Doraiswami Ramkrishna

List of Publications by Year
in descending order

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115	4,190	126858	143943
papers	citations	33 h-index	57 g-index

131	131	131	2591
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	An investigation of the kinetics and thermodynamics of NaCl nucleation through composite clusters. , 2022, 1, .		7
2	Brownian bridges for stochastic chemical processesâ€"An approximation method based on the asymptotic behavior of the backward Fokkerâ€"Planck equation. Journal of Chemical Physics, 2022, 156, 184108.	1.2	2
3	Mathematical Modeling of Hydroxyurea Therapy in Individuals with Sickle Cell Disease. Pharmaceutics, 2022, 14, 1065.	2.0	1
4	Whither chemical engineering?. AICHE Journal, 2022, 68, .	1.8	4
5	Using Bifurcation Theory for Exploring Pain. Industrial & Engineering Chemistry Research, 2020, 59, 2524-2535.	1.8	12
6	Exact sampling of polymer conformations using Brownian bridges. Journal of Chemical Physics, 2020, 153, 034901.	1.2	4
7	Computational analysis of a 9D model for a small DRG neuron. Journal of Computational Neuroscience, 2020, 48, 429-444.	0.6	7
8	Examining Sodium and Potassium Channel Conductances Involved in Hyperexcitability of Chemotherapy-Induced Peripheral Neuropathy: A Mathematical and Cell Culture-Based Study. Frontiers in Computational Neuroscience, 2020, 14, 564980.	1.2	11
9	A Metabolomics Approach for Early Prediction of Vincristine-Induced Peripheral Neuropathy. Scientific Reports, 2020, 10, 9659.	1.6	23
10	Mathematical Modeling of Emulsion Solvent Diffusion for Spherical Crystallization: How To Deconvolute Primary Crystal Size Distribution from Agglomerate Size Distribution?. Industrial & Engineering Chemistry Research, 2020, 59, 6288-6300.	1.8	7
11	A model to rate strategies for managing disease due to COVID-19 infection. Scientific Reports, 2020, 10, 22435.	1.6	2
12	Revised Formulation of Fickâ€™s, Fourierâ€™s, and Newtonâ€™s Laws for Spatially Varying Linear Transport Coefficients. ACS Omega, 2019, 4, 11215-11222.	1.6	13
13	Exploring New Crystal Structures of Glycine via Electric Field-Induced Structural Transformations with Molecular Dynamics Simulations. Processes, 2019, 7, 268.	1.3	9
14	Simulating Stochastic Populations. Direct Averaging Methods. Processes, 2019, 7, 132.	1.3	3
15	Consistency of cybernetic variables with gene expression profiles: A more rigorous test. Biotechnology Progress, 2018, 34, 858-867.	1.3	2
16	A Cybernetic Approach to Modeling Lipid Metabolism in Mammalian Cells. Processes, 2018, 6, 126.	1.3	7
17	Insulin exits skeletal muscle capillaries by fluid-phase transport. Journal of Clinical Investigation, 2018, 128, 699-714.	3.9	35
18	Addressing the Need for a Model Selection Framework in Systems Biology Using Information Theory. Proceedings of the IEEE, 2017, 105, 330-339.	16.4	5

