Rakesh Agrawal

List of Publications by Year in Descending Order

178 papers	7,858 citations	42 h-index	84 g-index
186 ext. papers	8,591 ext. citations	6.1 avg, IF	6.39 L-index

#	Paper	IF	Citations
178	Analysis of enargite thin films synthesized from carbon-containing and novel carbon-free processing methods. *Materials Science in Semiconductor Processing*, **2022**, 143, 106512	4.3	0
177	Enabling fine-grain free 2-micron thick CISe/CIGSe film fabrication via a non-hydrazine based solution processing route. *Materials Advances*, **2022**, 3, 3293-3302	3.3	0
176	Toward Carbon Neutrality for Natural Gas Liquids Valorization from Shale Gas. *Industrial & Engineering Chemistry Research*, **2022**, 61, 4469-4474	3.9	
175	Solution Processed Fabrication of Se□e Alloy Thin Films for Application in PV Devices. *ACS Applied Energy Materials*, **2022**, 5, 3275-3281	6.1	0
174	Direct Synthesis of Sulfide-Capped Nanoparticles for Carbon-Free Solution-Processed Photovoltaics. *ACS Applied Nano Materials*, **2021**, 4, 11466-11472	5.6	
173	Alternative Processing Sequence for Process Simplification, Cost Reduction, and Enhanced Light Olefin Recovery from Shale Gas. *ACS Sustainable Chemistry and Engineering*, **2021**, 9, 13893-13901	8.3	2
172	Novel use of dividing wall columns for intensification multicomponent batch distillations. *Chemical Engineering and Processing: Process Intensification*, **2021**, 164, 108400	3.7	1
171	Systematic Analysis Reveals Thermal Separations Are Not Necessarily Most Energy Intensive. *Joule*, **2021**, 5, 330-343	27.8	6
170	BEOL Compatible Indium-Tin-Oxide Transistors: Switching of Ultrahigh-Density 2-D Electron Gas Over 0.8 □1014/cm2 at Oxide/Oxide Interface by the Change of Ferroelectric Polarization. *IEEE Transactions on Electron Devices*, **2021**, 68, 3195-3199	2.9	5
169	A Simple Criterion for Feasibility of Heat Integration between Distillation Streams Based on Relative Volatilities. *Industrial & Engineering Chemistry Research*, **2021**, 60, 10286-10302	3.9	2
168	Methods to assess numerous distillation schemes for binary mixtures. *Chemical Engineering Research and Design*, **2021**, 172, 1-20	5.5	1
167	Solution Phase Growth and Ion Exchange in Microassemblies of Lead Chalcogenide Nanoparticles. *ACS Omega*, **2021**, 6, 21350-21358	3.9	2
166	Fast Determination of the Lignin Monomer Compositions of Genetic Variants of Poplar Fast Pyrolysis/Atmospheric Pressure Chemical Ionization Mass Spectrometry. *Journal of the American Society for Mass Spectrometry*, **2021**, 32, 2546-2551	3.5	0
165	Alternative ordering of process hierarchy for more efficient and cost-effective valorization of shale resources. *Cell Reports Physical Science*, **2021**, 2, 100581	6.1	2
164	Optimal design of membrane cascades for gaseous and liquid mixtures via MINLP. *Journal of Membrane Science*, **2021**, 636, 119514	9.6	3
163	Potassium Treatments for Solution-Processed Cu(In,Ga)(S,Se)2 Solar Cells. *ACS Applied Energy Materials*, **2020**, 3, 4821-4830	6.1	9
162	Sustainable production of ammonia fertilizers from biomass. *Biofuels, Bioproducts and Biorefining*, **2020**, 14, 725-733	5.3	2

161	Hybrid Ligand Exchange of Cu(In,Ga)S2 Nanoparticles for Carbon Impurity Removal in Solution-Processed Photovoltaics. *Chemistry of Materials*, **2020**, 32, 5091-5103	9.6	12
160	Misconceptions about efficiency and maturity of distillation. *AICHE Journal*, **2020**, 66, e16294	3.6	10
