Phillip C Wankat

List of Publications by Year
in descending order

137	2,510	218662	302107
papers	citations	26 h-index	39 g-index

143	143	143	1250
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	SMB Operation Strategyâ^'Partial Feed. Industrial & Engineering Chemistry Research, 2002, 41, 2504-2511.	3.7	103
2	Intensification of pressure swing adsorption processes. AICHE Journal, 1990, 36, 1299-1312.	3.6	78
3	Simulated Moving Bed Cascades for Ternary Separations. Industrial & Engineering Chemistry Research, 2001, 40, 6185-6193.	3.7	78
4	Three-Zone Simulated Moving Bed with Partial Feed and Selective Withdrawal. Industrial & Engineering Chemistry Research, 2002, 41, 5283-5289.	3.7	72
5	Combined product and substrate inhibition equation for cellobiase. Biotechnology and Bioengineering, 1981, 23, 2779-2788.	3.3	65
6	New Design of Simulated Moving Bed (SMB) for Ternary Separations. Industrial & Engineering Chemistry Research, 2005, 44, 1906-1913.	3.7	63
7	Kinetic Study of the Conversion of Different Substrates to Lactic Acid Using Lactobacillus bulgaricus. Biotechnology Progress, 2000, 16, 305-314.	2.6	60
8	Single-Cascade Simulated Moving Bed Systems for the Separation of Ternary Mixtures. Industrial & Engineering Chemistry Research, 2003, 42, 4849-4860.	3.7	60
9	Simulation of ion exchange water softening pretreatment for reverse osmosis desalination of brackish water. Desalination, 2011, 271, 122-131.	8.2	60
10	Analysis of the First Ten Years of the Journal of Engineering Education. Journal of Engineering Education, 2004, 93, 13-21.	3.0	57
11	Two-Zone SMB/Chromatography for Center-Cut Separation from Ternary Mixtures:Â Linear Isotherm Systems. Industrial & Engineering Chemistry Research, 2006, 45, 1426-1433.	3.7	56
12	Gas Purification by Pressure Swing Adsorption. Separation and Purification Reviews, 1985, 14, 157-212.	0.8	54
13	Pore and Surface Diffusion and Bulk-Phase Mass Transfer in Packed and Fluidized Beds. Industrial & Engineering Chemistry Research, 1998, 37, 228-239.	3.7	48
14	One-Column Chromatograph with Recycle Analogous to a Four-Zone Simulated Moving Bed. Industrial & Engineering Chemistry Research, 2003, 42, 5268-5279.	3.7	39
15	Integrating the Use of Commercial Simulators into Lecture Courses. Journal of Engineering Education, 2002, 91, 19-23.	3.0	38
16	The relationship between one-dimensional and two-dimensional separation processes. AICHE Journal, 1977, 23, 859-867.	3.6	37
17	Theory of affinity chromatography separations. Analytical Chemistry, 1974, 46, 1400-1408.	6.5	36
18	High Recovery Cycles for Gas Separations by Pressure-Swing Adsorption. Industrial & Engineering Chemistry Research, 2006, 45, 8117-8133.	3.7	32

