

Phillip C Wankat

List of Publications by Citations

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The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

134 papers	2,139 citations	25 h-index	38 g-index
143 ext. papers	2,288 ext. citations	3.8 avg, IF	5.1 L-index

#	Paper	IF	Citations
134	Rate-Controlled Separations 1990 ,		107
133	SMB Operation Strategy Partial Feed. <i>Industrial & Engineering Chemistry Research</i> , 2002 , 41, 2504-2511	3.9	95
132	Simulated Moving Bed Cascades for Ternary Separations. <i>Industrial & Engineering Chemistry Research</i> , 2001 , 40, 6185-6193	3.9	72
131	Three-Zone Simulated Moving Bed with Partial Feed and Selective Withdrawal. <i>Industrial & Engineering Chemistry Research</i> , 2002 , 41, 5283-5289	3.9	69
130	Intensification of pressure swing adsorption processes. <i>AIChE Journal</i> , 1990 , 36, 1299-1312	3.6	68
129	New Design of Simulated Moving Bed (SMB) for Ternary Separations. <i>Industrial & Engineering Chemistry Research</i> , 2005 , 44, 1906-1913	3.9	59
128	Combined product and substrate inhibition equation for cellobiase. <i>Biotechnology and Bioengineering</i> , 1981 , 23, 2779-2788	4.9	59
127	Single-Cascade Simulated Moving Bed Systems for the Separation of Ternary Mixtures. <i>Industrial & Engineering Chemistry Research</i> , 2003 , 42, 4849-4860	3.9	57
126	Two-Zone SMB/Chromatography for Center-Cut Separation from Ternary Mixtures: Linear Isotherm Systems. <i>Industrial & Engineering Chemistry Research</i> , 2006 , 45, 1426-1433	3.9	53
125	Kinetic study of the conversion of different substrates to lactic acid using <i>Lactobacillus bulgaricus</i> . <i>Biotechnology Progress</i> , 2000 , 16, 305-14	2.8	48
124	Simulation of ion exchange water softening pretreatment for reverse osmosis desalination of brackish water. <i>Desalination</i> , 2011 , 271, 122-131	10.3	47
123	Analysis of the First Ten Years of the Journal of Engineering Education. <i>Journal of Engineering Education</i> , 2004 , 93, 13-21	2.3	45
122	Gas Purification by Pressure Swing Adsorption. <i>Separation and Purification Reviews</i> , 1985 , 14, 157-212		44
121	Pore and Surface Diffusion and Bulk-Phase Mass Transfer in Packed and Fluidized Beds. <i>Industrial & Engineering Chemistry Research</i> , 1998 , 37, 228-239	3.9	43
120	One-Column Chromatograph with Recycle Analogous to a Four-Zone Simulated Moving Bed. <i>Industrial & Engineering Chemistry Research</i> , 2003 , 42, 5268-5279	3.9	37
119	Theory of affinity chromatography separations. <i>Analytical Chemistry</i> , 1974 , 46, 1400-8	7.8	34
118	The relationship between one-dimensional and two-dimensional separation processes. <i>AIChE Journal</i> , 1977 , 23, 859-867	3.6	34