159	Classification and Comparison of Dividing Walls for Distillation Columns. *Processes*, **2020**, 8, 699	2.9	6
158	Synthesis and characterization of semiconducting sinnerite (Cu6As4S9) thin films. *MRS Communications*, **2020**, 10, 188-193	2.7	1
157	Sustainable Photovoltaics. *Lecture Notes in Energy*, **2020**, 25-85	0.4	
156	Analyzing and Tuning the Chalcogen-Amine-Thiol Complexes for Tailoring of Chalcogenide Syntheses. *Inorganic Chemistry*, **2020**, 59, 8240-8250	5.1	6
155	Nanosecond carrier lifetimes in solution-processed enargite (Cu3AsS4) thin films. *Applied Physics Letters*, **2020**, 117, 162102	3.4	4
154	Indium-Tin-Oxide Transistors with One Nanometer Thick Channel and Ferroelectric Gating. *ACS Nano*, **2020**, 14, 11542-11547	16.7	39
153	Chemical engineering for a solar economy (2017 P. V. Danckwerts Lecture). *Chemical Engineering Science*, **2019**, 210, 115215	4.4	4
152	Exploring the Reaction Mechanisms of Fast Pyrolysis of Xylan Model Compounds via Tandem Mass Spectrometry and Quantum Chemical Calculations. *Journal of Physical Chemistry A*, **2019**, 123, 9149-9157	2.8	9
151	A Cu3PS4 nanoparticle hole selective layer for efficient inverted perovskite solar cells. *Journal of Materials Chemistry A*, **2019**, 7, 4604-4610	13	18
150	Process intensification in multicomponent distillation: A review of recent advancements. *Chemical Engineering Research and Design*, **2019**, 147, 122-145	5.5	31
149	Liquid assisted grain growth in solution processed Cu(In,Ga)(S,Se)2. *Solar Energy Materials and Solar Cells*, **2019**, 195, 12-23	6.4	15
148	An MINLP formulation for the optimization of multicomponent distillation configurations. *Computers and Chemical Engineering*, **2019**, 125, 13-30	4	16
147	Global optimization of multicomponent distillation configurations: Global minimization of total cost for multicomponent mixture separations. *Computers and Chemical Engineering*, **2019**, 126, 249-262	4	12
146	Lead Chalcogenide Nanoparticles and Their Size-Controlled Self-Assemblies for Thermoelectric and Photovoltaic Applications. *ACS Applied Nano Materials*, **2019**, 2, 1242-1252	5.6	15
145	Investigating Chemistry of Metal Dissolution in Amine–Thiol Mixtures and Exploiting It toward Benign Ink Formulation for Metal Chalcogenide Thin Films. *Chemistry of Materials*, **2019**, 31, 5674-5682	9.6	15
144	Global minimization of total exergy loss of multicomponent distillation configurations. *AICHE Journal*, **2019**, 65, e16737	3.6	5

143	Versatile Colloidal Syntheses of Metal Chalcogenide Nanoparticles from Elemental Precursors Using Amine-Thiol Chemistry. *Chemistry of Materials*, **2019**, 31, 9087-9097	9.6	19
142	Reaction pathways and optoelectronic characterization of single-phase Ag2ZnSnS4 nanoparticles. *Journal of Materials Research*, **2019**, 34, 3810-3818	2.5	4
141	110th Anniversary: Thermal Coupling via Heat Transfer: A Potential Route to Simple Distillation Configurations with Lower Heat Duty. *Industrial & Engineering Chemistry Research*, **2019**, 58, 21671-21678	3.9	7
140	Slot Die Coating of CIGS Nanoparticle Inks for Scalable Solution Processed Photovoltaics **2019**,		1
139	Optoelectronic Characterization of Emerging Solar Absorber Cu3AsS4 **2019**,		1
138	Sustainable co-production of food and solar power to relax land-use constraints. *Nature Sustainability*, **2019**, 2, 972-980	22.1	17
137	Minimum energy of multicomponent distillation systems using minimum additional heat and mass integration sections. *AICHE Journal*, **2018**, 64, 3410-3418	3.6	11
