Christos Georgakis

List of Publications by Year
in descending order

112 papers	3,793 citations	185998 28 h-index	128067 60 g-index
115 all docs	115 docs citations	115 times ranked	1993 citing authors

#	Article	IF	Citations
1	Disturbance detection and isolation by dynamic principal component analysis. Chemometrics and Intelligent Laboratory Systems, 1995, 30, 179-196.	1.8	1,207
2	A changing grain size model for gasâ€"solid reactions. Chemical Engineering Science, 1979, 34, 1072-1075.	1.9	179
3	Systematic estimation of state noise statistics for extended Kalman filters. AICHE Journal, 2000, 46, 292-308.	1.8	104
4	A new measure of process output controllability. Journal of Process Control, 2000, 10, 185-194.	1.7	99
5	Plantwide regulatory control design procedure using a tiered framework. Industrial & Engineering Chemistry Research, 1993, 32, 2693-2705.	1.8	89
6	Control of emulsion polymerization reactors. AICHE Journal, 1994, 40, 1993-2021.	1.8	89
7	How To NOT Make the Extended Kalman Filter Fail. Industrial & Engineering Chemistry Research, 2013, 52, 3354-3362.	1.8	84
8	On the use of extensive variables in process dynamics and control. Chemical Engineering Science, 1986, 41, 1471-1484.	1.9	83
9	Control of a solution copolymerization reactor using multi-model predictive control. Chemical Engineering Science, 2003, 58, 1207-1221.	1.9	78
10	Throughput Manipulation in Plantwide Control Structures. Industrial & Engineering Chemistry Research, 1994, 33, 1197-1207.	1.8	75
11	An experimental study of adaptive Kalman filtering in emulsion copolymerization. Chemical Engineering Science, 1991, 46, 3203-3218.	1.9	73
12	Nonlinear dynamic matrix control for high-purity distillation columns. AICHE Journal, 1988, 34, 1287-1298.	1.8	72
13	Process systems engineering tools in the pharmaceutical industry. Computers and Chemical Engineering, 2013, 51, 157-171.	2.0	69
14	On the operability of continuous processes. Control Engineering Practice, 2003, 11, 859-869.	3.2	66
15	Tendency modeling of semibatch reactors for optimization and control. Chemical Engineering Science, 1986, 41, 913-920.	1.9	65
16	Design of Dynamic Experiments: A Data-Driven Methodology for the Optimization of Time-Varying Processes. Industrial & Engineering Chemistry Research, 2013, 52, 12369-12382.	1.8	60
17	A single, particle-size model for sulfur retention in fluidized bed coal combustors. AICHE Journal, 1981, 27, 472-481.	1.8	51
18	Low-density polyethylene vessel reactors: Part I: Steady state and dynamic modelling. AICHE Journal, 1984, 30, 401-408.	1.8	49

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19	Model predictive control of nonlinear systems using piecewise linear models. Computers and Chemical Engineering, 2000, 24, 793-799.	2.0	49
20	Nonlinear feedforward/feedback control structures designed by reference system synthesis. Chemical Engineering Science, 1989, 44, 1837-1851.	1.9	48
21	The design of reverse flow reactors for catalytic combustion systems. Chemical Engineering Science, 1995, 50, 401-416.	1.9	47
22	Online Estimation of Reaction Rates in Semicontinuous Reactors. Industrial & Engineering Chemistry Research, 1995, 34, 1219-1227.	1.8	44
23	Nonlinear model predictive control of end-use properties in batch reactors. AICHE Journal, 2002, 48, 2006-2021.	1.8	40
24	Dynamic Response Surface Models: A Data-Driven Approach for the Analysis of Time-Varying Process Outputs. Industrial & Engineering Chemistry Research, 2016, 55, 4022-4034.	1.8	40
25	Manipulation of Competitive Growth for Particle Size Control in Emulsion Polymerization. Industrial & Engineering Chemistry Research, 1997, 36, 3252-3263.	1.8	38
26	Similarities and differences between the concepts of operability and flexibility: The steadyâ€state case. AICHE Journal, 2010, 56, 702-716.	1.8	37
27	Optimal measurement system design for chemical processes. AICHE Journal, 2003, 49, 1488-1494.	1.8	29
28	Design of output constraints for model-based non-square controllers using interval operability. Journal of Process Control, 2008, 18, 610-620.	1.7	29
29	The application of reverse flow reactors to endothermic reactions. Chemical Engineering Science, 1992, 47, 2927-2932.	1.9	28
30	Data-driven, using design of dynamic experiments, versus model-driven optimization of batch crystallization processes. Journal of Process Control, 2013, 23, 179-188.	1.7	28
31	Pore Plugging Model for Gas-Solid Reactions. ACS Symposium Series, 1978, , 225-237.	0.5	27
32	Steady-state operability characteristics of idealized reactors. Chemical Engineering Science, 2001, 56, 5111-5130.	1.9	27
33	Effect of Process Nonlinearity on the Performance of Linear Model Predictive Controllers for the Environmentally Safe Operation of a Fluid Catalytic Cracking Unit. Industrial & Engineering Chemistry Research, 1994, 33, 3063-3069.	1.8	26
34	An Optimization-Based Approach for the Operability Analysis of Continuously Stirred Tank Reactors. Industrial & Engineering Chemistry Research, 2001, 40, 4238-4252.	1.8	25
35	Inherent Dynamic Operability of Processes:â€‰ General Definitions and Analysis of SISO Cases. Industrial & Engineering Chemistry Research, 2002, 41, 421-432.	1.8	25
36	Methodology for the Steady-State Operability Analysis of Plantwide Systems. Industrial & Engineering Chemistry Research, 2005, 44, 7770-7786.	1.8	25

