

Rajnish Kumar

List of Publications by Year in descending order

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111
papers

7,850
citations

53660

45
h-index

49773

87
g-index

113
all docs

113
docs citations

113
times ranked

2781
citing authors

#	ARTICLE	IF	CITATIONS
1	A review of the hydrate based gas separation (HBGS) process for carbon dioxide pre-combustion capture. <i>Energy</i> , 2015, 85, 261-279.	4.5	481
2	The clathrate hydrate process for post and pre-combustion capture of carbon dioxide. <i>Journal of Hazardous Materials</i> , 2007, 149, 625-629.	6.5	467
3	Hydrogen storage in clathrate hydrates: Current state of the art and future directions. <i>Applied Energy</i> , 2014, 122, 112-132.	5.1	337
4	Synthesis of biodiesel in supercritical fluids. <i>Fuel</i> , 2004, 83, 2029-2033.	3.4	334
5	Gas hydrate formation from hydrogen/carbon dioxide and nitrogen/carbon dioxide gas mixtures. <i>Chemical Engineering Science</i> , 2007, 62, 4268-4276.	1.9	329
6	Role of Surfactants in Promoting Gas Hydrate Formation. <i>Industrial & Engineering Chemistry Research</i> , 2015, 54, 12217-12232.	1.8	326
7	Rapid methane hydrate formation to develop a cost effective large scale energy storage system. <i>Chemical Engineering Journal</i> , 2016, 290, 161-173.	6.6	261
8	A new apparatus to enhance the rate of gas hydrate formation: Application to capture of carbon dioxide. <i>International Journal of Greenhouse Gas Control</i> , 2010, 4, 630-637.	2.3	255
9	Pre-combustion capture of carbon dioxide in a fixed bed reactor using the clathrate hydrate process. <i>Energy</i> , 2013, 50, 364-373.	4.5	222
10	Influence of contact medium and surfactants on carbon dioxide clathrate hydrate kinetics. <i>Fuel</i> , 2013, 105, 664-671.	3.4	214
11	An innovative approach to enhance methane hydrate formation kinetics with leucine for energy storage application. <i>Applied Energy</i> , 2017, 188, 190-199.	5.1	180
12	Enhanced clathrate hydrate formation kinetics at near ambient temperatures and moderate pressures: Application to natural gas storage. <i>Fuel</i> , 2016, 182, 907-919.	3.4	173
13	Capture of carbon dioxide from flue or fuel gas mixtures by clathrate crystallization in a silica gel column. <i>International Journal of Greenhouse Gas Control</i> , 2010, 4, 478-485.	2.3	162
14	Structure and kinetics of gas hydrates from methane/ethane/propane mixtures relevant to the design of natural gas hydrate storage and transport facilities. <i>AIChE Journal</i> , 2008, 54, 2132-2144.	1.8	151
15	Structure and composition of CO ₂ /H ₂ and CO ₂ /H ₂ /C ₃ H ₈ hydrate in relation to simultaneous CO ₂ capture and H ₂ production. <i>AIChE Journal</i> , 2009, 55, 1584-1594.	1.8	131
16	Unusual behavior of propane as a co-guest during hydrate formation in silica sand: Potential application to seawater desalination and carbon dioxide capture. <i>Chemical Engineering Science</i> , 2014, 117, 342-351.	1.9	131
17	Carbon Dioxide Sequestration: Influence of Porous Media on Hydrate Formation Kinetics. <i>ACS Sustainable Chemistry and Engineering</i> , 2015, 3, 1205-1214.	3.2	130
18	HBGS (hydrate based gas separation) process for carbon dioxide capture employing an unstirred reactor with cyclopentane. <i>Energy</i> , 2013, 63, 252-259.	4.5	125