136	Toward supplying food, energy, and water demand: Integrated solar desalination process synthesis with power and hydrogen coproduction. *Resources, Conservation and Recycling*, **2018**, 133, 331-342	11.9	30
135	A systematic method to synthesize all dividing wall columns for n-component separation: Part II. *AICHE Journal*, **2018**, 64, 660-672	3.6	22
134	A systematic method to synthesize all dividing wall columns for n-component separation: Part I. *AICHE Journal*, **2018**, 64, 649-659	3.6	26
133	Optimal Multicomponent Distillation Column Sequencing: Software and Case Studies. *Computer Aided Chemical Engineering*, **2018**, 44, 223-228	0.6	2
132	Land Availability, Utilization, and Intensification for a Solar Powered Economy. *Computer Aided Chemical Engineering*, **2018**, 44, 1915-1920	0.6	
131	Pure phase synthesis of CuPS and CuPSCl for semiconductor applications.. *RSC Advances*, **2018**, 8, 34094-34101	3.7	14
130	Valorization of Shale Gas Condensate to Liquid Hydrocarbons through Catalytic Dehydrogenation and Oligomerization. *Processes*, **2018**, 6, 139	2.9	31
129	Role of annealing atmosphere on the crystal structure and composition of tetrahedrite–tennantite alloy nanoparticles. *Journal of Materials Chemistry C*, **2018**, 6, 10538-10546	7.1	5
128	Short-Cut Methods versus Rigorous Methods for Performance-Evaluation of Distillation Configurations. *Industrial & Engineering Chemistry Research*, **2018**, 57, 7726-7731	3.9	14
127	Strategy to synthesize integrated solar energy coproduction processes with optimal process intensification. Case study: Efficient solar thermal hydrogen production. *Computers and Chemical Engineering*, **2017**, 105, 328-347	4	12
126	Synthesis of efficient solar thermal power cycles for baseload power supply. *Energy Conversion and Management*, **2017**, 133, 486-497	10.6	17

125	Synthesis and Characterization of Cu3(Sb1−xAsx)S4 Semiconducting Nanocrystal Alloys with Tunable Properties for Optoelectronic Device Applications. *Chemistry of Materials*, **2017**, 29, 573-578	9.6	13
124	Identifying the Real Minority Carrier Lifetime in Nonideal Semiconductors: A Case Study of Kesterite Materials. *Advanced Energy Materials*, **2017**, 7, 1700167	21.8	74
123	Directing solar photons to sustainably meet food, energy, and water needs. *Scientific Reports*, **2017**, 7, 3133	4.9	18
122	Metastable defect response in CZTSSe from admittance spectroscopy. *Applied Physics Letters*, **2017**, 111, 142105	3.4	14
121	Improving efficiencies of Cu2ZnSnS4 nanoparticle based solar cells on flexible glass substrates. *Thin Solid Films*, **2017**, 642, 110-116	2.2	20
120	Initial Products and Reaction Mechanisms for Fast Pyrolysis of Synthetic G-Lignin Oligomers with β-O-4 Linkages via On-Line Mass Spectrometry and Quantum Chemical Calculations. *ChemistrySelect*, **2017**, 2, 7185-7193	1.8	6
119	Speciation of CuCl and CuCl Thiol-Amine Solutions and Characterization of Resulting Films: Implications for Semiconductor Device Fabrication. *Inorganic Chemistry*, **2017**, 56, 14396-14407	5.1	20
118	Solution-processed copper arsenic sulfide thin films for photovoltaic applications. *Journal of Materials Chemistry C*, **2017**, 5, 6913-6916	7.1	10
117	Fabrication of Copper Arsenic Sulfide Thin Films from Nanoparticles for Application in Solar Cells **2017**,		2
