

Gerhart Eigenberger

List of Publications by Year in descending order

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110
papers

6,406
citations

61984

43
h-index

66911

78
g-index

131
all docs

131
docs citations

131
times ranked

3812
citing authors

#	ARTICLE	IF	CITATIONS
1	Ion-Exchange Membranes in the Chemical Process Industry. Industrial & Engineering Chemistry Research, 2013, 52, 10364-10379.	3.7	303
2	Simulation of buoyancy driven bubbly flow: Established simplifications and open questions. AIChE Journal, 2004, 50, 24-45.	3.6	288
3	Limiting current density and water dissociation in bipolar membranes. Journal of Membrane Science, 1997, 125, 123-142.	8.2	283
4	Dynamic numerical simulation of gas-liquid two-phase flows Euler/Euler versus Euler/Lagrange. Chemical Engineering Science, 1997, 52, 611-626.	3.8	257
5	Applicability of the standard $k\text{-}\epsilon$ turbulence model to the dynamic simulation of bubble columns: Part I. Detailed numerical simulations. Chemical Engineering Science, 1999, 54, 2273-2284.	3.8	245
6	Gas-liquid flow in bubble columns and loop reactors: Part II. Comparison of detailed experiments and flow simulations. Chemical Engineering Science, 1994, 49, 5747-5762.	3.8	218
7	Gas-liquid flow in bubble columns and loop reactors: Part I. Detailed modelling and numerical simulation. Chemical Engineering Science, 1994, 49, 5735-5746.	3.8	217
8	Autothermal fixed-bed reactor concepts. Chemical Engineering Science, 2000, 55, 5945-5967.	3.8	217
9	Fluid flow through catalyst filled tubes. Chemical Engineering Science, 1997, 52, 1365-1376.	3.8	214
10	Bubble size distributions in a bubble column reactor under industrial conditions. Experimental Thermal and Fluid Science, 2002, 26, 595-604.	2.7	178
11	Catalytic combustion with periodic flow reversal. Chemical Engineering Science, 1988, 43, 2109-2115.	3.8	170
12	Development and characterization of ion-exchange polymer blend membranes. Separation and Purification Technology, 1998, 14, 145-154.	7.9	160
13	Dynamic modelling and simulation of a polymer membrane fuel cell including mass transport limitation. International Journal of Hydrogen Energy, 1998, 23, 213-218.	7.1	154
14	Measurement and Modeling of Water Vapor Adsorption on Zeolite 4A Equilibria and Kinetics. Adsorption, 2004, 10, 29-46.	3.0	149
15	A new reactor concept for endothermic high-temperature reactions. Chemical Engineering Science, 1999, 54, 3661-3670.	3.8	140
16	Efficient reactor concepts for coupling of endothermic and exothermic reactions. Chemical Engineering Science, 2002, 57, 1505-1510.	3.8	127
17	Transport parameters for the modelling of water transport in ionomer membranes for PEM-fuel cells. Electrochimica Acta, 2004, 49, 1731-1742.	5.2	103
18	Kinetic instabilities in heterogeneously catalyzed reactions II. Chemical Engineering Science, 1978, 33, 1263-1268.	3.8	98

