Vemuri Balakotaiah

List of Publications by Year
in descending order

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Version: 2024-02-01

103 papers	3,669 citations	136740 32 h-index	143772 57 g-index
103 all docs	103 docs citations	103 times ranked	1878 citing authors

#	Article	IF	Citations
1	Ignitionâ€“extinction analysis of catalytic reactor models. Reviews in Chemical Engineering, 2022, 38, 737-768.	2.3	3
2	Multi-mode reduced order models for real time simulations of monolith reactors with micro-kinetics. Chemical Engineering Journal, 2022, 430, 132532.	6.6	2
3	Modular reactors with electrical resistance heating for hydrocarbon cracking and other endothermic reactions. AICHE Journal, 2022, 68, .	1.8	25
4	Analysis of temperature patterns in shallow-bed autothermal catalytic reactors. Chemical Engineering Journal, 2022, 437, 135027.	6.6	4
5	Gasâ€“liquid flows through porous media in microgravity: Packed Bed Reactor Experimentâ€². AICHE Journal, 2022, 68, .	1.8	5
6	A global kinetic model for the oxidative dehydrogenation of ethane over mixed metal oxide catalysts at supra-ambient pressures. Chemical Engineering Journal, 2022, 445, 136605.	6.6	6
7	Bifurcation and stability analysis of temperature patterns in shallow-bed catalytic reactors. Chemical Engineering Journal, 2022, , 137146.	6.6	2
8	Multi-scale coarse-grained continuum models for bifurcation and transient analysis of coupled homogeneous-catalytic reactions in monoliths. Chemical Engineering Journal, 2021, 407, 126500.	6.6	7
9	<scp>Gasâ€“liquid</scp> flows through porous media in microgravity: The International Space Station Packed Bed Reactor Experiment. AICHE Journal, 2021, 67, .	1.8	10
10	Bifurcation analysis of oxidative coupling of methane in monolith, gauze or wire-mesh reactors. Catalysis Today, 2021, 383, 93-93.	2.2	3
11	Oxidative dehydrogenation of ethane over mixed metal oxide catalysts: Autothermal or cooled tubular reactor design?. AICHE Journal, 2021, 67, e17168.	1.8	9
12	Scaling Relations for Autothermal Operation of Catalytic Reactors. Industrial & Engineering Chemistry Research, 2021, 60, 6565-6582.	1.8	7
13	Hydrogen supply chain and challenges in large-scale LH2 storage and transportation. International Journal of Hydrogen Energy, 2021, 46, 24149-24168.	3.8	158
14	Low-dimensional models for real time simulations of monolith reactors with dual washcoat layers. Chemical Engineering Journal, 2021, 429, 132153.	6.6	1
15	Bifurcation analysis of catalytically assisted hydrogen combustion in monolith reactors. Chemical Engineering Journal, 2021, 425, 130318.	6.6	4
16	Reduced order models with local property dependent transfer coefficients for real time simulations of monolith reactors. Chemical Engineering Journal, 2020, 383, 123074.	6.6	12
17	Three-dimensional CFD simulation of pattern formation in a shallow packed-bed reactor for oxidative coupling of methane. Chemical Engineering Journal, 2020, 400, 125979.	6.6	18
18	Scaleâ€up analysis of autothermal operation of methane oxidative coupling with La₂O₃/CaO catalyst. AICHE Journal, 2020, 66, e16949.	1.8	14