116	High-pressure vapor-phase hydrodeoxygenation of lignin-derived oxygenates to hydrocarbons by a PtMo bimetallic catalyst: Product selectivity, reaction pathway, and structural characterization. *Journal of Catalysis*, **2016**, 344, 535-552	7.3	47
115	Global optimization of multicomponent distillation configurations: 2. Enumeration based global minimization algorithm. *AICHE Journal*, **2016**, 62, 2071-2086	3.6	36
114	Solution-based synthesis and characterization of earth abundant Cu3(As,Sb)Se4 nanocrystal alloys: towards scalable room-temperature thermoelectric devices. *Journal of Materials Chemistry A*, **2016**, 4, 2198-2204	13	16
113	A commentary on the US policies for efficient large scale renewable energy storage systems: Focus on carbon storage cycles. *Energy Policy*, **2016**, 88, 477-484	7.2	22
112	Metal-metal chalcogenide molecular precursors to binary, ternary, and quaternary metal chalcogenide thin films for electronic devices. *Chemical Communications*, **2016**, 52, 5007-10	5.8	42
111	Optoelectronic and material properties of nanocrystal-based CZTSe absorbers with Ag-alloying. *Solar Energy Materials and Solar Cells*, **2016**, 145, 342-348	6.4	93
110	Thermal coupling links to liquid-only transfer streams: An enumeration method for new FTC dividing wall columns. *AICHE Journal*, **2016**, 62, 1200-1211	3.6	17
109	Generalized quantum efficiency analysis for non-ideal solar cells: Case of Cu2ZnSnSe4. *Journal of Applied Physics*, **2016**, 119, 014505	2.5	73
108	Inkjet printed Cu(In,Ga)S2 nanoparticles for low-cost solar cells. *Journal of Nanoparticle Research*, **2016**, 18, 1	2.3	18

107	The importance of band tail recombination on current collection and open-circuit voltage in CZTSSe solar cells. *Applied Physics Letters*, **2016**, 109, 021102	3.4	27
106	Solution-processed sulfur depleted Cu(In, Ga)Se2 solar cells synthesized from a monoamine□dithiol solvent mixture. *Journal of Materials Chemistry A*, **2016**, 4, 7390-7397	13	51
105	Controlled Grain Growth for High Performance Nanoparticle-Based Kesterite Solar Cells. *Chemistry of Materials*, **2016**, 28, 7703-7714	9.6	62
104	A direct solution deposition approach to CdTe thin films. *Journal of Materials Chemistry C*, **2016**, 4, 9167-9171	7.1	17
103	A Versatile Solution Route to Efficient Cu2ZnSn(S,Se)4 Thin-Film Solar Cells. *Chemistry of Materials*, **2015**, 27, 2114-2120	9.6	73
102	The role of interparticle heterogeneities in the selenization pathway of Cu□nSnS nanoparticle thin films: a real-time study. *Journal of Materials Chemistry C*, **2015**, 3, 7128-7134	7.1	17
101	Synthesis and Characterization of Copper Arsenic Sulfide Nanocrystals from Earth Abundant Elements for Solar Energy Conversion. *Chemistry of Materials*, **2015**, 27, 2290-2293	9.6	19
100	Synthesis of CZTSSe Thin Films from Nanocrystal Inks **2015**, 239-270		5
99	Solution-based synthesis and purification of zinc tin phosphide nanowires. *Nanoscale*, **2015**, 7, 19317-23	7.7	3
98	A synergistic biorefinery based on catalytic conversion of lignin prior to cellulose starting from lignocellulosic biomass. *Green Chemistry*, **2015**, 17, 1492-1499	10	299
97	Improved performance of Ge-alloyed CZTGeSSe thin-film solar cells through control of elemental losses. *Progress in Photovoltaics: Research and Applications*, **2015**, 23, 376-384	6.8	161
96	9.0% efficient Cu2ZnSn(S,Se)4 solar cells from selenized nanoparticle inks. *Progress in Photovoltaics: Research and Applications*, **2015**, 23, 654-659	6.8	191