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19	On the dynamic behavior of the catalytic fixed-bed reactor in the region of multiple steady states ¹ . The influence of heat conduction in two phase models. <i>Chemical Engineering Science</i> , 1972, 27, 1909-1915.	3.8	97
20	Detailed modeling of the chemisorption of CO ₂ into NaOH in a bubble column. <i>Chemical Engineering Science</i> , 1996, 51, 1715-1724.	3.8	95
21	Applicability of the standard $k\epsilon$ turbulence model to the dynamic simulation of bubble columns. Part II. <i>Chemical Engineering Science</i> , 1999, 54, 5927-5935.	3.8	95
22	Platinum oxide formation and reduction during NO oxidation on a diesel oxidation catalyst ² . Experimental results. <i>Applied Catalysis B: Environmental</i> , 2012, 123-124, 107-116.	20.2	84
23	The production of high purity water by continuous electrodeionization with bipolar membranes: Influence of the anion-exchange membrane permselectivity. <i>Journal of Membrane Science</i> , 2006, 281, 297-306.	8.2	82
24	Fixed-bed reactors with periodic flow reversal: experimental results for catalytic combustion. <i>Catalysis Today</i> , 1994, 20, 335-350.	4.4	73
25	A global description of DOC kinetics for catalysts with different platinum loadings and aging status. <i>Applied Catalysis B: Environmental</i> , 2010, 100, 10-18.	20.2	71
26	Kinetic instabilities in heterogeneously catalyzed reactions ³ . <i>Chemical Engineering Science</i> , 1978, 33, 1255-1261.	3.8	69
27	A reevaluation of fluid flow, heat transfer and chemical reaction in catalyst filled tubes. <i>Chemical Engineering Science</i> , 1992, 47, 2245-2250.	3.8	69
28	Vapour permeation for the recovery of organic solvents from waste air streams: separation capacities and process optimization. <i>Journal of Membrane Science</i> , 1996, 113, 313-322.	8.2	69
29	Gas flow and heat transfer through catalyst filled tubes. <i>International Journal of Thermal Sciences</i> , 2001, 40, 152-164.	4.9	69
30	Control of the ignited steady state in autothermal fixed-bed reactors for catalytic combustion. <i>Chemical Engineering Science</i> , 1994, 49, 5507-5518.	3.8	66
31	Optimization of the cold-start behaviour of automotive catalysts using an electrically heated pre-catalyst. <i>Chemical Engineering Science</i> , 1996, 51, 2409-2418.	3.8	66
32	Production of high-purity water by continuous electrodeionization with bipolar membranes: Influence of concentrate and protection compartment. <i>Separation and Purification Technology</i> , 2008, 60, 86-95.	7.9	62
33	A concept for multi-scale modeling of bubble columns and loop reactors. <i>Chemical Engineering Science</i> , 1999, 54, 5109-5117.	3.8	61
34	Approximate solutions for metallic regenerative heat exchangers. <i>International Journal of Heat and Mass Transfer</i> , 2001, 44, 3553-3563.	4.8	61
35	Heat-Integrated Reactor Concepts for Hydrogen Production by Methane Steam Reforming. <i>Fuel Cells</i> , 2005, 5, 52-65.	2.4	60
36	A mechanistic simulation model for NO _x storage catalyst dynamics. <i>Chemical Engineering Science</i> , 2004, 59, 4731-4738.	3.8	59