#	Article	IF	Citations
19	Cyclic Separation Processes. Separation Science, 1974, 9, 85-116.	0.6	31
20	Acetone-butanol-ethanol (ABE) fermentation and simultaneous separation in a trickle bed reactor. Biotechnology Progress, 1991, 7, 185-194.	2.6	31
21	Pressure drop correlations and scale-up of size exclusion chromatography with compressible packings. Industrial & Engineering Chemistry Research, 1992, 31, 549-561.	3.7	31
22	Scaling rules for isocratic elution chromatography. AICHE Journal, 1988, 34, 1006-1019.	3.6	30
23	Quaternary Distillation Systems with Less thanNâ^' 1 Columns. Industrial & Engineering Chemistry Research, 2004, 43, 3838-3846.	3.7	30
24	Acetone-butanol-ethanol (ABE) fermentation in an immobilized cell trickle bed reactor. Biotechnology and Bioengineering, 1989, 34, 18-29.	3.3	28
25	Two-feed distillation. Same-composition feeds with different enthalpies. Industrial & Engineering Chemistry Research, 1993, 32, 3061-3067.	3.7	28
26	Thermal Operation of Four-Zone Simulated Moving Beds. Industrial & Engineering Chemistry Research, 2007, 46, 7208-7220.	3.7	28
27	One-Column Chromatograph with Recycle Analogous to Simulated Moving Bed Adsorbers:Â Analysis and Applications. Industrial & Engineering Chemistry Research, 2004, 43, 5291-5299.	3.7	26
28	Designs of Simulated-Moving-Bed Cascades for Quaternary Separations. Industrial & Engineering Chemistry Research, 2004, 43, 1071-1080.	3.7	26
29	Reflective Analysis of Student Learning in a Sophomore Engineering Course. Journal of Engineering Education, 1999, 88, 195-203.	3.0	25
30	Design of pseudo-simulated moving bed process with multi-objective optimization for the separation of a ternary mixture: Linear isotherms. Journal of Chromatography A, 2010, 1217, 3418-3426.	3.7	25
31	Educating Engineering Professors in Education. Journal of Engineering Education, 1999, 88, 471-475.	3.0	24
32	An Analysis of the Articles in theJournal of Engineering Education. Journal of Engineering Education, 1999, 88, 37-42.	3.0	23
33	Ultramicroprobe Method for Investigating Mass Transfer through Gas-Liquid Interfaces. Industrial & Engineering Chemistry Fundamentals, 1978, 17, 59-66.	0.7	22
34	Increasing the Energy Efficiency of Extractive Distillation. Separation Science and Technology, 2005, 39, 1-17.	2.5	22
35	Engineering education research inEuropean Journal of Engineering EducationandJournal of Engineering Education: citation and reference discipline analysis. European Journal of Engineering Education, 2014, 39, 7-17.	2.3	22
36	Ion Exchange of Phenylalanine in Fluidized/Expanded Beds. Industrial & Engineering Chemistry Research, 1995, 34, 2700-2711.	3.7	21

#	Article	IF	Citations
37	Thermally Assisted Simulated Moving Bed Systems. Adsorption, 2005, 11, 579-584.	3.0	21
38	Undergraduate Student Competitions. Journal of Engineering Education, 2005, 94, 343-347.	3.0	21
39	Two-Zone SMB Process for Binary Separation. Industrial & Engineering Chemistry Research, 2005, 44, 1565-1575.	3.7	20
40	Hybrid Simulated Moving Bed and Chromatography Systems for Center-Cut Separation from Quaternary Mixtures:Â Linear Isotherm Systems. Industrial & Engineering Chemistry Research, 2006, 45, 8713-8722.	3.7	20
41	Solvent Recovery by Steamless Temperature Swing Carbon Adsorption Processes. Industrial & Engineering Chemistry Research, 2010, 49, 11602-11613.	3.7	20
42	Produced water desalination: An exploratory study. Desalination, 2017, 404, 328-340.	8.2	20
43	Desalination by natural freezing. Desalination, 1973, 13, 147-157.	8.2	18
44	Distillation-Adsorption Hybrid Processes to Separate Binary Liquid Mixtures with Homogeneous Azeotrope. Separation Science and Technology, 2013, 48, 1-14.	2.5	18
45	Not so global: a bibliometric look at engineering education research. European Journal of Engineering Education, 2018, 43, 190-200.	2.3	18
46	Variable Flow Rate Operation for Simulated Moving Bed Separation Systems:â€‰ Simulation and Optimization. Industrial & Engineering Chemistry Research, 2003, 42, 4840-4848.	3.7	17
47	Use of two feeds in simulated moving beds for binary separations. Korean Journal of Chemical Engineering, 2005, 22, 619-627.	2.7	17
48	Combined cocurrent-countercurrent blowdown cycle in pressure swing adsorption. AICHE Journal, 1989, 35, 523-526.	3.6	16
49	Liquid-Liquid Extraction Parametric Pumping. Industrial & Engineering Chemistry Fundamentals, 1973, 12, 372-381.	0.7	15
50	Improved Efficiency in Preparative Chromatographic Columns Using a Moving Feed. Industrial & Engineering Chemistry Fundamentals, 1977, 16, 468-472.	0.7	15
51	Characterization of an immobilized cell, trickle bed reactor during long term butanol (ABE) fermentation. Biotechnology and Bioengineering, 1990, 36, 207-217.	3.3	15
52	The Effects of an Orientation Course on the Attitudes of Freshmen Engineering Students. Journal of Engineering Education, 1998, 87, 23-27.	3.0	15
53	Improved preparative chromatography: moving port chromatography. Industrial & Engineering Chemistry Fundamentals, 1984, 23, 256-260.	0.7	14
54	Pressure swing adsorption process for binary gas separation with Langmuir isotherms. Chemical Engineering Science, 1989, 44, 2407-2410.	3.8	14