95	Oxygen removal from intact biomass to produce liquid fuel range hydrocarbons via fast-hydropyrolysis and vapor-phase catalytic hydrodeoxygenation. *Green Chemistry*, **2015**, 17, 178-183	10	78
94	An in situ phosphorus source for the synthesis of Cu3P and the subsequent conversion to Cu3PS4 nanoparticle clusters. *Journal of Materials Research*, **2015**, 30, 3710-3716	2.5	9
93	Mass spectrometric studies of fast pyrolysis of cellulose. *European Journal of Mass Spectrometry*, **2015**, 21, 321-6	1.1	7
92	Integrated Solar Thermal Hydrogen and Power Coproduction Process for Continuous Power Supply and Production of Chemicals. *Computer Aided Chemical Engineering*, **2015**, 37, 2291-2296	0.6	4
91	Round-the-clock power supply and a sustainable economy via synergistic integration of solar thermal power and hydrogen processes. *Proceedings of the National Academy of Sciences of the United States of America*, **2015**, 112, 15821-6	11.5	12
90	A New Framework for Combining a Condenser and Reboiler in a Configuration To Consolidate Distillation Columns. *Industrial & Engineering Chemistry Research*, **2015**, 54, 10449-10464	3.9	8

89	Synthesis and characterization of 15% efficient CIGSSe solar cells from nanoparticle inks. *Progress in Photovoltaics: Research and Applications*, **2015**, 23, 1550-1556	6.8	92
88	Fast pyrolysis of 13C-labeled cellobioses: gaining insights into the mechanisms of fast pyrolysis of carbohydrates. *Journal of Organic Chemistry*, **2015**, 80, 1909-14	4.2	31
87	Tailoring Biomass for Biochemical, Chemical or Thermochemical Catalytic Conversion. *FASEB Journal*, **2015**, 29, 485.3	0.9	
86	Modified basic distillation configurations with intermediate sections for energy savings. *AICHE Journal*, **2014**, 60, 1091-1097	3.6	5
85	Cu2ZnSn(S,Se)4 solar cells from inks of heterogeneous Cu2ZnSnS nanocrystals. *Solar Energy Materials and Solar Cells*, **2014**, 123, 189-196	6.4	33
84	Kesterite Cu2ZnSn(S,Se)4 Absorbers Converted from Metastable, Wurtzite-Derived Cu2ZnSnS4 Nanoparticles. *Chemistry of Materials*, **2014**, 26, 3530-3534	9.6	49
83	High-pressure fast-pyrolysis, fast-hydropyrolysis and catalytic hydrodeoxygenation of cellulose: production of liquid fuel from biomass. *Green Chemistry*, **2014**, 16, 792	10	85
82	From shale gas to renewable energy based transportation solutions. *Energy Policy*, **2014**, 67, 499-507	7.2	11
81	Continuous baseload renewable power using chemical refrigeration cycles. *Computers and Chemical Engineering*, **2014**, 71, 591-601	4	1
80	Synthesis of (CuInS2)0.5(ZnS)0.5 Alloy Nanocrystals and Their Use for the Fabrication of Solar Cells via Selenization. *Chemistry of Materials*, **2014**, 26, 4060-4063	9.6	13
79	Conceptual Design of Zeotropic Distillation Processes **2014**, 271-303		6
78	Limiting and achievable efficiencies for solar thermal hydrogen production. *International Journal of Hydrogen Energy*, **2014**, 39, 62-75	6.7	14
77	Uninterrupted renewable power through chemical storage cycles. *Current Opinion in Chemical Engineering*, **2014**, 5, 29-36	5.4	15
76	Synergistic Biomass and Natural Gas Conversion to Liquid Fuel with Reduced CO2 Emissions. *Computer Aided Chemical Engineering*, **2014**, 525-530	0.6	4
75	Generalized current-voltage analysis and efficiency limitations in non-ideal solar cells: Case of Cu2ZnSn(SxSe1−x)4 and Cu2Zn(SnyGe1−y)(SxSe1−x)4. *Journal of Applied Physics*, **2014**, 115, 234504	2.5	57