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19	Autothermal reactor design for catalytic partial oxidations. Chemical Engineering Journal, 2019, 374, 1403-1419.	6.6	26
20	Gas holdâ€up and bubble behavior in an upflow packed bed column in the limit of low flow rate. AICHE Journal, 2019, 65, e16624.	1.8	10
21	Fast cycling NOx storage and reduction: Modeling and analysis of reaction pathways, transport and reductant effects. Chemical Engineering Journal, 2019, 370, 1493-1510.	6.6	11
22	Bifurcation analysis of catalytic partial oxidations in laboratory-scale packed-bed reactors with heat exchange. Chemical Engineering Journal, 2019, 377, 119765.	6.6	18
23	Bifurcation analysis of methane oxidative coupling without catalyst. Chemical Engineering Journal, 2018, 343, 770-788.	6.6	19
24	Effect of Pt:Pd ratio on CO and hydrocarbon oxidation. Applied Catalysis B: Environmental, 2018, 223, 67-75.	10.8	50
25	Comparison of light-off performance of Pt-Pd/Î³-Al2O3 dual layer and dual brick diesel oxidation catalysts. Chemical Engineering Journal, 2018, 335, 1004-1017.	6.6	11
26	Elucidating the mechanism of fast cycling NOx storage and reduction using C3H6 and H2 as reductants. Chemical Engineering Science, 2018, 189, 413-421.	1.9	17
27	Fast Cycling NOx Storage and Reduction: Identification of an Adsorbed Intermediate Pathway. Catalysis Letters, 2018, 148, 1951-1964.	1.4	1
28	Multi-scale reduced order models for transient simulation of multi-layered monolith reactors. Chemical Engineering Journal, 2018, 352, 293-305.	6.6	17
29	Analysis of upstream creeping reaction zones in catalytic monolith reactors. Chemical Engineering Journal, 2017, 317, 267-279.	6.6	4
30	Experimental and modeling study of CO and hydrocarbons light-off on various Pt-Pd/Î³-Al 2 O 3 diesel oxidation catalysts. Chemical Engineering Journal, 2017, 323, 347-360.	6.6	35
31	Fast cycling in a non-isothermal monolithic lean NOx trap using H2 as reductant: Experiments and modeling. Chemical Engineering Journal, 2017, 326, 419-435.	6.6	22
32	Bifurcation analysis of index infinity DAE parabolic models describing reactors and reacting flows. AICHE Journal, 2017, 63, 295-305.	1.8	14
33	Analysis of light-off during oxidation of reactant mixtures on Pt/Al2O3 using micro-kinetic models. Chemical Engineering Science, 2017, 166, 320-333.	1.9	18
34	Autothermal oxidative coupling of methane with ambient feed temperature. Chemical Engineering Journal, 2017, 328, 484-496.	6.6	45
35	Bifurcation features of mixtures containing CO and hydrocarbons in diesel oxidation catalyst. Chemical Engineering Journal, 2016, 304, 941-952.	6.6	9
36	Dynamic hysteresis in monolith reactors and hysteresis effects during co-oxidation of CO and <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" altimg="si14.gif" overflow="scroll"><mml:mrow><mml:msub><mml:mrow><mml:mtext>C</mml:mtext></mml:mrow><mml:mrow><mml:mn>2</mml:m Chemical Engineering Journal, 2016, 297, 325-340.	6.6	29

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37	Impact of heat and mass dispersion and thermal effects on the scale-up of monolith reactors. Chemical Engineering Journal, 2016, 284, 513-535.	6.6	23
38	Steady-state and dynamic hysteresis effects during lean co-oxidation of CO and C3H6 over Pt/Al2O3 monolithic catalyst. Chemical Engineering Journal, 2015, 281, 322-333.	6.6	46
39	Micro-kinetics of NO storage and reduction with H2/CO/C3H6 on Pt/BaO/Al2O3 monolith catalysts. Chemical Engineering Journal, 2015, 262, 541-551.	6.6	16
40	Spatio-temporal dynamics of oxygen storage and release in a three-way catalytic converter. Chemical Engineering Science, 2014, 111, 180-190.	1.9	37
41	Modeling and analysis of dual-layer NOx storage and reduction and selective catalytic reduction monolithic catalyst. Chemical Engineering Journal, 2014, 237, 109-122.	6.6	29
42	Thermal effects and bifurcations in gas phase catalytic partial oxidations. Current Opinion in Chemical Engineering, 2014, 5, 68-77.	3.8	28
43	Experimental and kinetic modeling study of NH3-SCR of NOx on Fe-ZSM-5, Cu-chabazite and combined Fe- and Cu-zeolite monolithic catalysts. Chemical Engineering Science, 2013, 87, 51-66.	1.9	181
44	Modeling Studies on Lean NO_x Reduction by a Sequence of LNTâ€“SCR Bricks. Industrial & Engineering Chemistry Research, 2012, 51, 6686-6696.	1.8	12
45	A low-dimensional model for describing the oxygen storage capacity and transient behavior of a three-way catalytic converter. Chemical Engineering Science, 2012, 73, 373-387.	1.9	42
46	Heat and mass transfer correlations and bifurcation analysis of catalytic monoliths with developing flows. Chemical Engineering Science, 2011, 66, 1879-1892.	1.9	49
47	Influence of non-uniform activity and conductivity on stationary and moving patterns in catalytic reactors. Chemical Engineering Science, 2010, 65, 1522-1538.	1.9	5
48	Experimental and kinetic study of NO oxidation on model Pt catalysts. Journal of Catalysis, 2009, 266, 106-119.	3.1	167
49	Lowâ€dimensional models for real time simulations of catalytic monoliths. AICHE Journal, 2009, 55, 1771-1783.	1.8	53
50	A global kinetic model for NOx storage and reduction on Pt/BaO/Al2O3 monolithic catalysts. Catalysis Today, 2009, 147, S250-S256.	2.2	49
51	Kinetic and bifurcation analysis of the cooxidation of CO and H2 in catalytic monolith reactors. Chemical Engineering Science, 2009, 64, 1544-1558.	1.9	34
52	On the use of internal mass transfer coefficients in modeling of diffusion and reaction in catalytic monoliths. Chemical Engineering Science, 2009, 64, 4976-4991.	1.9	71
53	Pt dispersion effects during NOx storage and reduction on Pt/BaO/Al2O3 catalysts. Applied Catalysis B: Environmental, 2009, 90, 662-676.	10.8	100
54	Transport limited pattern formation in catalytic fluidâ€“particle systems. Chemical Engineering Science, 2008, 63, 460-483.	1.9	6

