Ravindra Datta

List of Publications by Year
in descending order

95 papers	4,550 citations	109137 35 h-index	102304 66 g-index
95 all docs	95 docs citations	95 times ranked	3943 citing authors

#	Article	IF	Citations
1	Dissociative Adsorption, Dissolution, and Diffusion of Hydrogen in Liquid Metal Membranes. A Phenomenological Model. Industrial & Engineering Chemistry Research, 2018, 57, 1607-1620.	1.8	6
2	Combined Pauling Bond Valence-Modified Morse Potential (PBV-MMP) model for metals: thermophysical properties of liquid metals. Physics and Chemistry of Liquids, 2018, 56, 209-230.	0.4	4
3	Evaluation of hydrogen sorption and permeation parameters in liquid metal membranes via Sieverts' apparatus. International Journal of Hydrogen Energy, 2018, 43, 19075-19090.	3.8	6
4	Sandwiched liquid metal membrane (SLiMM) for hydrogen purification. AICHE Journal, 2017, 63, 1483-1488.	1.8	7
5	Exploring Conditions That Enhance Durability and Performance of a Tubular Solid Oxide Fuel Cell Fed with Simulated Biogas. Energy & Fuels, 2017, 31, 12875-12892.	2.5	5
6	Ockham's razor for paring microkinetic mechanisms: Electrical analogy vs. <scp>C</scp>ampbell's degree of rate control. AICHE Journal, 2015, 61, 4332-4346.	1.8	1
7	Butlerâ€“Sugimoto monomolecular bilayer interface model: The effect of oxygen on the surface tension of a liquid metal and its wetting of a ceramic. Journal of Colloid and Interface Science, 2014, 426, 314-323.	5.0	10
8	Understanding the gas diffusion layer in proton exchange membrane fuel cells. I. How its structural characteristics affect diffusion and performance. Journal of Power Sources, 2014, 251, 269-278.	4.0	118
9	Beyond Sieverts' law: A comprehensive microkinetic model of hydrogen permeation in dense metal membranes. Journal of Membrane Science, 2013, 437, 298-311.	4.1	45
10	Topological analysis of hydrogen oxidation reaction kinetics at Ni/YSZ anode of the solid oxide fuel cell. Journal of Electroanalytical Chemistry, 2012, 677-680, 15-23.	1.9	10
11	Insights into the applicability of the R dot approach for reaction mechanism kinetics studies. Chemical Engineering Science, 2012, 69, 616-627.	1.9	2
12	The peculiar catalytic sequence of the ammonia decomposition reaction and its steady-state kinetics. Chemical Engineering Science, 2012, 71, 333-344.	1.9	12
13	A comprehensive yet comprehensible analytical model for the direct methanol fuel cell. Journal of Power Sources, 2012, 206, 129-143.	4.0	31
14	Of mice and men: Their diet, metabolism, and weight change. Chemical Engineering Science, 2011, 66, 4510-4520.	1.9	1
15	The effect of hydrogen crossover on open-circuit voltage in polymer electrolyte membrane fuel cells. Journal of Power Sources, 2010, 195, 2241-2247.	4.0	129
16	The steady-state kinetics of parallel reaction networks. Chemical Engineering Science, 2010, 65, 2921-2933.	1.9	14
17	The continuum mechanical theory of multicomponent diffusion in fluid mixtures. Chemical Engineering Science, 2010, 65, 5976-5989.	1.9	36
18	Kinetics of the Hydrogen Electrode Reaction. Journal of the Electrochemical Society, 2010, 157, B1040.	1.3	140