#	Article	IF	Citations
55	Hybrid Simulated Moving Bed Processes for the Purification ofpâ€Xylene. Separation Science and Technology, 2007, 42, 669-700.	2.5	14
56	Purification ofLâ€Phenylalanine from a Ternary Amino Acid Mixture Using a Twoâ€Zone SMB/Chromatography Hybrid System. Separation Science and Technology, 2007, 42, 911-930.	2.5	14
57	Separation of Dilute Binary Gases by Simulated-Moving Bed with Pressure-Swing Assist:Â SMB/PSA Processes. Industrial & Engineering Chemistry Research, 2008, 47, 3138-3149.	3.7	14
58	Multicomponent Cycling Zone Separations. Industrial & Engineering Chemistry Fundamentals, 1975, 14, 96-102.	0.7	13
59	Multieffect distillation processes. Industrial & Engineering Chemistry Research, 1993, 32, 894-905.	3.7	13
60	Scaling and intensification procedures for simulated moving-bed systems. AICHE Journal, 2003, 49, 2810-2821.	3.6	13
61	Hybrid Membrane-Cryogenic Distillation Air Separation Process for Oxygen Production. Separation Science and Technology, 2011, 46, 1539-1545.	2.5	13
62	Progress in Reforming Chemical Engineering Education. Annual Review of Chemical and Biomolecular Engineering, 2013, 4, 23-43.	6.8	13
63	Continuous recuperative mode parametric pumping. Chemical Engineering Science, 1978, 33, 723-733.	3.8	12
64	Improved preparative liquid chromatography: the moving feed point method. Industrial & Engineering Chemistry Fundamentals, 1983, 22, 10-16.	0.7	12
65	Intensification of sorption processes. Industrial & Engineering Chemistry Research, 1987, 26, 1579-1585.	3.7	12
66	A new pressure swing adsorption process for high enrichment and recovery. Chemical Engineering Science, 1989, 44, 567-574.	3.8	12
67	Pressure Effects in Adsorption Systems. Adsorption, 1999, 5, 261-278.	3.0	12
68	Scaling Rules and Increasing Feed Rates in Two-Zone and Four-Zone Simulated Moving Bed Systems. Industrial & Engineering Chemistry Research, 2006, 45, 2793-2807.	3.7	12
69	Chromatographic and SMB Center-Cut Separations of Ternary Mixtures. Separation Science and Technology, 2008, 43, 1273-1295.	2.5	12
70	Optimized Design of Recycle Chromatography for Separation of a Single Component from a Ternary Mixture. Industrial & Engineering Chemistry Research, 2008, 47, 9601-9610.	3.7	12
71	Steady-State Continuous, Multicomponent Separations in Regenerated Two-Dimensional Cascades. Industrial & Engineering Chemistry Fundamentals, 1976, 15, 309-317.	0.7	11
72	Size exclusion parametric pumping. Industrial & Engineering Chemistry Fundamentals, 1985, 24, 108-112.	0.7	11