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37	New Dynamic Response Surface Methodology for Modeling Nonlinear Processes over Semi-infinite Time Horizons. Industrial & Engineering Chemistry Research, 2017, 56, 10770-10782.	1.8	24
38	Low-density polyethylene vessel reactors: Part II: A novel controller. AICHE Journal, 1984, 30, 409-415.	1.8	23
39	The identification of kinetic expressions and the evolutionary optimization of specialty chemical batch reactors using tendency models. Chemical Engineering Science, 1992, 47, 2487-2492.	1.9	23
40	38 Modelling SO2 emissions from fluidized bed coal combustors. Chemical Engineering Science, 1980, 35, 302-306.	1.9	22
41	THE EFFECT OF IMPERFECT MIXING ON POLYMER QUALITY IN LOW DENSITY POLYETHYLENE VESSEL REACTORS. Chemical Engineering Communications, 1984, 30, 361-375.	1.5	22
42	Education in Process Systems Engineering: Why it matters more than ever and how it can be structured. Computers and Chemical Engineering, 2019, 126, 102-112.	2.0	22
43	Process Systems Engineering Perspective on the Design of Materials and Molecules. Industrial & Engineering Chemistry Research, 2021, 60, 5194-5206.	1.8	22
44	Uncertainty issues in the modeling and optimization of batch reactors with tendency models. Chemical Engineering Science, 1994, 49, 5533-5547.	1.9	21
45	Multiplicity patterns in atmospheric fluidized bed coal combustors. Chemical Engineering Science, 1981, 36, 1529-1545.	1.9	19
46	On-line monitoring, modeling, and model validation of semibatch emulsion polymerization in an automated reactor control facility. Journal of Polymer Science Part A, 1998, 36, 1553-1571.	2.5	17
47	Steady-state operability characteristics of reactors. Computers and Chemical Engineering, 2000, 24, 1563-1568.	2.0	17
48	Accounting for batch reactor uncertainty in the nonlinear MPC of end-use properties. AICHE Journal, 2003, 49, 1178-1192.	1.8	15
49	Constrained Version of the Dynamic Response Surface Methodology for Modeling Pharmaceutical Reactions. Industrial & Engineering Chemistry Research, 2019, 58, 13611-13621.	1.8	15
50	A New Measure of Process Output Controllability. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 1998, 31, 663-672.	0.4	14
51	On the Calculation of Operability Sets of Nonlinear High-Dimensional Processes. Industrial & Engineering Chemistry Research, 2010, 49, 8035-8047.	1.8	14
52	Time domain order reduction of tridiagonal dynamics of staged processesâ€"I. Chemical Engineering Science, 1982, 37, 687-697.	1.9	12
53	Use of tendency models and their uncertainty in the design of state estimators for batch reactors. Chemical Engineering and Processing: Process Intensification, 1998, 37, 545-558.	1.8	12
54	Design of In Silico Experiments as a Tool for Nonlinear Sensitivity Analysis of Knowledge-Driven Models. Industrial & Engineering Chemistry Research, 2014, 53, 7517-7525.	1.8	12