117	Quaternary Distillation Systems with Less than N Columns. <i>Industrial & Engineering Chemistry Research</i> , 2004 , 43, 3838-3846	3.9	29
116	Pressure drop correlations and scale-up of size exclusion chromatography with compressible packings. <i>Industrial & Engineering Chemistry Research</i> , 1992 , 31, 549-561	3.9	29
115	Acetone-Butanol-Ethanol (ABE) Fermentation and Simultaneous Separation in a Trickle Bed Reactor. <i>Biotechnology Progress</i> , 1991 , 7, 185-194	2.8	28
114	Thermal Operation of Four-Zone Simulated Moving Beds. <i>Industrial & Engineering Chemistry Research</i> , 2007 , 46, 7208-7220	3.9	27
113	Integrating the Use of Commercial Simulators into Lecture Courses. <i>Journal of Engineering Education</i> , 2002 , 91, 19-23	2.3	27
112	One-Column Chromatograph with Recycle Analogous to Simulated Moving Bed Adsorbers: Analysis and Applications. <i>Industrial & Engineering Chemistry Research</i> , 2004 , 43, 5291-5299	3.9	26
111	Scaling rules for isocratic elution chromatography. <i>AIChE Journal</i> , 1988 , 34, 1006-1019	3.6	26
110	Design of pseudo-simulated moving bed process with multi-objective optimization for the separation of a ternary mixture: linear isotherms. <i>Journal of Chromatography A</i> , 2010 , 1217, 3418-26	4.5	25
109	Designs of Simulated-Moving-Bed Cascades for Quaternary Separations. <i>Industrial & Engineering Chemistry Research</i> , 2004 , 43, 1071-1080	3.9	25
108	Two-feed distillation. Same-composition feeds with different enthalpies. <i>Industrial & Engineering Chemistry Research</i> , 1993 , 32, 3061-3067	3.9	25
107	Acetone-butanol-ethanol (ABE) fermentation in an immobilized cell trickle bed reactor. <i>Biotechnology and Bioengineering</i> , 1989 , 34, 18-29	4.9	25
106	High Recovery Cycles for Gas Separations by Pressure-Swing Adsorption. <i>Industrial & Engineering Chemistry Research</i> , 2006 , 45, 8117-8133	3.9	21
105	Two-Zone SMB Process for Binary Separation. <i>Industrial & Engineering Chemistry Research</i> , 2005 , 44, 1565-1575	3.9	20
104	Thermally Assisted Simulated Moving Bed Systems. <i>Adsorption</i> , 2005 , 11, 579-584	2.6	20
103	Ion Exchange of Phenylalanine in Fluidized/Expanded Beds. <i>Industrial & Engineering Chemistry Research</i> , 1995 , 34, 2700-2711	3.9	20
102	Increasing the Energy Efficiency of Extractive Distillation. <i>Separation Science and Technology</i> , 2005 , 39, 1-17	2.5	19
101	Hybrid Simulated Moving Bed and Chromatography Systems for Center-Cut Separation from Quaternary Mixtures: Linear Isotherm Systems. <i>Industrial & Engineering Chemistry Research</i> , 2006 , 45, 8713-8722	3.9	19
100	Cyclic Separation Processes. <i>Separation Science</i> , 1974 , 9, 85-116		19

99	Produced water desalination: An exploratory study. <i>Desalination</i> , 2017 , 404, 328-340	10.3	18
98	An Analysis of the Articles in the Journal of Engineering Education. <i>Journal of Engineering Education</i> , 1999 , 88, 37-42	2.3	18
97	Variable Flow Rate Operation for Simulated Moving Bed Separation Systems: Simulation and Optimization. <i>Industrial & Engineering Chemistry Research</i> , 2003 , 42, 4840-4848	3.9	17
96	Use of two feeds in simulated moving beds for binary separations. <i>Korean Journal of Chemical Engineering</i> , 2005 , 22, 619-627	2.8	16
95	Undergraduate Student Competitions. <i>Journal of Engineering Education</i> , 2005 , 94, 343-347	2.3	16
94	Distillation-Adsorption Hybrid Processes to Separate Binary Liquid Mixtures with Homogeneous Azeotrope. <i>Separation Science and Technology</i> , 2013 , 48, 1-14	2.5	15
93	Solvent Recovery by Steamless Temperature Swing Carbon Adsorption Processes. <i>Industrial & Engineering Chemistry Research</i> , 2010 , 49, 11602-11613	3.9	15
92	Combined cocurrent-countercurrent blowdown cycle in pressure swing adsorption. <i>AIChE Journal</i> , 1989 , 35, 523-526	3.6	15
91	Ultramicroprobe Method for Investigating Mass Transfer through Gas-Liquid Interfaces. <i>Industrial & Engineering Chemistry Fundamentals</i> , 1978 , 17, 59-66		15
90	Desalination by natural freezing. <i>Desalination</i> , 1973 , 13, 147-157	10.3	15
89	Purification of L-Phenylalanine from a Ternary Amino Acid Mixture Using a Two-Zone SMB/Chromatography Hybrid System. <i>Separation Science and Technology</i> , 2007 , 42, 911-930	2.5	14
88	Characterization of an immobilized cell, trickle bed reactor during long term butanol (ABE) fermentation. <i>Biotechnology and Bioengineering</i> , 1990 , 36, 207-17	4.9	14
87	Separation of Dilute Binary Gases by Simulated-Moving Bed with Pressure-Swing Assist: SMB/PSA Processes. <i>Industrial & Engineering Chemistry Research</i> , 2008 , 47, 3138-3149	3.9	13
86	Hybrid Simulated Moving Bed Processes for the Purification of p-Xylene. <i>Separation Science and Technology</i> , 2007 , 42, 669-700	2.5	13
85	Pressure swing adsorption process for binary gas separation with Langmuir isotherms. <i>Chemical Engineering Science</i> , 1989 , 44, 2407-2410	4.4	13
84	Engineering education research in European Journal of Engineering Education and Journal of Engineering Education: citation and reference discipline analysis. <i>European Journal of Engineering Education</i> , 2014 , 39, 7-17	1.5	12
83	Scaling Rules and Increasing Feed Rates in Two-Zone and Four-Zone Simulated Moving Bed Systems. <i>Industrial & Engineering Chemistry Research</i> , 2006 , 45, 2793-2807	3.9	12
82	Reflective Analysis of Student Learning in a Sophomore Engineering Course. <i>Journal of Engineering Education</i> , 1999 , 88, 195-203	2.3	12