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19	Solubility curves and nucleation rates from molecular dynamics for polymorph prediction â€“ moving beyond lattice energy minimization. Physical Chemistry Chemical Physics, 2017, 19, 5285-5295.	1.3	23
20	Sequential computation of elementary modes and minimal cut sets in genome-scale metabolic networks using alternate integer linear programming. Bioinformatics, 2017, 33, 2345-2353.	1.8	27
21	Molecular Dynamics Electric Field Crystallization Simulations of Paracetamol Produce a New Polymorph. Crystal Growth and Design, 2017, 17, 3751-3765.	1.4	23
22	Modeling and optimization of spherical agglomeration in suspension through a coupled population balance model. Chemical Engineering Science, 2017, 167, 66-77.	1.9	35
23	Nanocrystal Dissolution Kinetics and Solubility Increase Prediction from Molecular Dynamics: The Case of Î±-, Î²-, and Î³-Glycine. Molecular Pharmaceutics, 2017, 14, 1023-1032.	2.3	18
24	Accelerating multiple replica molecular dynamics simulations using the IntelÂ® Xeon Phiâ„¢ coprocessor. Molecular Simulation, 2017, 43, 714-723.	0.9	5
25	On facilitated computation of mesoscopic behavior of reactionâ€diffusion systems. AICHE Journal, 2017, 63, 5258-5266.	1.8	2
26	Comment on â€œMathematical modeling of unicellular microalgae and cyanobacteria metabolism for biofuel productionâ€•by Baroukh et al. [Curr Opin Biotechnol. 2015, 33:198â€“205]. Current Opinion in Biotechnology, 2016, 38, 198-199.	3.3	14
27	Engineering surface hydrophobicity improves activity ofBacillus thermocatenulatuslipase 2 enzyme. Biotechnology Journal, 2015, 10, 1762-1769.	1.8	13
28	On speeding up stochastic simulations by parallelization of random number generation. Chemical Engineering Science, 2015, 137, 828-836.	1.9	3
29	Model-Based Individualized Treatment of Chemotherapeutics: Bayesian Population Modeling and Dose Optimization. PLoS ONE, 2015, 10, e0133244.	1.1	15
30	Optimal Chemotherapy for Leukemia: A Model-Based Strategy for Individualized Treatment. PLoS ONE, 2014, 9, e109623.	1.1	44
31	CFD simulation and comparison of industrial crystallizers. Canadian Journal of Chemical Engineering, 2014, 92, 2138-2156.	0.9	17
32	Effect of impeller design and power consumption on crystal size distribution. AICHE Journal, 2014, 60, 3596-3613.	1.8	22
33	New â€œTau-Leapâ€•Strategy for Accelerated Stochastic Simulation. Industrial & Engineering Chemistry Research, 2014, 53, 18975-18981.	1.8	7
34	Measurement of Polar Plots of Crystal Dissolution Rates Using Hot-Stage Microscopy. Some Further Insights into Dissolution Morphologies. Crystal Growth and Design, 2014, 14, 5647-5661.	1.4	14
35	Population Balance Modeling: Current Status and Future Prospects. Annual Review of Chemical and Biomolecular Engineering, 2014, 5, 123-146.	3.3	193
36	A Comprehensive Approach to Predicting Crystal Morphology Distributions with Population Balances. Crystal Growth and Design, 2013, 13, 1397-1411.	1.4	32