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55	NOx storage and reduction with H2 on Pt/BaO/Al2O3 monolith: Spatio-temporal resolution of product distribution. Applied Catalysis B: Environmental, 2008, 84, 616-630.	10.8	94
56	On the relationship between Aris and Sherwood numbers and friction and effectiveness factors. Chemical Engineering Science, 2008, 63, 5802-5812.	1.9	51
57	Modeling and analysis of local hot spot formation in down-flow adiabatic packed-bed reactors. Chemical Engineering Science, 2007, 62, 4926-4943.	1.9	33
58	Ignition criterion for general kinetics in a catalytic monolith. AICHE Journal, 2006, 52, 1623-1629.	1.8	12
59	Solitary waves on thin falling films in the very low forcing frequency limit. AICHE Journal, 2006, 52, 3995-4003.	1.8	26
60	Two-scale continuum model for simulation of wormholes in carbonate acidization. AICHE Journal, 2005, 51, 3231-3248.	1.8	319
61	Hyperbolic averaged models for describing dispersion effects in chromatographs and reactors. Korean Journal of Chemical Engineering, 2004, 21, 318-328.	1.2	19
62	Multi-mode low-dimensional models for non-isothermal homogeneous and catalytic reactors. Chemical Engineering Science, 2004, 59, 3695-3724.	1.9	18
63	Geometry effects on ignition in catalytic monoliths. AICHE Journal, 2004, 50, 1493-1509.	1.8	22
64	Mass-transfer coefficients in washcoated monoliths. AICHE Journal, 2004, 50, 2939-2955.	1.8	57
65	Gasâ€“liquid two-phase flow through packed beds in microgravity. AICHE Journal, 2003, 49, 557-565.	1.8	26
66	Light-off criterion and transient analysis of catalytic monoliths. Chemical Engineering Science, 2003, 58, 1381-1405.	1.9	126
67	Two-mode models for describing mixing effects in homogeneous reactors. AICHE Journal, 2002, 48, 2571-2586.	1.8	11
68	Shape normalization and analysis of the mass transfer controlled regime in catalytic monoliths. Chemical Engineering Science, 2002, 57, 1269-1286.	1.9	110
69	Heat and mass transfer coefficients in catalytic monoliths. Chemical Engineering Science, 2001, 56, 4771-4786.	1.9	130
70	Experimental study of wave occlusion on falling films in a vertical pipe. AICHE Journal, 2000, 46, 1300-1306.	1.8	9
71	A simplified model for analyzing catalytic reactions in short monoliths. Chemical Engineering Science, 2000, 55, 5367-5383.	1.9	45
72	Modeling and experimental studies of wave evolution on free falling viscous films. Physics of Fluids, 2000, 12, 2236-2256.	1.6	78