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37	Modeling non-isothermal two-phase multicomponent flow in the cathode of PEM fuel cells. <i>Journal of Power Sources</i> , 2006, 159, 1123-1141.	7.8	59
38	A modified Crank-Nicolson technique with non-equidistant space steps. <i>Chemical Engineering Science</i> , 1976, 31, 681-691.	3.8	58
39	Isothermal kinetic measurements for hydrogen production from hydrocarbon fuels using a novel kinetic reactor concept. <i>Applied Catalysis A: General</i> , 2002, 235, 101-111.	4.3	57
40	Heat-integrated reactor concepts for catalytic reforming and automotive exhaust purification. <i>Applied Catalysis B: Environmental</i> , 2007, 70, 16-30.	20.2	52
41	Catalyst poisoning and fixed bed reactor dynamics. <i>Chemical Engineering Science</i> , 1975, 30, 1341-1351.	3.8	51
42	The direct calculation of periodic states of the reverse flow reactor. I. Methodology and propane combustion results. <i>Chemical Engineering Science</i> , 1996, 51, 4903-4913.	3.8	51
43	Thermal pattern formation and process intensification in chemical reaction engineering. <i>Chemical Engineering Science</i> , 2007, 62, 4825-4841.	3.8	47
44	A simplified procedure for the optimal design of autothermal reactors for endothermic high-temperature reactions. <i>Chemical Engineering Science</i> , 2001, 56, 351-357.	3.8	45
45	Analysis of a novel reverse-flow reactor concept for autothermal methane steam reforming. <i>Chemical Engineering Science</i> , 2003, 58, 593-601.	3.8	44
46	Flow battery based on reverse electrodialysis with bipolar membranes: Single cell experiments. <i>Journal of Membrane Science</i> , 2018, 565, 157-168.	8.2	43
47	On the dynamic behavior of the catalytic fixed-bed reactor in the region of multiple steady states. II. The influence of the boundary conditions in the catalyst phase. <i>Chemical Engineering Science</i> , 1972, 27, 1917-1924.	3.8	40
48	The direct calculation of periodic states of the reverse flow reactor. II. Multiplicity and instability. <i>Chemical Engineering Science</i> , 1996, 51, 4915-4922.	3.8	40
49	Katalytische Abluftreinigung: Verfahrenstechnische Aufgaben und neue Lösungen. <i>Chemie-Ingenieur-Technik</i> , 1991, 63, 781-791.	0.8	38
50	Styrene synthesis in a reverse-flow reactor. <i>Chemical Engineering Science</i> , 1999, 54, 2637-2646.	3.8	38
51	Platinum oxide formation and reduction during NO oxidation on a diesel oxidation catalyst. Macrokinetic simulation. <i>Applied Catalysis B: Environmental</i> , 2013, 129, 273-281.	20.2	37
52	Stabilität und Dynamik heterogen-katalytischer Reaktionssysteme. <i>Chemie-Ingenieur-Technik</i> , 1978, 50, 924-933.	0.8	36
53	Autothermal Reactor Concepts for Endothermic Fixed-Bed Reactions. <i>Chemical Engineering Research and Design</i> , 2004, 82, 148-159.	5.6	35
54	Multiscale modeling of hydrodynamics, mass transfer and reaction in bubble column reactors. <i>Chemical Engineering Science</i> , 2001, 56, 1067-1074.	3.8	34

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55	Acid-Base Flow Battery, Based on Reverse Electrodialysis with Bi-Polar Membranes: Stack Experiments. Processes, 2020, 8, 99.	2.8	34
56	Methanol diffusion in water swollen ionomer membranes for DMFC applications. Journal of Membrane Science, 2004, 241, 137-141.	8.2	33
57	Multifunctional adsorber/reactor concept for waste-air purification. Chemical Engineering Science, 2001, 56, 1605-1611.	3.8	32
58	Cold start simulations of a gasoline based fuel processor for mobile fuel cell applications. Journal of Power Sources, 2004, 128, 13-24.	7.8	31
59	Catalytic ignition during methane oxidation on platinum: Experiments and modeling. Studies in Surface Science and Catalysis, 1997, 109, 273-284.	1.5	24
60	A New Simulation Model for NO _x Storage Catalyst Dynamics. Topics in Catalysis, 2004, 30/31, 187-192.	2.8	24
61	Experimental results concerning the role of Pt, Rh, Ba, Ce and Al ₂ O ₃ on NO _x -storage catalyst behaviour. Topics in Catalysis, 2007, 42-43, 15-19.	2.8	24
62	Operational and Structural Nonidealities in Modeling and Design of Multitubular Catalytic Reactors. Industrial & Engineering Chemistry Research, 1997, 36, 3140-3148.	3.7	22
63	Synthesis, characterization and transport properties of a new siloxane-phosphazene copolymer. Extraction of n-butanol from water by pervaporation. Journal of Membrane Science, 1996, 113, 151-160.	8.2	21
64	Solving moving boundary problems with an adaptive moving grid method. Chemical Engineering Science, 1998, 53, 3393-3411.	3.8	20
65	Application of electromembrane technology for providing drinking water for the population of the Aral region. Desalination, 2002, 149, 383-387.	8.2	20
66	Efficient reheating of a reverse-flow reformer – An experimental study. Chemical Engineering Science, 2007, 62, 5638-5643.	3.8	19
67	Electromembrane processes, efficient and versatile tools in a sustainable industrial development. Desalination, 2006, 199, 1-3.	8.2	18
68	Oxygen storage dominated three-way catalyst modeling for fresh catalysts. Chemical Engineering Science, 2017, 160, 34-53.	3.8	18
69	Ceramic Supported Capillary Pd Membranes for Hydrogen Separation: Potential and Present Limitations. Fuel Cells, 2006, 6, 472-481.	2.4	17
70	Ethanol Steam Reforming Thermally Coupled with Fuel Combustion in a Parallel Plate Reactor. Industrial & Engineering Chemistry Research, 2012, 51, 4143-4151.	3.7	16
71	Ceramic counterflow reactor for autothermal dry reforming at high temperatures. Catalysis Today, 2016, 273, 196-204.	4.4	16
72	Hysteresis Phenomena on Pt- and Pd-Diesel Oxidation Catalysts: Experimental Observations. Topics in Catalysis, 2016, 59, 1054-1058.	2.8	16