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19	Incipient hydrate phase equilibrium for gas mixtures containing hydrogen, carbon dioxide and propane. <i>Fluid Phase Equilibria</i> , 2006, 244, 167-171.	1.4	117
20	Energy recovery from simulated clayey gas hydrate reservoir using depressurization by constant rate gas release, thermal stimulation and their combinations. <i>Applied Energy</i> , 2018, 225, 755-768.	5.1	117
21	Effect of the amino acid L-histidine on methane hydrate growth kinetics. <i>Journal of Natural Gas Science and Engineering</i> , 2016, 35, 1453-1462.	2.1	114
22	Medium pressure hydrate based gas separation (HBGS) process for pre-combustion capture of carbon dioxide employing a novel fixed bed reactor. <i>International Journal of Greenhouse Gas Control</i> , 2013, 17, 206-214.	2.3	107
23	Systematic Evaluation of Tetra- <i>n</i> -butyl Ammonium Bromide (TBAB) for Carbon Dioxide Capture Employing the Clathrate Process. <i>Industrial & Engineering Chemistry Research</i> , 2014, 53, 4878-4887.	1.8	104
24	Ammonia clathrate hydrates as new solid phases for Titan, Enceladus, and other planetary systems. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2012, 109, 14785-14790.	3.3	99
25	Two-Stage Clathrate Hydrate/Membrane Process for Precombustion Capture of Carbon Dioxide and Hydrogen. <i>Journal of Environmental Engineering, ASCE</i> , 2009, 135, 411-417.	0.7	92
26	A New Porous Material to Enhance the Kinetics of Clathrate Process: Application to Precombustion Carbon Dioxide Capture. <i>Environmental Science & Technology</i> , 2013, 47, 13191-13198.	4.6	91
27	Methane hydrate formation in a test sediment of sand and clay at various levels of water saturation. <i>Canadian Journal of Chemistry</i> , 2015, 93, 874-881.	0.6	91
28	Morphology of Carbon Dioxide-Hydrogen-Cyclopentane Hydrates with or without Sodium Dodecyl Sulfate. <i>Crystal Growth and Design</i> , 2013, 13, 2047-2059.	1.4	86
29	Enhanced carbon dioxide hydrate formation kinetics in a fixed bed reactor filled with metallic packing. <i>Chemical Engineering Science</i> , 2015, 122, 78-85.	1.9	80
30	Comprehensive Review on Exploration and Drilling Techniques for Natural Gas Hydrate Reservoirs. <i>Energy & Fuels</i> , 2020, 34, 11813-11839.	2.5	76
31	Multiple H ₂ Occupancy of Cages of Clathrate Hydrate under Mild Conditions. <i>Journal of the American Chemical Society</i> , 2012, 134, 9160-9162.	6.6	75
32	Enzymatic Synthesis of Ethyl Palmitate in Supercritical Carbon Dioxide. <i>Industrial & Engineering Chemistry Research</i> , 2004, 43, 1568-1573.	1.8	70
33	Kinetic inhibitor effects on methane/propane clathrate hydrate-crystal growth at the gas/water and water/ <i>n</i> -heptane interfaces. <i>Journal of Crystal Growth</i> , 2008, 310, 1154-1166.	0.7	68
34	Application of the ATR-IR Spectroscopic Technique to the Characterization of Hydrates Formed by CO ₂ , CO ₂ /H ₂ and CO ₂ /H ₂ /C ₃ H ₈ . <i>Journal of Physical Chemistry A</i> , 2009, 113, 6308-6313.	1.1	68
35	Hydrate phase equilibrium of ternary gas mixtures containing carbon dioxide, hydrogen and propane. <i>Journal of Chemical Thermodynamics</i> , 2013, 61, 58-63.	1.0	67
36	Thermodynamic and Kinetic Verification of Tetra- <i>n</i> -butyl Ammonium Nitrate (TBANO ₃) as a Promoter for the Clathrate Process Applicable to Precombustion Carbon Dioxide Capture. <i>Environmental Science & Technology</i> , 2014, 48, 3550-3558.	4.6	67