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55	Stoichiometry identification of pharmaceutical reactions using the constrained dynamic response surface methodology. AICHE Journal, 2019, 65, e16726.	1.8	12
56	Dynamic Optimization of a Batch Pharmaceutical Reaction using the Design of Dynamic Experiments (DoDE): the Case of an Asymmetric Catalytic Hydrogenation Reaction. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2010, 43, 260-265.	0.4	11
57	An in silico evaluation of dataâ€driven optimization of biopharmaceutical processes. AICHE Journal, 2017, 63, 2796-2805.	1.8	11
58	Effect of process-model mismatch on the optimization of the catalytic epoxidation of oleic acid using Tendency models. Chemical Engineering Science, 1996, 51, 1899-1908.	1.9	10
59	Inventory Control Structure Independence of the Process Operability Index. Industrial & Engineering Chemistry Research, 2002, 41, 3970-3983.	1.8	10
60	Steady State Optimal Test Signal Design for Multivariable Model Based Control. Industrial & Engineering Chemistry Research, 2006, 45, 8514-8527.	1.8	10
61	Inputâ€“output operability of control systems: The steady-state case. Journal of Process Control, 2010, 20, 769-776.	1.7	10
62	Identification of Hammerstein-Weiner models for nonlinear MPC from infrequent measurements in batch processes. Journal of Process Control, 2019, 82, 58-69.	1.7	10
63	Physical Interpretation of the Feasibility Region in the Combustion of Char by Use of Single and Double Film Theories. Industrial & Engineering Chemistry Fundamentals, 1980, 19, 98-103.	0.7	9
64	Online Estimation and Monitoring of Diastereomeric Resolution Using FBRM, ATR-FTIR, and Raman Spectroscopy. Industrial & Engineering Chemistry Research, 2008, 47, 5576-5584.	1.8	9
65	Sequential Parameter Estimation for Mammalian Cell Model Based on In Silico Design of Experiments. Processes, 2018, 6, 100.	1.3	9
66	Data-Driven Optimization of an Industrial Batch Polymerization Process Using the Design of Dynamic Experiments Methodology. Industrial & Engineering Chemistry Research, 2020, 59, 14868-14880.	1.8	9
67	Optimization of pharmaceutical reactions using the dynamic response surface methodology. Computers and Chemical Engineering, 2020, 135, 106778.	2.0	9
68	Dynamic input signal design for the identification of constrained systems. Journal of Process Control, 2008, 18, 332-346.	1.7	8
69	DRSM Model for the Optimization and Control of Batch Processes. IFAC-PapersOnLine, 2016, 49, 55-60.	0.5	8
70	On the estimation of high-dimensional surrogate models of steady-state of plant-wide processes characteristics. Computers and Chemical Engineering, 2018, 116, 56-68.	2.0	8
71	Effect of char gasification reaction order on bounding solutions for char combustion. Chemical Engineering Science, 1981, 36, 919-929.	1.9	7
72	Uses of state estimation for statistical process control. Computers and Chemical Engineering, 1994, 18, S571-S575.	2.0	7

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73	From dynamic response surface models to the identification of the reaction stoichiometry in a complex pharmaceutical case study. AICHE Journal, 2019, 65, 1173-1185.	1.8	7
74	Time domain order reduction of tridiagonal dynamics of staged processes-II. Chemical Engineering Science, 1982, 37, 699-705.	1.9	6
75	A Dynamic Response Surface Model for Polymer Grade Transitions in Industrial Plants. Industrial & Engineering Chemistry Research, 2019, 58, 11187-11198.	1.8	6
76	Designing Nonlinear Control Structures by Reference System Synthesis. , 1988, , .		5
77	A Model-Free Methodology for the Optimization of Batch Processes: Design of Dynamic Experiments. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2009, 42, 536-541.	0.4	5
78	Operabilityâ€based determination of feasible control constraints for several highâ€dimensional nonsquare industrial processes. AICHE Journal, 2010, 56, 1249-1261.	1.8	5
79	Dynamic response surface methodology using Lasso regression for organic pharmaceutical synthesis. Frontiers of Chemical Science and Engineering, 2022, 16, 221-236.	2.3	5
80	THE EFFECT OF RELATIVE SIZE ON THE DYNAMICS OF FLUIDIZED BED DRYERS. Chemical Engineering Communications, 1983, 23, 343-362.	1.5	4
81	ON THE DYNAMIC PROPERTIES OF THE EXTENSIVE VARIABLE CONTROL STRUCTURES. Chemical Engineering Communications, 1987, 60, 119-144.	1.5	4
82	MODEL PREDICTIVE CONTROL AND DYNAMIC OPERABILITY STUDIES IN A STIRRED TANK: RAPID TEMPERATURE CYCLING FOR CRYSTALLIZATION. Chemical Engineering Communications, 2010, 197, 733-752.	1.5	4
83	Meeting the challenge of water sustainability: The role of process systems engineering. AICHE Journal, 2021, 67, e17113.	1.8	4
84	Automatic dataâ€driven stoichiometry identification and kinetic modeling framework for homogeneous organic reactions. AICHE Journal, 2022, 68, .	1.8	4
85	Steady State Optimal Test Signal Design for Constrained Multivariable Systems. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2000, 33, 1213-1218.	0.4	3
86	Nonlinear model predictive control of end-use properties in batch reactors under uncertainty. , 2001, , .		3
87	OPERABILITY OF MULTIVARIABLE NON-SQUARE SYSTEMS. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2006, 39, 989-994.	0.4	3
88	Online Estimation of Diastereomer Composition Using Raman: Differentiation in High and Low Slurry Density Partial Least Square Models. Crystal Growth and Design, 2008, 8, 4398-4408.	1.4	3
89	Analysis of the constraint characteristics of a Sheet Forming Control Problem using interval operability concepts. Computer Aided Chemical Engineering, 2008, 25, 387-392.	0.3	3
90	Dynamic Operability for the Calculation of Transient Output Constraints for Non-Square Linear Model Predictive Controllers. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2009, 42, 231-236.	0.4	3