74	Thermal coupling links to liquid-only transfer streams: A path for new dividing wall columns. *AICHE Journal*, **2014**, 60, 2949-2961	3.6	41
73	Synthesis of augmented biofuel processes using solar energy. *AICHE Journal*, **2014**, 60, 2533-2545	3.6	12
72	Compositional Inhomogeneity of Multinary Semiconductor Nanoparticles: A Case Study of Cu2ZnSnS4. *Chemistry of Materials*, **2014**, 26, 6955-6962	9.6	24

71	**2014**,		3
70	Continuous power supply from a baseload renewable power plant. *Applied Energy*, **2014**, 122, 83-93	10.7	36
69	Global optimization of multicomponent distillation configurations: 1. Need for a reliable global optimization algorithm. *AICHE Journal*, **2013**, 59, 971-981	3.6	22
68	Ink formulation and low-temperature incorporation of sodium to yield 12% efficient Cu(In,Ga)(S,Se)2 solar cells from sulfide nanocrystal inks. *Progress in Photovoltaics: Research and Applications*, **2013**, 21, 64-71	6.8	187
67	Sun-to-Fuel Assessment of Routes for Fixing CO2 as Liquid Fuel. *Industrial & Engineering Chemistry Research*, **2013**, 52, 5136-5144	3.9	46
66	Real-time observation of Cu2ZnSn(S,Se)4 solar cell absorber layer formation from nanoparticle precursors. *Physical Chemistry Chemical Physics*, **2013**, 15, 18281-9	3.6	79
65	High efficiency Cu2ZnSnS4 nanocrystal ink solar cells through improved nanoparticle synthesis and selenization **2013**,		1
64	New multicomponent distillation configurations with simultaneous heat and mass integration. *AICHE Journal*, **2013**, 59, 272-282	3.6	21
63	Universal statistics of parasitic shunt formation in solar cells, and its implications for cell to module efficiency gap. *Energy and Environmental Science*, **2013**, 6, 782	35.4	28
62	On-line mass spectrometric methods for the determination of the primary products of fast pyrolysis of carbohydrates and for their gas-phase manipulation. *Analytical Chemistry*, **2013**, 85, 10927-34	7.8	33
61	GWh Level Renewable Energy Storage and Supply using Liquid CO2. *Computer Aided Chemical Engineering*, **2013**, 32, 415-420	0.6	2
60	Analysis of temperature-dependent current-voltage characteristics for CIGSSe and CZTSSe thin film solar cells from nanocrystal inks **2013**,		5
59	Device comparison of champion nanocrystal-ink based CZTSSe and CIGSSe solar cells: Capacitance spectroscopy **2013**,		8
58	Chemical liquid deposition of CuInSe2 and CuIn(S,Se)2 films for solar cells. *Thin Solid Films*, **2012**, 520, 5431-5437	2.2	8
57	Reverse stress metastability of shunt current in CIGS solar cells **2012**,		4
56	Influence of Ge doping on defect distributions of Cu2Zn(Snx Ge1−x) (Sy Se1−y) fabricated by nanocrystal ink deposition with selenization **2012**,		1
55	**2012**,		5
54	Enhancing the performance of CZTSSe solar cells with Ge alloying. *Solar Energy Materials and Solar Cells*, **2012**, 105, 132-136	6.4	168

53	A synthesis method for multicomponent distillation sequences with fewer columns. *AICHE Journal*, **2012**, 58, 2479-2494	3.6	30
52	Economic analysis of novel synergistic biofuel (H2Bioil) processes. *Biomass Conversion and Biorefinery*, **2012**, 2, 141-148	2.3	21
51	Grain growth enhancement of selenide CIGSe nanoparticles to densified films using copper selenides **2012**,		4
50	A generalized and robust method for efficient thin film photovoltaic devices from multinary sulfide nanocrystal inks **2011**,		5