#	Article	IF	Citations
73	Amino acid separation in a multistage fluidized ion exchanger bed. Industrial & Engineering Chemistry Research, 1993, 32, 2058-2064.	3.7	11
74	Thermal simulated moving bed concentrator. Chemical Engineering Journal, 2011, 166, 511-522.	12.7	11
75	pH cycling zone separation of sugars. Journal of Chromatography A, 1975, 114, 369-381.	3.7	10
76	Multicomponent cycling zone adsorption. Chemical Engineering Science, 1976, 31, 921-927.	3.8	10
77	Improving the performance of one column analogs to SMBs. AICHE Journal, 2006, 52, 2461-2472.	3.6	10
78	Optimized design of recycle chromatography to isolate intermediate retained solutes in ternary mixtures: Langmuir isotherm systems. Journal of Chromatography A, 2009, 1216, 6946-6956.	3.7	10
79	Hybrid Air Separation Processes for Production of Oxygen and Nitrogen. Separation Science and Technology, 2010, 45, 1171-1185.	2.5	10
80	Desalination of the Colorado River water: A hybrid approach. Desalination, 2012, 286, 176-186.	8.2	10
81	Thermal wave cycling zone separation. Journal of Chromatography A, 1974, 88, 211-219.	3.7	9
82	Separation of Concentrated Binary Gases by Hybrid Pressure-Swing Adsorption/Simulated-Moving Bed Processes. Industrial & Engineering Chemistry Research, 2009, 48, 4445-4465.	3.7	9
83	Comparison of Recycle Chromatography and Simulated Moving Bed for Pseudobinary Separations. Industrial & Engineering Chemistry Research, 2009, 48, 7724-7732.	3.7	9
84	Guest Editorial: Cross-Fertilization of Engineering Education Research and Development. IEEE Transactions on Education, 2011, 54, 521-522.	2.4	9
85	Two-Dimensional Cross-Flow Cascades. Separation Science, 1972, 7, 233-241.	0.6	8
86	Ternary Separations with Oneâ€Column Analogs to SMB. Separation Science and Technology, 2005, 40, 3239-3259.	2.5	8
87	Cycling Zone Extraction. Separation Science, 1973, 8, 473-500.	0.6	7
88	Continuous Flow Equilibrium Staged Model for Cycling Zone Adsorption. Industrial & Engineering Chemistry Fundamentals, 1978, 17, 32-38.	0.7	7
89	MOVING PORT CHROMATOGRAPHY: A METHOD OF IMPROVING PREPARATIVE CHROMATOGRAPHY. Chemical Engineering Communications, 1984, 31, 21-43.	2.6	7
90	Moving-withdrawal liquid chromatography of amino acids. Industrial & Engineering Chemistry Research, 1989, 28, 1358-1364.	3.7	7

#	Article	IF	Citations
91	Scaling rules and intensification of thermal swing adsorption. AICHE Journal, 1991, 37, 785-789.	3.6	7
92	Pressure Transients in Gas Phase Adsorptive Reactors. Adsorption, 1998, 4, 345-354.	3.0	7
93	Transient Pressure and Flow Predictions for Concentrated Packed Absorbers Using a Dynamic Nonequilibrium Model. Industrial & Engineering Chemistry Research, 2002, 41, 5775-5788.	3.7	7
94	Thermal-Adsorptive Concentration. Adsorption, 2003, 9, 67-76.	3.0	7
95	Balancing Diameters of Distillation Column with Vapor Feeds. Industrial & Engineering Chemistry Research, 2007, 46, 8813-8826.	3.7	7
96	Standing Wave Design and Optimization of Nonlinear Four-Zone Thermal Simulated Moving Bed Systems. Industrial & Engineering Chemistry Research, 2015, 54, 10419-10433.	3.7	7
97	Novel solvent exchange distillation column. Chemical Engineering Science, 2018, 184, 216-228.	3.8	7
98	Note on thermal instability of a horizontal layer of non-Newtonian fluid heated from below. International Journal of Heat and Mass Transfer, 1970, 13, 1506-1507.	4.8	5
99	Analysis of multicomponent and adiabatic countercurrent columns. Industrial & Engineering Chemistry Fundamentals, 1984, 23, 14-19.	0.7	5
100	Adsorption engineering. Reactive & Functional Polymers, 1991, 14, 269-270.	0.8	5
101	Feed Purge Cycles in Pressure Swing Adsorption. Separation Science and Technology, 1993, 28, 2567-2586.	2.5	5
102	GAS COMPRESSION USING TEMPERATURE SWING ADSORPTION. Separation Science and Technology, 2002, 37, 3187-3199.	2.5	5
103	Focusing in Liquid Thermal Adsorption Systems. Adsorption, 2003, 9, 117-123.	3.0	5
104	Comparing the performance of one-column process and four-zone simulated moving bed by computer simulation. Biotechnology and Bioprocess Engineering, 2004, 9, 362-368.	2.6	5
105	Reducing Diameters of Distillation Columns with Largest Calculated Diameter at the Bottom. Industrial & Engineering Chemistry Research, 2007, 46, 9223-9231.	3.7	5
106	Continuous Cyclic Distillation for Binary Solvent Exchange: The Batch Stack. Industrial & Engineering Chemistry Research, 2018, 57, 16077-16083.	3.7	5
107	Partial Fractionation of Dyes by Cycling Zone Separation. Separation Science, 1976, 11, 207-213.	0.6	4
108	Continuous multicomponent parametric pumping. Industrial & Engineering Chemistry Fundamentals, 1983, 22, 172-176.	0.7	4