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91	Steady states for chemical process plants: A legacy code, timeâ€stepping approach. AICHE Journal, 2013, 59, 3308-3321.	1.8	3
92	On dynamical methods of heat integration design. AICHE Journal, 1978, 24, 976-984.	1.8	2
93	On the Performance of DoDE in a class of in silico Fermentation Processes and the Impact of the Input Domain. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2013, 46, 163-168.	0.4	2
94	New Time Sampling Strategy for the Estimation of the Parameters in DRSM Models. Industrial & Engineering Chemistry Research, 2020, 59, 12792-12800.	1.8	2
95	The effect of the separation symmetry factor (1 - x)/x on the interaction measure of material balance distillation control. Chemical Engineering Science, 1982, 37, 1585-1587.	1.9	1
96	Effect of Feedback Controllers in State Estimation Schemes. Industrial & Engineering Chemistry Research, 2000, 39, 387-395.	1.8	1
97	On the operability of continuous processes. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2001, 34, 65-76.	0.4	1
98	Reference System Model Predictive Control. 1. Continuous Time Formulation and Case Studies on Performance. Industrial & Engineering Chemistry Research, 2002, 41, 3199-3212.	1.8	1
99	ON THE OPERABILITY OF HIGH-ORDER MULTIVARIABLE NON-SQUARE SYSTEMS. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2007, 40, 47-52.	0.4	1
100	Factors affecting on-line estimation of diastereomer composition using Raman spectroscopy. Control Engineering Practice, 2007, 15, 1257-1267.	3.2	1
101	Data-Driven Process Modeling and Optimization Aided by Material and Energy Balances: The Case of a Batch Polymerization Process. IFAC-PapersOnLine, 2021, 54, 1-6.	0.5	1
102	On-line monitoring, modeling, and model validation of semibatch emulsion polymerization in an automated reactor control facility. , 1998, 36, 1553.		1
103	On-line Estimation of Reaction Rates in Batch Reactors. , 1992, , .		1
104	Mass and energy balance-assisted data-driven modeling and optimization of batch processes: The case of a batch polymerization process. Computers and Chemical Engineering, 2022, 160, 107701.	2.0	1
105	Effect of Model Uncertainty on the Tendency Modeling, Optimization and Control of Batch Reactors. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 1995, 28, 425-431.	0.4	0
106	A Control Performance Index Based on Minimum and Open-Loop Output Variance. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 1999, 32, 6704-6709.	0.4	0
107	On L 1 -Reference System Linear Model Predictive Control. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2000, 33, 293-298.	0.4	0
108	Performance Assessment of Constrained Controllers. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2004, 37, 185-190.	0.4	0

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109	Tendency Stoichiometric Modeling of Metabolic Pathways. Proceedings of the American Control Conference, 2007, , .	0.0	0
110	Data-driven Nonlinear MPC using Dynamic Response Surface Methodology. IFAC-PapersOnLine, 2021, 54, 272-277.	0.5	0
111	EFFECT OF MODEL UNCERTAINTY ON THE TENDENCY MODELING, OPTIMIZATION AND CONTROL OF BATCH REACTORS. , 1995, , 425-431.		0
112	The Value of Simple Multivariable and Nonlinear Models in Process Control. , 1986, , .		0