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19	The steady-state kinetics of a catalytic reaction sequence. Chemical Engineering Science, 2009, 64, 1968-1979.	1.9	23
20	Toward cell circuitry: Topological analysis of enzyme reaction networks via reaction route graphs. Physica A: Statistical Mechanics and Its Applications, 2008, 387, 3348-3372.	1.2	4
21	Systematic generation of thermochemical cycles for water splitting. Computers and Chemical Engineering, 2008, 32, 1625-1634.	2.0	10
22	Topological analysis of catalytic reaction networks: Water gas shift reaction on Cu(111). Applied Catalysis A: General, 2008, 345, 213-232.	2.2	43
23	A reaction route network for hydrogen combustion. Physica A: Statistical Mechanics and Its Applications, 2007, 373, 777-784.	1.2	7
24	New network architecture for stoichiometrically, thermodynamically and kinetically balanced metabolic reaction systems. Physica A: Statistical Mechanics and Its Applications, 2007, 378, 573-582.	1.2	4
25	Wiring Diagrams for Complex Reaction Networks. Industrial & Engineering Chemistry Research, 2006, 45, 6468-6476.	1.8	11
26	Consideration of thermodynamic, transport, and mechanical properties in the design of polymer electrolyte membranes for higher temperature fuel cell operation. Journal of Polymer Science, Part B: Polymer Physics, 2006, 44, 2183-2200.	2.4	80
27	Performance analysis and impedance spectral signatures of high temperature PBIâ€“phosphoric acid gel membrane fuel cells. Journal of Power Sources, 2006, 160, 1096-1103.	4.0	105
28	The effect of equivalent weight, temperature, cationic forms, sorbates, and nanoinorganic additives on the sorption behavior of NafionÂ®. Journal of Membrane Science, 2005, 264, 167-175.	4.1	129
29	Synthesis and characterization of NafionÂ®-MO2 (M=Zr, Si, Ti) nanocomposite membranes for higher temperature PEM fuel cells. Electrochimica Acta, 2005, 51, 553-560.	2.6	343
30	Electrochemical Preferential Oxidation of CO in Reformate. Journal of the Electrochemical Society, 2005, 152, A1180.	1.3	45
31	Thermodynamics and Proton Transport in Nafion. Journal of the Electrochemical Society, 2005, 152, E84.	1.3	140
32	Thermodynamics and Proton Transport in Nafion. Journal of the Electrochemical Society, 2005, 152, A1548.	1.3	82
33	Reaction Route Graphs. III. Non-Minimal Kinetic Mechanisms. Journal of Physical Chemistry B, 2005, 109, 2710-2722.	1.2	28
34	Thermodynamics and Proton Transport in Nafion. Journal of the Electrochemical Society, 2005, 152, E123.	1.3	349
35	Higher Power Output in a PEMFC Operating under Autonomous Oscillatory Conditions in the Presence of CO. Electrochemical and Solid-State Letters, 2004, 7, A37.	2.2	38
36	Phenomenological methanol sorption model for Nafionï¿½ 117. Solid State Ionics, 2004, 175, 815-817.	1.3	13

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37	A simple model for solid polymer electrolyte (SPE) water electrolysis. Solid State Ionics, 2004, 175, 535-539.	1.3	213
38	Mechanistic and Bifurcation Analysis of Anode Potential Oscillations in PEMFCs with CO in Anode Feed. Journal of the Electrochemical Society, 2004, 151, A689.	1.3	62
39	Reaction Route Graphs. II. Examples of Enzyme- and Surface-Catalyzed Single Overall Reactions. Journal of Physical Chemistry B, 2004, 108, 5683-5697.	1.2	43
40	Reaction Route Graphs. I. Theory and Algorithm. Journal of Physical Chemistry B, 2004, 108, 5671-5682.	1.2	79
41	A General Thermodynamic and Stoichiometric Theory of Stability of Chemical Species. Journal of Physical Chemistry A, 2004, 108, 5727-5739.	1.1	6
42	A NEW APPROACH FOR THE CLASSIFICATION AND ENUMERATION OF UNIQUE REACTION ROUTES AND UNIQUE OVERALL REACTIONS IN MULTIPLE CHEMICAL REACTION SYSTEMS. Chemical Engineering Communications, 2004, 191, 373-397.	1.5	5
43	Group Additivity Methods in Terms of Response Reactionsâ€. Journal of Physical Chemistry A, 2003, 107, 2334-2342.	1.1	7
44	An improved microkinetic model for the water gas shift reaction on copper. Surface Science, 2003, 541, 21-30.	0.8	77
45	Aromaticity vs Stoichiometry. Journal of Physical Chemistry A, 2003, 107, 10471-10476.	1.1	19
46	Response Reactions:Â A Mathematical Well-Defined Way to Obtain Accurate Thermochemistry from ab Initio Calculations. Journal of Physical Chemistry A, 2003, 107, 695-705.	1.1	16
47	A Stoichiometric Approach to Quantitative Structureâ^'Property Relationships (QSPR). Journal of Chemical Information and Computer Sciences, 2003, 43, 1259-1268.	2.8	12
48	Group Additivity vs Ab Initio. Journal of Physical Chemistry A, 2003, 107, 6698-6707.	1.1	18
49	Sorption in Proton-Exchange Membranes. Journal of the Electrochemical Society, 2003, 150, E601.	1.3	147
50	Vaporâ€“Liquid Equilibrium Data for Methyltert-Butyl Etherâ€“Ethanol Mixtures at 90.0 and 101.3ÂkPa. Separation Science and Technology, 2002, 37, 229-243.	1.3	1
51	Influence of Anode Flow Rate and Cathode Oxygen Pressure on CO Poisoning of Proton Exchange Membrane Fuel Cells. Journal of the Electrochemical Society, 2002, 149, A765.	1.3	81
52	Sustained Potential Oscillations in Proton Exchange Membrane Fuel Cells with PtRu as Anode Catalyst. Journal of the Electrochemical Society, 2002, 149, A1423.	1.3	111
53	Nonideal Liquid-Phase Intraparticle Transport and Reaction. Industrial & Engineering Chemistry Research, 2002, 41, 1754-1762.	1.8	3
54	A UBIâ€“QEP microkinetic model for the waterâ€“gas shift reaction on Cu(). Surface Science, 2002, 512, 229-254.	0.8	73

