications on Pure and Applied Analysis, 2012, 11, 2239-2260.	0.4	2
119	Capillary Rise â€•Jurin's Height vs Spherical Cap. Proceedings in Applied Mathematics and Mechanics, 2019, 19, e201900336.	0.2	2
120	Analysis of some heterogeneous catalysis models with fast sorption and fast surface chemistry. Journal of Evolution Equations, 2021, 21, 3521-3552.	0.6	2
121	Multivalued differential equations with time-dependent constraints. , 1996, , 1829-1840.		2
122	Computing Mass Transfer at Deformable Bubbles for High Schmidt Numbers. Chemie-Ingenieur-Technik, 2021, 93, 81-90.	0.4	2
123	Kinetic Modeling of Simultaneous Phosphate Precipitation in Municipal Sewage Treatment Plants. Chemical Engineering and Technology, 2000, 23, 670-674.	0.9	1
124	A contribution to simulation of mixing in screw extruders employing commercial CFD-software. , 2000, , 297-304.		1
125	Mixing in a T-Shaped Microreactor: Mechanisms and Scales. , 2006, , 1087.		1
126	Direct Numerical Simulation of Binary Collisions of Shearâ€Thinning Droplets. Chemie-Ingenieur-Technik, 2012, 84, 121-126.	0.4	1

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127	Modeling and Simulation of Convection-Dominated Species Transport in the Vicinity of Rising Bubbles. Fluid Mechanics and Its Applications, 2021, , 329-354.	0.1	1
128	Investigation of Elementary Processes of Non-Newtonian Droplets Inside Spray Processes by Means of Direct Numerical Simulation. , 2016, , 3-51.		1
129	Kinetische Modellierung der simultanen PhosphatfÃllung in kommunalen KlÃrwerken. Chemie-Ingenieur-Technik, 1999, 71, 1421-1425.	0.4	0
130	The Effect of Adjacent Layers Such as Biofilms on Mass Transport Through Nanofiltration Membranes. Engineering in Life Sciences, 2002, 2, 295-298.	2.0	0
131	Modeling the Dehydration oftert-Butyl Alcohol and Avoidance of the Formation of Oligomers. Industrial & Engineering Chemistry Research, 2006, 45, 2986-2993.	1.8	0
132	Iso-surface Computation in 3D using a graph-theoretical Approach. Proceedings in Applied Mathematics and Mechanics, 2012, 12, 523-524.	0.2	0
133	Multiscale Multiphase Process Engineering. Chemical Engineering and Technology, 2015, 38, 1918-1918.	0.9	0
134	Numerical Modelling of Viscoelastic Fluid-Structure Interaction and Its Application for a Valveless Micropump. Lecture Notes in Computational Science and Engineering, 2015, , 717-725.	0.1	0
135	Experimental and Computational Analysis of Fluid Interfaces Influenced by Soluble Surfactant. Advances in Mathematical Fluid Mechanics, 2017, , 395-444.	0.1	0
136	Wetting phenomena with ALE interface tracking. Proceedings in Applied Mathematics and Mechanics, 2018, 18, e201800430.	0.2	0
137	Chemical Reactions at Freely Ascending Single Bubbles. Fluid Mechanics and Its Applications, 2021, , 545-581.	0.1	0
138	Computational Analysis of Reactive Mixing in T-Microreactors. Heat and Mass Transfer, 2010, , 265-286.	0.2	0
139	On the velocity jump discontinuity for single bubbles rising in a viscoelastic fluid. , 2022, 3, 100065.		0