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73	Compact Pressure Swing Adsorption Processes-Impact and Potential of New-Type Adsorbent-Polymer Monoliths. Adsorption, 2005, 11, 515-520.	3.0	15
74	Dynamik und Stabilität verfahrenstechnischer Prozesse. Chemie-Ingenieur-Technik, 1983, 55, 503-515.	0.8	14
75	Preferential oxidation of CO in a folded-plate reactor. Chemical Engineering Science, 2007, 62, 5598-5601.	3.8	13
76	Macro- and Microkinetic Simulation of Diesel Oxidation Catalyst: Effect of Aging, Noble Metal Loading and Platinum Oxidation. Chemie-Ingenieur-Technik, 2013, 85, 673-685.	0.8	12
77	Flow Distribution Concepts for New Type Monolithic Co- or Countercurrent Reactors. Chemical Engineering and Technology, 1999, 22, 1012-1016.	1.5	11
78	Transient Emissions of a SULEV Catalytic Converter System Dynamic Simulation vs. Dynamometer Measurements. , 0, , .		11
79	Palladium coated ceramic hollow fibre membranes for hydrogen separation. Desalination, 2006, 200, 95-96.	8.2	11
80	Towards a realistic simulation model for NOx-storage catalyst dynamics. Topics in Catalysis, 2007, 42-43, 77-81.	2.8	11
81	Modellierung und Numerische Simulation von G/L-Blasen-Strömungen. Chemie-Ingenieur-Technik, 1994, 66, 505-510.	0.8	10
82	General Approach for the Reduction of Detailed Models for Fast Cycling Processes. Industrial & Engineering Chemistry Research, 2005, 44, 2369-2381.	3.7	10
83	Heat-Integrated Concepts for Automotive Exhaust Purification. Topics in Catalysis, 2009, 52, 2052-2057.	2.8	10
84	Hysteresis Phenomena on Platinum and Palladium-based Diesel Oxidation Catalysts (DOCs). Emission Control Science and Technology, 2016, 2, 137-144.	1.5	10
85	Practical problems in the modelling of chemical reactions in fixed bed reactors. Chemical Engineering and Processing: Process Intensification, 1984, 18, 55-65.	3.6	9
86	Stady-state and Dynamical Simulation of an Autothermal Gasoline Reformer. Chemical Engineering and Technology, 2003, 26, 790-796.	1.5	8
87	Ein neuartiges Reaktorkonzept für endotherme Hochtemperaturreaktionen. Chemie-Ingenieur-Technik, 1998, 70, 1393-1397.	0.8	7
88	Optimization of a heat-integrated exhaust catalyst for CNG engines. Catalysis Today, 2012, 188, 113-120.	4.4	7
89	Comparison of Two Different Heat-Integrated Exhaust Purification Devices for Monovalent CNG Engines. Topics in Catalysis, 2013, 56, 421-426.	2.8	7
90	Heat-Integrated Exhaust Purification for Natural Gas Engines. Chemie-Ingenieur-Technik, 2013, 85, 656-663.	0.8	7