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37	Screening Crystal Morphologies from Crystal Structure. Crystal Growth and Design, 2013, 13, 1390-1396.	1.4	21
38	The Neal Amundson era. Rapid evolution of chemical engineering science. AICHE Journal, 2013, 59, 3147-3157.	1.8	4
39	Antagonistic self-sensing and mate-sensing signaling controls antibiotic-resistance transfer. Proceedings of the National Academy of Sciences of the United States of America, 2013, 110, 7086-7090.	3.3	66
40	Role of Intracellular Stochasticity in Biofilm Growth. Insights from Population Balance Modeling. PLoS ONE, 2013, 8, e79196.	1.1	20
41	Complex Nonlinear Behavior in Metabolic Processes: Global Bifurcation Analysis of Escherichia coli Growth on Multiple Substrates. Processes, 2013, 1, 263-278.	1.3	29
42	Free vibrations of a spherical drop constrained at an azimuth. Physics of Fluids, 2012, 24, .	1.6	17
43	Synergistic Optimal Integration of Continuous and Fed-Batch Reactors for Enhanced Productivity of Lignocellulosic Bioethanol. Industrial & Engineering Chemistry Research, 2012, 51, 1690-1696.	1.8	19
44	Population balance modeling and simulation of liquidâ€“liquidâ€“liquid phase transfer catalyzed synthesis of mandelic acid from benzaldehyde. AICHE Journal, 2012, 58, 3799-3809.	1.8	6
45	On enhancing productivity of bioethanol with multiple species. Biotechnology and Bioengineering, 2012, 109, 1508-1517.	1.7	28
46	Exacting predictions by cybernetic model confirmed experimentally: Steady state multiplicity in the chemostat. Biotechnology Progress, 2012, 28, 1160-1166.	1.3	37
47	Modeling of gene regulatory processes by population-mediated signaling: New applications of population balances. Chemical Engineering Science, 2012, 70, 188-199.	1.9	12
48	Prediction of dynamic behavior of mutant strains from limited wild-type data. Metabolic Engineering, 2012, 14, 69-80.	3.6	41
49	Population Balance Modeling of Environment Dependent Breakage: Role of Granular Viscosity, Density and Compaction. Model Formulation and Similarity Analysis. Industrial & Engineering Chemistry Research, 2011, 50, 13116-13128.	1.8	8
50	Cybernetic models based on lumped elementary modes accurately predict strainâ€specific metabolic function. Biotechnology and Bioengineering, 2011, 108, 127-140.	1.7	59
51	Convergent transcription confers a bistable switch in Enterococcus faecalis conjugation. Proceedings of the National Academy of Sciences of the United States of America, 2011, 108, 9721-9726.	3.3	88
52	Bistability versus Bimodal Distributions in Gene Regulatory Processes from Population Balance. PLoS Computational Biology, 2011, 7, e1002140.	1.5	46
53	Issues with increasing bioethanol productivity: A model directed study. Korean Journal of Chemical Engineering, 2010, 27, 576-586.	1.2	9
54	Prediction of metabolic function from limited data: Lumped hybrid cybernetic modeling (Lâ€HCM). Biotechnology and Bioengineering, 2010, 106, 271-284.	1.7	51

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55	Using adaptive model predictive control to customize maintenance therapy chemotherapeutic dosing for childhood acute lymphoblastic leukemia. Journal of Theoretical Biology, 2010, 264, 990-1002.	0.8	47
56	Reduction of a set of elementary modes using yield analysis. Biotechnology and Bioengineering, 2009, 102, 554-568.	1.7	84
57	Systematic development of hybrid cybernetic models: Application to recombinant yeast coâ€consuming glucose and xylose. Biotechnology and Bioengineering, 2009, 103, 984-1002.	1.7	71
58	Application of stochastic equations of population balances to sterilization processes. Chemical Engineering Science, 2009, 64, 764-774.	1.9	6
59	On the prediction of crystal shape distributions in a steady-state continuous crystallizer. Chemical Engineering Science, 2009, 64, 686-696.	1.9	47
60	When is the Quasi-Steady-State Approximation Admissible in Metabolic Modeling? When Admissible, What Models are Desirable?. Industrial & Engineering Chemistry Research, 2009, 48, 7976-7985.	1.8	28
61	Identification of Markov Matrices of Milling Models. Industrial & Engineering Chemistry Research, 2009, 48, 9763-9771.	1.8	6
62	Model Based Prediction of Crystal Shape Distributions. Computer Aided Chemical Engineering, 2009, 26, 141-146.	0.3	6
63	Integrating cybernetic modeling with pathway analysis provides a dynamic, systemsâ€level description of metabolic control. Biotechnology and Bioengineering, 2008, 100, 542-559.	1.7	72
64	A hybrid model of anaerobic E. coli GJT001: Combination of elementary flux modes and cybernetic variables. Biotechnology Progress, 2008, 24, 993-1006.	1.3	147
65	A Rationale for Monodâ€²s Biochemical Growth Kinetics. Industrial & Engineering Chemistry Research, 2008, 47, 9090-9098.	1.8	19
66	Achieving targeted granulocyte differentiation through the use of interpolation and optimization techniques. , 2008, , .		1
67	Transformation of the Chord-Length Distributions to Size Distributions for Nonspherical Particles with Orientation Biasâ€. Industrial & Engineering Chemistry Research, 2007, 46, 3041-3047.	1.8	22
68	On the Matching and Proportional Laws of Cybernetic Models. Biotechnology Progress, 2007, 23, 83-99.	1.3	62
69	Estimation of Likely Cancer Cure Using First- and Second-Order Product Densities of Population Balance Models. Annals of Biomedical Engineering, 2007, 35, 903-915.	1.3	6
70	On Evolution of Drop-Size Distributions in Turbulent Pipe Flow Revisited. Industrial & Engineering Chemistry Research, 2006, 45, 7673-7678.	1.8	6
71	Solution of population balance equation with pure aggregation in a fully developed turbulent pipe flow. Chemical Engineering Science, 2006, 61, 96-103.	1.9	20
72	A cybernetic modeling framework for analysis of metabolic systems. Computers and Chemical Engineering, 2005, 29, 487-498.	2.0	17