#	Article	IF	Citations
109	Dynamic Tray Model To Predict Start-Up Transients in Concentrated Absorbers. Industrial & Engineering Chemistry Research, 2000, 39, 2525-2533.	3.7	4
110	Hybrid Cycles to Purify Concentrated Feeds Containing a Strongly Adsorbed Impurity with a Nonlinear Isotherm: The PSAâ^'TSA Supercycle. Industrial & Engineering Chemistry Research, 2009, 48, 6405-6416.	3.7	4
111	Standing Wave Design of 2-Zone Thermal Simulated Moving Bed Concentrator (TSMBC). Industrial & Engineering Chemistry Research, 2015, 54, 12646-12663.	3.7	4
112	Pressure Behavior during the Loading of Adsorption Systems. Kluwer International Series in Engineering and Computer Science, 1996, , 51-58.	0.2	4
113	A particular unsteady viscometric flow. AICHE Journal, 1969, 15, 150-151.	3.6	3
114	Multicomponent Fractionation by Direct, Thermal Mode Cycling Zone Adsorption. Industrial & Engineering Chemistry Fundamentals, 1980, 19, 86-93.	0.7	3
115	An Analogy between Countercurrent and Two-Dimensional Separation Cascades. Separation Science and Technology, 1980, 15, 1599-1612.	2.5	3
116	Calculations for separations with three phases. 2. Continuous contact systems. Industrial & Engineering Chemistry Fundamentals, 1984, 23, 137-143.	0.7	3
117	Scale-Up of Bioseparations for Microbial and Biochemical Technology. ACS Symposium Series, 1988, , 72-101.	0.5	3
118	Modified displacement chromatography cycles for gas systems. Chemical Engineering Science, 1996, 51, 701-711.	3.8	3
119	Failure Modes in Concentrated Absorbers during the Transition to Standby Operation. Industrial & Engineering Chemistry Research, 2001, 40, 850-853.	3.7	3
120	Cross-Fertilization of Engineering Education Research and Development. Journal of Professional Issues in Engineering Education and Practice, 2012, 138, 104-106.	0.9	3
121	Improved Rectifying Columns. Industrial & Engineering Chemistry Research, 2014, 53, 9158-9168.	3.7	3
122	Standing wave design of a four-zone thermal SMB fractionator and concentrator (4-zone TSMB-FC) for linear systems. Adsorption, 2014, 20, 37-52.	3.0	3
123	Decreasing costs of distillation columns with vapor feeds. Chemical Engineering Science, 2015, 137, 955-963.	3.8	3
124	Two-Dimensional Development in Staged Systems. Separation Science, 1972, 7, 345-360.	0.6	2
125	Application of cycling zone separation to preparative high-pressure liquid chromatography. Journal of Chromatography A, 1976, 121, 205-212.	3.7	2
126	Increasing Feed Throughput in Preparative Two-Dimensional Separations. Separation Science, 1977, 12, 553-567.	0.6	2

#	Article	IF	Citations
127	Fractionation by cycling zone adsorption. Chemical Engineering Science, 1977, 32, 1283-1287.	3.8	2
128	Solute concentration by linked nonisothermal extraction columns. Industrial & Engineering Chemistry Fundamentals, 1984, 23, 392-399.	0.7	2
129	Economic Analysis for Improved Rectifying Columns. Separation Science and Technology, 0, , 150623131949005.	2.5	2
130	Cyclic Operation of Flash and Column Flash Distillation. Industrial & Engineering Chemistry Research, 2020, 59, 21914-21929.	3.7	2
131	Two-Dimensional Cross-Flow Extraction. Separation Science, 1973, 8, 599-611.	0.6	1
132	Calculations for Separations with Three Phases. 1. Staged Systems. Industrial & Engineering Chemistry Fundamentals, 1980, 19, 358-363.	0.7	1
133	Continuous, regenerative, two-dimensional extraction. 1. Experimentation and computer simulation. Industrial & Engineering Chemistry Research, 1988, 27, 650-657.	3.7	1
134	Dynamics of the Irreversible Michaelisâ^'Menten Kinetic Mechanism. Journal of Physical Chemistry A, 1998, 102, 717-721.	2.5	1
135	Continuous, regenerative, two-dimensional extraction. 2. Theory. Industrial & Engineering Chemistry Research, 1988, 27, 1886-1894.	3.7	0
136	Pressure Effects in Adsorbers and Adsorptive Reactors. Separation Science and Technology, 2000, 35, 323-351.	2.5	0
137	Note: Two-Enthalpy Feed for Distillation with Vapor Feed and Refrigerated Condenser. Separation Science and Technology, 2009, 44, 102-109.	2.5	0