81	A new pressure swing adsorption process for high enrichment and recovery. <i>Chemical Engineering Science</i> , 1989 , 44, 567-574	4.4	12
80	Improved preparative chromatography: moving port chromatography. <i>Industrial & Engineering Chemistry Fundamentals</i> , 1984 , 23, 256-260		12
79	Multicomponent Cycling Zone Separations. <i>Industrial & Engineering Chemistry Fundamentals</i> , 1975 , 14, 96-102		12
78	Liquid-Liquid Extraction Parametric Pumping. <i>Industrial & Engineering Chemistry Fundamentals</i> , 1973 , 12, 372-381		12
77	Thermal simulated moving bed concentrator. <i>Chemical Engineering Journal</i> , 2011 , 166, 511-522	14.7	11
76	Hybrid Membrane-Cryogenic Distillation Air Separation Process for Oxygen Production. <i>Separation Science and Technology</i> , 2011 , 46, 1539-1545	2.5	11
75	Optimized Design of Recycle Chromatography for Separation of a Single Component from a Ternary Mixture. <i>Industrial & Engineering Chemistry Research</i> , 2008 , 47, 9601-9610	3.9	11
74	Scaling and intensification procedures for simulated moving-bed systems. <i>AIChE Journal</i> , 2003 , 49, 2810-2821	3.2	11
73	Pressure Effects in Adsorption Systems. <i>Adsorption</i> , 1999 , 5, 261-278	2.6	11
72	Improved Efficiency in Preparative Chromatographic Columns Using a Moving Feed. <i>Industrial & Engineering Chemistry Fundamentals</i> , 1977 , 16, 468-472		11
71	Optimized design of recycle chromatography to isolate intermediate retained solutes in ternary mixtures: Langmuir isotherm systems. <i>Journal of Chromatography A</i> , 2009 , 1216, 6946-56	4.5	10
70	Chromatographic and SMB Center-Cut Separations of Ternary Mixtures. <i>Separation Science and Technology</i> , 2008 , 43, 1273-1295	2.5	10
69	Multieffect distillation processes. <i>Industrial & Engineering Chemistry Research</i> , 1993 , 32, 894-905	3.9	10
68	Amino acid separation in a multistage fluidized ion exchanger bed. <i>Industrial & Engineering Chemistry Research</i> , 1993 , 32, 2058-2064	3.9	10
67	Desalination of the Colorado River water: A hybrid approach. <i>Desalination</i> , 2012 , 286, 176-186	10.3	9
66	Hybrid Air Separation Processes for Production of Oxygen and Nitrogen. <i>Separation Science and Technology</i> , 2010 , 45, 1171-1185	2.5	9
65	Improving the performance of one column analogs to SMBs. <i>AIChE Journal</i> , 2006 , 52, 2461-2472	3.6	9
64	Improved preparative liquid chromatography: the moving feed point method. <i>Industrial & Engineering Chemistry Fundamentals</i> , 1983 , 22, 10-16		9