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73	Evolution of Drop Size Distributions in Fully Developed Turbulent Pipe Flow of a Liquidâ^'Liquid Dispersion by Breakage. Industrial & Engineering Chemistry Research, 2005, 44, 1187-1193.	1.8	20
74	Operating strategies for Fischer-Tropsch reactors: A model-directed study. Korean Journal of Chemical Engineering, 2004, 21, 308-317.	1.2	79
75	Mathematics in chemical engineering: A 50 year introspection. AICHE Journal, 2004, 50, 7-23.	1.8	28
76	Determination of bubble size distributions in bubble columns using LDA. AICHE Journal, 2004, 50, 3068-3084.	1.8	38
77	Modeling of Surface Structure of Supported Catalysts. Application to Deactivation of FT Reactors. Industrial & Engineering Chemistry Research, 2004, 43, 2912-2921.	1.8	12
78	On Aggregating Populations. Industrial & Engineering Chemistry Research, 2004, 43, 441-448.	1.8	4
79	Diagnostic nonlinear analysis of Fischer-Tropsch synthesis in stirred-tank slurry reactors. AICHE Journal, 2003, 49, 1803-1820.	1.8	3
80	Mathematical analysis of physicochemical processes on catalytic surfaces. AICHE Journal, 2003, 49, 2158-2172.	1.8	4
81	Beyond log-normal distributions: Hermite spectra for solving population balances. AICHE Journal, 2003, 49, 2328-2343.	1.8	14
82	Unveiling steady-state multiplicity in hybridoma cultures: The cybernetic approach. Biotechnology and Bioengineering, 2003, 81, 80-91.	1.7	39
83	Steady-state multiplicity in bioreactors: bifurcation analysis of cybernetic models. Chemical Engineering Science, 2003, 58, 793-800.	1.9	26
84	Multiplicity and sensitivity analysis of Fischerâ€“Tropsch bubble column slurry reactors: plug-flow gas and well-mixed slurry model. Chemical Engineering Science, 2003, 58, 2759-2766.	1.9	18
85	Inverse problems in population balances: Growth and nucleation from dynamic data. AICHE Journal, 2002, 48, 981-990.	1.8	34
86	Population balance modeling. Promise for the future. Chemical Engineering Science, 2002, 57, 595-606.	1.9	179
87	Efficient solution of population balance equations with discontinuities by finite elements. Chemical Engineering Science, 2002, 57, 1107-1119.	1.9	136
88	Multiplicity and stability of steady states in continuous bioreactors: dissection of cybernetic models. Chemical Engineering Science, 2001, 56, 5593-5607.	1.9	41
89	Cybernetic Modeling and Regulation of Metabolic Pathways in Multiple Steady States of Hybridoma Cells. Biotechnology Progress, 2000, 16, 847-853.	1.3	23
90	Modeling the effect of drop charge on coalescence in turbulent liquidâ€”liquid dispersions. Canadian Journal of Chemical Engineering, 1999, 77, 1090-1104.	0.9	23