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55	VAPOR-LIQUID EQUILIBRIUM DATA OF CHLOROFORM-ETHANOL MIXTURES INSIDE POLAR AND NONPOLAR POROUS PLATES. Separation Science and Technology, 2001, 36, 3737-3747.	1.3	3
56	De Donder Relations in Mechanistic and Kinetic Analysis of Heterogeneous Catalytic Reactions. Industrial & Engineering Chemistry Research, 2001, 40, 2416-2427.	1.8	26
57	PEM fuel cell as a membrane reactor. Catalysis Today, 2001, 67, 15-32.	2.2	109
58	De Donder relations and the theory of reaction routes. Studies in Surface Science and Catalysis, 2001, 133, 123-130.	1.5	6
59	Thermodynamically consistent modeling of a liquid-phase nonisothermal packed-bed reactor. AICHE Journal, 2000, 46, 380-388.	1.8	6
60	A thermodynamic approach to the systematic elucidation of unique reaction routes in catalytic reactions. Chemical Engineering Science, 2000, 55, 4029-4043.	1.9	21
61	Isothermal Vaporâ€“Liquid Equilibrium of Ethanolâ€“Water Mixtures + Acetoneâ€“Ethanol Mixtures Inside Capillary Porous Plates. Separation Science and Technology, 2000, 35, 2203-2225.	1.3	8
62	tert-Amyl Methyl Ether (TAME). Thermodynamic Analysis of Reaction Equilibria in the Liquid Phase. Journal of Chemical & Engineering Data, 2000, 45, 319-323.	1.0	23
63	Modeling of Conductive Transport in Proton-Exchange Membranes for Fuel Cells. Journal of the Electrochemical Society, 2000, 147, 3242.	1.3	222
64	Theoretical study of vaporâ€“liquid equilibrium inside capillary porous plates. Fluid Phase Equilibria, 1999, 162, 83-96.	1.4	16
65	Title is missing!. Catalysis Letters, 1999, 63, 217-225.	1.4	12
66	Detrimental influence of excessive fractionation on reactive distillation. AICHE Journal, 1998, 44, 388-393.	1.8	23
67	Theoretical study of vapor pressure of pure liquids in porous media. Fluid Phase Equilibria, 1998, 147, 65-83.	1.4	28
68	Thermodynamic transition-state theory and extrathermodynamic correlations for the liquid-phase kineics of ethanol derived ethers. Studies in Surface Science and Catalysis, 1997, 109, 559-564.	1.5	1
69	ETBE Synthesis via Reactive Distillation. 1. Steady-State Simulation and Design Aspects. Industrial & Engineering Chemistry Research, 1997, 36, 1855-1869.	1.8	103
70	Production of Ethylene from Hydrous Ethanol on H-ZSM-5 under Mild Conditions. Industrial & Engineering Chemistry Research, 1997, 36, 4466-4475.	1.8	158
71	ETBE Synthesis via Reactive Distillation. 2. Dynamic Simulation and Control Aspects. Industrial & Engineering Chemistry Research, 1997, 36, 1870-1881.	1.8	62
72	Liquid-Phase Synthesis of Ethanol-Derived Mixed Tertiary Alkyl Ethyl Ethers in an Isothermal Integral Packed-Bed Reactor. Industrial & Engineering Chemistry Research, 1997, 36, 4586-4594.	1.8	29