63	pH cycling zone separation of sugars. <i>Journal of Chromatography A</i> , 1975 , 114, 369-381	4.5	9
62	Steady-State Continuous, Multicomponent Separations in Regenerated Two-Dimensional Cascades. <i>Industrial & Engineering Chemistry Fundamentals</i> , 1976 , 15, 309-317		9
61	Multicomponent cycling zone adsorption. <i>Chemical Engineering Science</i> , 1976 , 31, 921-927	4.4	9
60	Comparison of Recycle Chromatography and Simulated Moving Bed for Pseudobinary Separations. <i>Industrial & Engineering Chemistry Research</i> , 2009 , 48, 7724-7732	3.9	8
59	Intensification of sorption processes. <i>Industrial & Engineering Chemistry Research</i> , 1987 , 26, 1579-1585	3.5	8
58	Size exclusion parametric pumping. <i>Industrial & Engineering Chemistry Fundamentals</i> , 1985 , 24, 108-112		8
57	Thermal wave cycling zone separation. <i>Journal of Chromatography A</i> , 1974 , 88, 211-219	4.5	8
56	Not so global: a bibliometric look at engineering education research. <i>European Journal of Engineering Education</i> , 2018 , 43, 190-200	1.5	7
55	Novel solvent exchange distillation column. <i>Chemical Engineering Science</i> , 2018 , 184, 216-228	4.4	7
54	Separation of Concentrated Binary Gases by Hybrid Pressure-Swing Adsorption/Simulated-Moving Bed Processes. <i>Industrial & Engineering Chemistry Research</i> , 2009 , 48, 4445-4465	3.9	7
53	Balancing Diameters of Distillation Column with Vapor Feeds. <i>Industrial & Engineering Chemistry Research</i> , 2007 , 46, 8813-8826	3.9	7
52	Ternary Separations with One-Column Analogs to SMB. <i>Separation Science and Technology</i> , 2005 , 40, 3239-3259	2.5	7
51	Educating Engineering Professors in Education. <i>Journal of Engineering Education</i> , 1999 , 88, 471-475	2.3	7
50	MOVING PORT CHROMATOGRAPHY: A METHOD OF IMPROVING PREPARATIVE CHROMATOGRAPHY. <i>Chemical Engineering Communications</i> , 1984 , 31, 21-43	2.2	7
49	Continuous Flow Equilibrium Staged Model for Cycling Zone Adsorption. <i>Industrial & Engineering Chemistry Fundamentals</i> , 1978 , 17, 32-38		7
48	Cycling Zone Extraction. <i>Separation Science</i> , 1973 , 8, 473-500		7
47	Standing Wave Design and Optimization of Nonlinear Four-Zone Thermal Simulated Moving Bed Systems. <i>Industrial & Engineering Chemistry Research</i> , 2015 , 54, 10419-10433	3.9	6
46	Pressure Transients in Gas Phase Adsorptive Reactors. <i>Adsorption</i> , 1998 , 4, 345-354	2.6	6

45	Thermal-Adsorptive Concentration. <i>Adsorption</i> , 2003 , 9, 67-76	2.6	6
44	Transient Pressure and Flow Predictions for Concentrated Packed Absorbers Using a Dynamic Nonequilibrium Model. <i>Industrial & Engineering Chemistry Research</i> , 2002 , 41, 5775-5788	3.9	6
43	Scaling rules and intensification of thermal swing adsorption. <i>AIChE Journal</i> , 1991 , 37, 785-789	3.6	6
42	Moving-withdrawal liquid chromatography of amino acids. <i>Industrial & Engineering Chemistry Research</i> , 1989 , 28, 1358-1364	3.9	6
41	Continuous recuperative mode parametric pumping. <i>Chemical Engineering Science</i> , 1978 , 33, 723-733	4.4	6
40	Reducing Diameters of Distillation Columns with Largest Calculated Diameter at the Bottom. <i>Industrial & Engineering Chemistry Research</i> , 2007 , 46, 9223-9231	3.9	5
39	Comparing the performance of one-column process and four-zone simulated moving bed by computer simulation. <i>Biotechnology and Bioprocess Engineering</i> , 2004 , 9, 362-368	3.1	5
38	Focusing in Liquid Thermal Adsorption Systems. <i>Adsorption</i> , 2003 , 9, 117-123	2.6	5
37	The Effects of an Orientation Course on the Attitudes of Freshmen Engineering Students. <i>Journal of Engineering Education</i> , 1998 , 87, 23-27	2.3	5
36	Analysis of multicomponent and adiabatic countercurrent columns. <i>Industrial & Engineering Chemistry Fundamentals</i> , 1984 , 23, 14-19		5
35	Note on thermal instability of a horizontal layer of non-Newtonian fluid heated from below. <i>International Journal of Heat and Mass Transfer</i> , 1970 , 13, 1506-1507	4.9	5
34	Two-Dimensional Cross-Flow Cascades. <i>Separation Science</i> , 1972 , 7, 233-241		5
33	Continuous Cyclic Distillation for Binary Solvent Exchange: The Batch Stack. <i>Industrial & Engineering Chemistry Research</i> , 2018 , 57, 16077-16083	3.9	5
32	Progress in reforming chemical engineering education. <i>Annual Review of Chemical and Biomolecular Engineering</i> , 2013 , 4, 23-43	8.9	4
31	Hybrid Cycles to Purify Concentrated Feeds Containing a Strongly Adsorbed Impurity with a Nonlinear Isotherm: The PSA/SA Supercycle. <i>Industrial & Engineering Chemistry Research</i> , 2009 , 48, 6405-6416	3.9	4
30	GAS COMPRESSION USING TEMPERATURE SWING ADSORPTION. <i>Separation Science and Technology</i> , 2002 , 37, 3187-3199	2.5	4
29	Dynamic Tray Model To Predict Start-Up Transients in Concentrated Absorbers. <i>Industrial & Engineering Chemistry Research</i> , 2000 , 39, 2525-2533	3.9	4
28	Partial Fractionation of Dyes by Cycling Zone Separation. <i>Separation Science</i> , 1976 , 11, 207-213		4