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73	Bifurcation analysis of chemical reactors and reacting flows. Chaos, 1999, 9, 13-35.	1.0	15
74	Transverse concentration and temperature nonuniformities in adiabatic packed-bed catalytic reactors. Chemical Engineering Science, 1999, 54, 1725-1734.	1.9	53
75	Analytical Criteria for Validity of Pseudohomogeneous Models of Packed-Bed Catalytic Reactors. Industrial & Engineering Chemistry Research, 1999, 38, 767-777.	1.8	33
76	Runaway limits for adiabatic packed-bed catalytic reactors. AICHE Journal, 1998, 44, 394-404.	1.8	13
77	Singularity Theory Approach for Calculating the Runaway Boundaries of Heterogeneous Reactor Models. Industrial & Engineering Chemistry Research, 1997, 36, 3230-3241.	1.8	3
78	Flow pattern transition maps for microgravity two-phase flows. AICHE Journal, 1997, 43, 1637-1640.	1.8	120
79	Runaway limits for homogeneous and catalytic reactors. Chemical Engineering Science, 1995, 50, 1149-1171.	1.9	51
80	Analysis of concentration and temperature patterns on catalytic surfaces. Journal of Chemical Physics, 1994, 100, 5338-5352.	1.2	7
81	Convective instabilities induced by exothermic reactions occurring in a porous medium. Physics of Fluids, 1994, 6, 2907-2922.	1.6	21
82	Modeling and analysis of moving temperature patterns on catalytic surfaces. Journal of Chemical Physics, 1994, 101, 814-821.	1.2	2
83	Multiplicity features of adiabatic autothermal reactors. AICHE Journal, 1992, 38, 101-115.	1.8	24
84	Multiplicity features of nonadiabatic, autothermal tubular reactors. AICHE Journal, 1992, 38, 116-127.	1.8	7
85	Modeling of supercritical oxidation of aqueous wastes in a deep-well reactor. AICHE Journal, 1992, 38, 988-1002.	1.8	13
86	Reaction-driven convection in a porous medium. AICHE Journal, 1991, 37, 963-985.	1.8	28
87	Modeling of reaction-induced flow maldistributions in packed beds. AICHE Journal, 1991, 37, 1035-1052.	1.8	21
88	Explicit runaway criterion for catalytic reactors with transport limitations. AICHE Journal, 1991, 37, 1780-1788.	1.8	27
89	Thermoflow multiplicity in a cooled tube. AICHE Journal, 1990, 36, 397-408.	1.8	1
90	On the number of steady states of the nonadiabatic tubular reactor. AICHE Journal, 1990, 36, 1905-1907.	1.8	4

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91	Thermoflow multiplicity in a packed-bed reactor: Conduction and cooling effects. AICHE Journal, 1989, 35, 373-384.	1.8	12
92	Simple runaway criteria for cooled reactors. AICHE Journal, 1989, 35, 1039-1043.	1.8	27
93	Dispersion and diffusion influences on yield in complex reaction networks. AICHE Journal, 1989, 35, 1509-1520.	1.8	5
94	Effect of natural convection on spontaneous combustion of coal stockpiles. AICHE Journal, 1988, 34, 353-365.	1.8	48
95	DEPENDENCE OF THE MULTIPLICITY FEATURES OF AN ISOTHERMAL CATALYTIC REACTION ON EXTERNAL AND INTERNAL TRANSPORT RESISTANCES. Chemical Engineering Communications, 1987, 58, 195-211.	1.5	5
96	MULTIPLICITY FEATURES OF POROUS CATALYTIC PELLETSâ€" IV. LANGMUIR-HINSHELWOOD REACTION. Chemical Engineering Communications, 1987, 55, 177-198.	1.5	0
97	STEADY STATE MULTIPLICITY ANALYSIS OF LUMPED-PARAMETER SYSTEMS DESCRIBED BY A SET OF ALGEBRAIC EQUATIONS. Chemical Engineering Communications, 1985, 36, 121-147.	1.5	38
98	INPUT-MULTIPLICITY IN LUMPED-PARAMETER SYSTEMS. Chemical Engineering Communications, 1985, 39, 309-322.	1.5	18
99	Multiplicity criteria for multireaction networks. AICHE Journal, 1983, 29, 552-560.	1.8	25
100	Multiplicity features of reacting systems. Chemical Engineering Science, 1983, 38, 1709-1721.	1.9	133
101	ANALYSIS OF THE MULTIPLICITY PATTERNS OF A CSTR. Chemical Engineering Communications, 1982, 19, 185-189.	1.5	22
102	Effect of flow direction on conversion in isothermal radial flow fixed-bed reactors. AICHE Journal, 1981, 27, 442-450.	1.8	35
103	ANALYSIS OF THE MULTIPLICITY PATTERNS OF A CSTR. Chemical Engineering Communications, 1981, 13, 111-132.	1.5	87