49	Earth Abundant Element Cu2Zn(Sn1Gex)S4 Nanocrystals for Tunable Band Gap Solar Cells: 6.8% Efficient Device Fabrication. *Chemistry of Materials*, **2011**, 23, 2626-2629	9.6	280
48	Formation pathway of CuInSe2 nanocrystals for solar cells. *Journal of the American Chemical Society* , **2011**, 133, 17239-47	16.4	90
47	Energy Systems Analysis for a Renewable Transportation Sector. *Computer Aided Chemical Engineering*, **2011**, 1889-1893	0.6	
46	CuIn(S,Se)2thin film solar cells from nanocrystal inks: Effect of nanocrystal precursors. *Thin Solid Films*, **2011**, 520, 523-528	2.2	25
45	Energy Efficiency Limitations of the Conventional Heat Integrated Distillation Column (HIDiC) Configuration for Binary Distillation*Industrial & Engineering Chemistry Research*, **2011**, 50, 119-130	3.9	65
44	Are All Thermal Coupling Links between Multicomponent Distillation Columns Useful from an Energy Perspective?. *Industrial & Engineering Chemistry Research*, **2011**, 50, 1770-1777	3.9	21
43	Solar energy to biofuels. *Annual Review of Chemical and Biomolecular Engineering*, **2010**, 1, 343-64	8.9	45
42	Fabrication of 7.2% efficient CZTSSe solar cells using CZTS nanocrystals. *Journal of the American Chemical Society*, **2010**, 132, 17384-6	16.4	836
41	Estimation of liquid fuel yields from biomass. *Environmental Science & Technology*, **2010**, 44, 5298-305	10.3	73
40	Chemical engineering in a solar energy-driven sustainable future. *AICHE Journal*, **2010**, 56, 2762-2768	3.6	15
39	Design of membrane cascades for gas separation. *Journal of Membrane Science*, **2010**, 364, 263-277	9.6	31
38	Synthesis of distillation configurations: I. Characteristics of a good search space. *Computers and Chemical Engineering*, **2010**, 34, 73-83	4	67
37	Synthesis of distillation configurations. II: A search formulation for basic configurations. *Computers and Chemical Engineering*, **2010**, 34, 84-95	4	54
36	Selenization of copper indium gallium disulfide nanocrystal films for thin film solar cells **2009**,		4

35	Synergistic routes to liquid fuel for a petroleum-deprived future. *AICHE Journal*, **2009**, 55, 1898-1905	3.6	56
34	A matrix method for multicomponent distillation sequences. *AICHE Journal*, **2009**, 56, 1759-1775	3.6	75
33	Synergy in the hybrid thermochemicalBiological processes for liquid fuel production. *Computers and Chemical Engineering*, **2009**, 33, 2012-2017	4	12
32	Sulfide nanocrystal inks for dense Cu(In1-xGa(x))(S1-ySe(y))2 absorber films and their photovoltaic performance. *Nano Letters*, **2009**, 9, 3060-5	11.5	347
31	Synthesis of Cu2ZnSnS4 nanocrystal ink and its use for solar cells. *Journal of the American Chemical Society*, **2009**, 131, 11672-3	16.4	677
30	Development of CuInSe2 nanocrystal and nanoring inks for low-cost solar cells. *Nano Letters*, **2008**, 8, 2982-7	11.5	508
29	Sustainable fuel for the transportation sector. *Proceedings of the National Academy of Sciences of the United States of America*, **2007**, 104, 4828-33	11.5	165
28	Hydrogen economy - an opportunity for chemical engineers?. *AICHE Journal*, **2005**, 51, 1582-1589	3.6	43
27	Synthesis of multicomponent distillation column configurations. *AICHE Journal*, **2003**, 49, 379-401	3.6	98
26	Separations: Perspective of a process developer/designer. *AICHE Journal*, **2001**, 47, 967-971	3.6	20
25	Multicomponent thermally coupled systems of distillation columns at minimum reflux. *AICHE Journal*, **2001**, 47, 2713-2724	3.6	46