27	Standing wave design of a four-zone thermal SMB fractionator and concentrator (4-zone TSMB-FC) for linear systems. <i>Adsorption</i> , 2014 , 20, 37-52	2.6	3
26	Standing Wave Design of 2-Zone Thermal Simulated Moving Bed Concentrator (TSMBC). <i>Industrial & Engineering Chemistry Research</i> , 2015 , 54, 12646-12663	3.9	3
25	Failure Modes in Concentrated Absorbers during the Transition to Standby Operation. <i>Industrial & Engineering Chemistry Research</i> , 2001 , 40, 850-853	3.9	3
24	Feed Purge Cycles in Pressure Swing Adsorption. <i>Separation Science and Technology</i> , 1993 , 28, 2567-2586	2.5	3
23	Adsorption engineering. <i>Reactive & Functional Polymers</i> , 1991 , 14, 269-270		3
22	Continuous multicomponent parametric pumping. <i>Industrial & Engineering Chemistry Fundamentals</i> , 1983 , 22, 172-176		3
21	Calculations for separations with three phases. 2. Continuous contact systems. <i>Industrial & Engineering Chemistry Fundamentals</i> , 1984 , 23, 137-143		3
20	Multicomponent Fractionation by Direct, Thermal Mode Cycling Zone Adsorption. <i>Industrial & Engineering Chemistry Fundamentals</i> , 1980 , 19, 86-93		3
19	An Analogy between Countercurrent and Two-Dimensional Separation Cascades. <i>Separation Science and Technology</i> , 1980 , 15, 1599-1612	2.5	3
18	A particular unsteady viscometric flow. <i>AIChE Journal</i> , 1969 , 15, 150-151	3.6	3
17	Decreasing costs of distillation columns with vapor feeds. <i>Chemical Engineering Science</i> , 2015 , 137, 955-963	4.4	2
16	Improved Rectifying Columns. <i>Industrial & Engineering Chemistry Research</i> , 2014 , 53, 9158-9168	3.9	2
15	Economic Analysis for Improved Rectifying Columns. <i>Separation Science and Technology</i> , 2015 , 150623131949005	2.5	2
14	Modified displacement chromatography cycles for gas systems. <i>Chemical Engineering Science</i> , 1996 , 51, 701-711	4.4	2
13	Increasing Feed Throughput in Preparative Two-Dimensional Separations. <i>Separation Science</i> , 1977 , 12, 553-567		2
12	Fractionation by cycling zone adsorption. <i>Chemical Engineering Science</i> , 1977 , 32, 1283-1287	4.4	2
11	Pressure Behavior during the Loading of Adsorption Systems. <i>Kluwer International Series in Engineering and Computer Science</i> , 1996 , 51-58		2
10	Cross-Fertilization of Engineering Education Research and Development. <i>Journal of Professional Issues in Engineering Education and Practice</i> , 2012 , 138, 104-106	0.7	1

9	Dynamics of the Irreversible Michaelis-Menten Kinetic Mechanism. <i>Journal of Physical Chemistry A</i> , 1998 , 102, 717-721	2.8	1
8	Scale-Up of Bioseparations for Microbial and Biochemical Technology. <i>ACS Symposium Series</i> , 1988 , 72-101	4	1
7	Application of cycling zone separation to preparative high-pressure liquid chromatography. <i>Journal of Chromatography A</i> , 1976 , 121, 205-212	4.5	1
6	Two-Dimensional Development in Staged Systems. <i>Separation Science</i> , 1972 , 7, 345-360		1
5	Two-Dimensional Cross-Flow Extraction. <i>Separation Science</i> , 1973 , 8, 599-611		1
4	Cyclic Operation of Flash and Column Flash Distillation. <i>Industrial & Engineering Chemistry Research</i> , 2020 , 59, 21914-21929	3.9	1
3	Note: Two-Enthalpy Feed for Distillation with Vapor Feed and Refrigerated Condenser. <i>Separation Science and Technology</i> , 2009 , 44, 102-109	2.5	
2	Pressure Effects in Adsorbers and Adsorptive Reactors. <i>Separation Science and Technology</i> , 2000 , 35, 323-351	2.5	
1	Continuous, regenerative, two-dimensional extraction. 2. Theory. <i>Industrial & Engineering Chemistry Research</i> , 1988 , 27, 1886-1894	3.9	