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91	On self-similar growth. Journal of Biotechnology, 1999, 71, 255-258.	1.9	7
92	The Beauty of Self-Adjoint Symmetryâ€. Industrial & Engineering Chemistry Research, 1999, 38, 845-850.	1.8	0
93	Spatial Patterns for Selective Conversion in Catalytic Reactors. Industrial & Engineering Chemistry Research, 1998, 37, 2232-2238.	1.8	0
94	Statistical-mechanically exact simulation of polymer conformation in an external field. Journal of Chemical Physics, 1997, 107, 5929-5944.	1.2	5
95	Microbial growth on substitutable substrates: Characterizing the consumer-resource relationship. , 1997, 54, 77-90.		19
96	The Dynamics of Microbial Growth on Mixtures of Substrates in Batch Reactors. Journal of Theoretical Biology, 1997, 184, 301-317.	0.8	34
97	Cybernetic modeling of growth in mixed, substitutable substrate environments: Preferential and simultaneous utilization. , 1996, 52, 141-151.		99
98	MAXIMIZING SELECTIVITY OF LIQUID-LIQUID REACTION SYSTEMS. CONTROL OF THE DISPERSION PROCESS. Chemical Engineering Communications, 1996, 147, 119-132.	1.5	3
99	Analysis of dispersed-phase systems: Fresh perspective. AICHE Journal, 1995, 41, 35-44.	1.8	11
100	Toward a self-similar theory of microbial populations. Biotechnology and Bioengineering, 1994, 43, 138-148.	1.7	18
101	Cybernetic Modeling and Regulation of Metabolic Pathways. Growth on Complementary Nutrients. Biotechnology Progress, 1994, 10, 574-587.	1.3	79
102	Modeling of Bacterial Growth under Multiply-Limiting Conditions. Experiments under Carbon- or/and Nitrogen-Limiting Conditions. Biotechnology Progress, 1994, 10, 588-605.	1.3	26
103	Revised enzyme synthesis rate expression in cybernetic models of bacterial growth. Biotechnology and Bioengineering, 1988, 31, 41-43.	1.7	48
104	MORE ON OBLIQUE AND MIXED, SECOND DERIVATIVE BOUNDARY VALUE PROBLEMS. Chemical Engineering Communications, 1987, 58, 397-411.	1.5	0
105	Effect of mass transfer on droplet breakup in stirred liquid-liquid dispersions. AICHE Journal, 1987, 33, 1899-1902.	1.8	7
106	Are Microbes Optimal Strategists?. Biotechnology Progress, 1987, 3, 121-126.	1.3	80
107	Investigation of bacterial growth on mixed substrates: Experimental evaluation of cybernetic models. Biotechnology and Bioengineering, 1986, 28, 1044-1055.	1.7	257
108	Cybernetic modeling of microbial growth on multiple substrates. Biotechnology and Bioengineering, 1984, 26, 1272-1281.	1.7	176

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109	Breakage functions for droplets in agitated liquid-liquid dispersions. AICHE Journal, 1984, 30, 457-467.	1.8	123
110	A Cybernetic Perspective of Microbial Growth. ACS Symposium Series, 1983, , 161-178.	0.5	52
111	Heat Transfer in a Capillary Flow Emerging from a Reservoir. Journal of Heat Transfer, 1981, 103, 429-435.	1.2	14
112	The extended Graetz problem with prescribed wall flux. AICHE Journal, 1980, 26, 779-787.	1.8	108
113	Analysis of drop size distributions in lean liquid-liquid dispersions. AICHE Journal, 1980, 26, 991-1000.	1.8	126
114	Simulation of particulate systems using the concept of the interval of quiescence. AICHE Journal, 1977, 23, 897-904.	1.8	119
115	On the solution of statistical models of cell populations. Mathematical Biosciences, 1971, 10, 1-23.	0.9	71