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91	Modeling of Conversion Hysteresis Phenomena for Pt/Pd-based Diesel Oxidation Catalysts. Chemie-Ingenieur-Technik, 2018, 90, 625-633.	0.8	7
92	Structured Folded-Plate Reactor for CO Preferential Oxidation. Industrial & Engineering Chemistry Research, 2005, 44, 9659-9667.	3.7	6
93	Autocatalytic Cyclohexane Oxidation in a Bubble Column Reactor. Canadian Journal of Chemical Engineering, 2003, 81, 741-748.	1.7	6
94	An Improved Model for NO _x -Storage Catalysts. Topics in Catalysis, 2009, 52, 1934-1939.	2.8	5
95	Measurement of Capillary Pressure-Saturation Relationships Under Defined Compression Levels for Gas Diffusion Media of PEM Fuel Cells. Transport in Porous Media, 2012, 91, 281-294.	2.6	5
96	Ceramic Counterflow Reactor for Efficient Conversion of CO ₂ to Carbon-Rich Syngas. Chemie-Ingenieur-Technik, 2015, 87, 726-733.	0.8	5
97	A comparison of diesel soot oxidation rates measured with two different isothermal set-ups. Journal of Aerosol Science, 2016, 91, 94-100.	3.8	5
98	Reaction Kinetics of Aged NO _x Storage Catalysts. Industrial & Engineering Chemistry Research, 2013, 52, 8399-8409.	3.7	4
99	Analysis and Optimization of NO _x Storage Catalysts for Lean Burn Otto or Diesel Engines. Chemie-Ingenieur-Technik, 2001, 73, 657-657.	0.8	3
100	CATALYTIC COMBUSTION WITH PERIODIC FLOW REVERSAL , 1988, , 2109-2115.		2
101	A Novel Reactor Concept for Steam Reforming with Integrated Feed Evaporation and Water-Gas-Shift Reaction. Chemie-Ingenieur-Technik, 2001, 73, 658-658.	0.8	2
102	Solving Chemical Engineering Problems with Front Propagation Using an Adaptive Moving Grid Method. , 1999, , 287-294.		2
103	Bimap - a tool for computer aided modeling in chemical reaction engineering. Computers and Chemical Engineering, 1995, 19, 773-778.	3.8	1
104	Enhancing Productivity and Thermal Efficiency of High-Temperature Endothermic Processes in Heat-Integrated Fixed-Bed Reactors. , 2005, , 1-43.		1
105	Process Simulation of an Adsorption Chiller: True Moving Bed Approximation. Chemie-Ingenieur-Technik, 2014, 86, 112-118.	0.8	1
106	Detailed experimental studies on gas-liquid bubble flow in bubble columns with and without recycle. Heat and Mass Transfer, 2004, , 1-10.	0.5	1
107	On lynch's and wanke's examination of an oscillating reaction. Canadian Journal of Chemical Engineering, 1983, 61, 612-613.	1.7	0
108	Membran-Brennstoffzellensysteme: Eine Herausforderung für die Verfahrenstechnik. Chemie-Ingenieur-Technik, 2000, 72, 978-979.	0.8	0

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109	Entwicklung eines wärmeintegrierten Strömungs-Umkehrreaktors für die dezentrale H ₂ -Erzeugung. Chemie-Ingenieur-Technik, 2008, 80, 1238-1238.	0.8	0
110	Modellbildung und Modellreduktion für Prozesse der Chemischen Verfahrenstechnik. Fachberichte Messen, Steuern, Regeln, 1977, , 599-613.	0.1	0