24	Multicomponent Distillation Columns with Partitions and Multiple Reboilers and Condensers. *Industrial & Engineering Chemistry Research*, **2001**, 40, 4258-4266	3.9	44
23	Thermally coupled distillation with reduced number of intercolumn vapor transfers. *AICHE Journal*, **2000**, 46, 2198-2210	3.6	79
22	Multieffect distillation for thermally coupled configurations. *AICHE Journal*, **2000**, 46, 2211-2224	3.6	36
21	New thermally coupled schemes for ternary distillation. *AICHE Journal*, **1999**, 45, 485-496	3.6	80
20	Thermodynamically Efficient Systems for Ternary Distillation. *Industrial & Engineering Chemistry Research*, **1999**, 38, 2065-2074	3.9	18
19	Improved direct and indirect systems of columns for ternary distillation. *AICHE Journal*, **1998**, 44, 823-830	3.6	15
18	Efficient use of an intermediate reboiler or condenser in a binary distillation. *AICHE Journal*, **1998**, 44, 1303-1315	3.6	29

17	Intermediate reboiler and condenser arrangement for binary distillation columns. *AICHE Journal*, **1998**, 44, 1316-1324	3.6	30
16	More operable arrangements of fully thermally coupled distillation columns. *AICHE Journal*, **1998**, 44, 2565-2568	3.6	97
15	Are Thermally Coupled Distillation Columns Always Thermodynamically More Efficient for Ternary Distillations?. *Industrial & Engineering Chemistry Research*, **1998**, 37, 3444-3454	3.9	111
14	Optimal thermodynamic feed conditions for distillation of ideal binary mixtures. *AICHE Journal*, **1997**, 43, 2984-2996	3.6	39
13	A simplified method for the synthesis of gas separation membrane cascades with limited numbers of compressors. *Chemical Engineering Science*, **1997**, 52, 1029-1044	4.4	18
12	On the Use of Intermediate Reboilers in the Rectifying Section and Condensers in the Stripping Section of a Distillation Column. *Industrial & Engineering Chemistry Research*, **1996**, 35, 2801-2807	3.9	35
11	Membrane Cascade Schemes for Multicomponent Gas Separation. *Industrial & Engineering Chemistry Research*, **1996**, 35, 3607-3617	3.9	13
10	Synthesis of Distillation Column Configurations for a Multicomponent Separation. *Industrial & Engineering Chemistry Research*, **1996**, 35, 1059-1071	3.9	145
9	Membrane separation process analysis and design strategies based on thermodynamic efficiency of permeation. *Chemical Engineering Science*, **1996**, 51, 365-385	4.4	22
8	Prefractionation to reduce energy consumption in distillation without changing utility temperatures. *AICHE Journal*, **1996**, 42, 2118-2127	3.6	2
7	Gas-separation membrane cascades utilizing limited numbers of compressors. *AICHE Journal*, **1996**, 42, 2141-2154	3.6	19
6	Gas separation membrane cascades I. One-compressor cascades with minimal exergy losses due to mixing. *Journal of Membrane Science*, **1996**, 112, 115-128	9.6	28
5	Gas separation membrane cascades II. Two-compressor cascades. *Journal of Membrane Science*, **1996**, 112, 129-146	9.6	27
4	Utilization of Waste Heat Stream in Distillation. *Industrial & Engineering Chemistry Research*, **1995**, 34, 1287-1293	3.9	15
3	Heat Pumps for Thermally Linked Distillation Columns: An Exercise for Argon Production from Air. *Industrial & Engineering Chemistry Research*, **1994**, 33, 2717-2730	3.9	16
2	Production of medium pressure nitrogen by cryogenic air separation. *Separation and Purification Technology*, **1991**, 5, 203-209		5
1	Extrinsic Doping of Ink-Based Cu(In,Ga)(S,Se) 2 -Absorbers for Photovoltaic Applications. *Advanced Energy Materials*,2103961	21.8	4