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73	Membraneâ€Supported Nonvolatile Acidic Electrolytes Allow Higher Temperature Operation of Protonâ€Exchange Membrane Fuel Cells. Journal of the Electrochemical Society, 1997, 144, L23-L26.	1.3	222
74	Ethers from ethanolâ€”5. Equilibria and kinetics of the coupled reaction network of liquid-phase 3-methyl-3-ethoxy-pentane synthesis. Chemical Engineering Science, 1996, 51, 649-661.	1.9	14
75	Feasibility Studies of a Fuel Cell for Cogeneration of Homogeneously Catalyzed Acetaldehyde and Electricity from Ethanol. Journal of the Electrochemical Society, 1996, 143, 3058-3065.	1.3	12
76	Ethers from Ethanol. 1. Equilibrium Thermodynamic Analysis of the Liquid-Phase Ethyl tert-Butyl Ether Reaction (ETBE). Industrial & Engineering Chemistry Research, 1995, 34, 392-399.	1.8	68
77	Ethers from Ethanol. 4. Kinetics of Liquid-Phase Synthesis of Two tert-Hexyl Ethyl Ethers. Industrial & Engineering Chemistry Research, 1995, 34, 2247-2257.	1.8	32
78	Ethers from Ethanol. 3. Equilibrium Conversion and Selectivity Limitations in the Liquid-Phase Synthesis of Two tert-Hexyl Ethyl Ethers. Industrial & Engineering Chemistry Research, 1995, 34, 2237-2246.	1.8	19
79	Ethers from Ethanol. 2. Reaction Equilibria of Simultaneous tert-Amyl Ethyl Ether Synthesis and Isoamylene Isomerization. Industrial & Engineering Chemistry Research, 1995, 34, 1092-1101.	1.8	44
80	Integral Analysis of Methyl tert-Butyl Ether Synthesis Kinetics. Industrial & Engineering Chemistry Research, 1995, 34, 730-740.	1.8	42
81	Eddy viscosity and velocity distribution in turbulent pipe flow revisited. AICHE Journal, 1993, 39, 1107-1112.	1.8	3
82	Analytical solution for dispersion in capillary liquid chromatography with electroosmotic flow. Analytical Chemistry, 1992, 64, 227-230.	3.2	39
83	Activity and stability of ion-exchange resin-supported tetrakis(triethyl phosphite)nickel hydride catalyst: Vapor phase isomerization of n-butene. Journal of Molecular Catalysis, 1992, 72, 97-116.	1.2	9
84	Supported aqueous-phase enzymatic catalysis in organic media. Applied Biochemistry and Biotechnology, 1992, 33, 1-14.	1.4	10
85	Kinetics of deactivation of bifunctional Pt/Al2O3ï£¿Cl catalysts by coking. AICHE Journal, 1991, 37, 845-854.	1.8	31
86	Supported liquid-phase catalytic membrane reactorâ€“separator for homogeneous catalysis. AICHE Journal, 1991, 37, 1657-1667.	1.8	21
87	Theoretical evaluation of capillary electrophoresis performance. Biotechnology Progress, 1990, 6, 485-493.	1.3	16
88	Electrokinetic dispersion in capillary electrophoresis. AICHE Journal, 1990, 36, 916-926.	1.8	66
89	A general solution for the transient response of heterogeneous continuous-flow stirred reactors. Canadian Journal of Chemical Engineering, 1988, 66, 691-693.	0.9	0
90	APPLICATION OF THE DUSTY-GAS MODEL TO TRANSPORT CONTROLLED THERMAL DECOMPOSITION OF SOLIDS. Chemical Engineering Communications, 1986, 40, 303-320.	1.5	1

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91	SHAPE GENERALIZED ISOTHERMAL EFFECTIVENESS FACTOR FOR FIRST-ORDER KINETICS. Chemical Engineering Communications, 1985, 39, 155-173.	1.5	10
92	Penetration theory solution for gas absorption and chemical reaction in cocurrent and countercurrent flow wettedâ€wall columns. Canadian Journal of Chemical Engineering, 1984, 62, 78-84.	0.9	6
93	Transient response of three-phase slurry reactors. Chemical Engineering Science, 1984, 39, 893-901.	1.9	5
94	Transient response of continuous-flow stirred reactors containing heterogeneous systems for catalysis or sorption. Chemical Engineering Science, 1983, 38, 885-896.	1.9	16
95	The flow of rarefied gases through long tubes of circular crossâ€section. Canadian Journal of Chemical Engineering, 1981, 59, 268-278.	0.9	4