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37	Tuning the Composition of Guest Molecules in Clathrate Hydrates: NMR Identification and Its Significance to Gas Storage. <i>Chemistry - an Asian Journal</i> , 2009, 4, 1266-1274.	1.7	65
38	Biosurfactant as a Promoter of Methane Hydrate Formation: Thermodynamic and Kinetic Studies. <i>Scientific Reports</i> , 2016, 6, 20893.	1.6	64
39	Alleviation of Foam Formation in a Surfactant Driven Gas Hydrate System: Insights via a Detailed Morphological Study. <i>ACS Applied Energy Materials</i> , 2018, 1, 6899-6911.	2.5	64
40	Enhanced kinetics for the clathrate process in a fixed bed reactor in the presence of liquid promoters for pre-combustion carbon dioxide capture. <i>Energy</i> , 2014, 70, 664-673.	4.5	61
41	Experimental Investigation To Elucidate Why Tetrahydrofuran Rapidly Promotes Methane Hydrate Formation Kinetics: Applicable to Energy Storage. <i>Journal of Physical Chemistry C</i> , 2016, 120, 29062-29068.	1.5	57
42	Kinetic promotion of methane hydrate formation by combining anionic and silicone surfactants: Scalability promise of methane storage due to prevention of foam formation. <i>Journal of Chemical Thermodynamics</i> , 2018, 117, 248-255.	1.0	52
43	Influence of Low-Dosage Hydrate Inhibitors on Methane Clathrate Hydrate Formation and Dissociation Kinetics. <i>Energy Technology</i> , 2015, 3, 717-725.	1.8	50
44	Hydrate phase equilibrium data of mixed methane-tetrahydrofuran hydrates in saline water. <i>Journal of Chemical Thermodynamics</i> , 2018, 117, 2-8.	1.0	50
45	Molecular level investigations and stability analysis of mixed methane-tetrahydrofuran hydrates: Implications to energy storage. <i>Fuel</i> , 2019, 236, 1505-1511.	3.4	50
46	Gas Hydrate-Based Process for Desalination of Heavy Metal Ions from an Aqueous Solution: Kinetics and Rate of Recovery. <i>ACS ES&T Water</i> , 2021, 1, 134-144.	2.3	49
47	Rapid methane storage via sll hydrates at ambient temperature. <i>Applied Energy</i> , 2020, 269, 115142.	5.1	49
48	Direct use of seawater for rapid methane storage via clathrate (sll) hydrates. <i>Applied Energy</i> , 2019, 235, 21-30.	5.1	48
49	Effect of Sodium Dodecyl Sulfate Surfactant on Methane Hydrate Formation: A Molecular Dynamics Study. <i>Journal of Physical Chemistry B</i> , 2018, 122, 6536-6542.	1.2	47
50	Clathrate hydrates in interstellar environment. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2019, 116, 1526-1531.	3.3	44
51	Effect of the chain length of the acid on the enzymatic synthesis of flavors in supercritical carbon dioxide. <i>Biochemical Engineering Journal</i> , 2005, 23, 199-202.	1.8	43
52	Role of Metallic Packing and Kinetic Promoter in Designing a Hydrate-Based Gas Separation Process. <i>Energy & Fuels</i> , 2015, 29, 4463-4471.	2.5	41
53	Impact of Fly Ash Impurity on the Hydrate-Based Gas Separation Process for Carbon Dioxide Capture from a Flue Gas Mixture. <i>Industrial & Engineering Chemistry Research</i> , 2014, 53, 9849-9859.	1.8	40
54	Hydrothermal liquefaction of municipal solid wastes for high quality bio-crude production using glycerol as co-solvent. <i>Bioresource Technology</i> , 2021, 339, 125537.	4.8	39

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55	Performance enhancement of hydrothermal liquefaction for strategic and sustainable valorization of de-oiled yeast biomass into green bio-crude. <i>Journal of Cleaner Production</i> , 2019, 227, 292-301.	4.6	38
56	Heat Transfer Calculations for Decomposition of Structure I Methane Hydrates by Molecular Dynamics Simulation. <i>Journal of Physical Chemistry C</i> , 2013, 117, 12172-12182.	1.5	36
57	Effects of Micellization on Growth Kinetics of Methane Hydrate. <i>Industrial & Engineering Chemistry Research</i> , 2017, 56, 3687-3698.	1.8	36
58	Dissolution of sulphur particles by <i>Thiobacillus ferrooxidans</i> : Substrate for unattached cells. <i>Biotechnology and Bioengineering</i> , 1993, 41, 612-616.	1.7	35
59	Effect of polyvinylpyrrolidone at methane hydrate-liquid water interface. Application in flow assurance and natural gas hydrate exploitation. <i>Fuel</i> , 2016, 186, 613-622.	3.4	35
60	Hydrogen Economy and Role of Hythane as a Bridging Solution: A Perspective Review. <i>Energy & Fuels</i> , 2021, 35, 15424-15454.	2.5	33
61	Effect of additives on formation and decomposition kinetics of methane clathrate hydrates: Application in energy storage and transportation. <i>Canadian Journal of Chemical Engineering</i> , 2016, 94, 2160-2167.	0.9	30
62	Impact of experimental pressure and temperature on semiclathrate hydrate formation for pre-combustion capture of CO ₂ using tetra-n-butyl ammonium nitrate. <i>Energy</i> , 2014, 78, 458-464.	4.5	29
63	Seawater based mixed methane-THF hydrate formation at ambient temperature conditions. <i>Applied Energy</i> , 2020, 271, 115158.	5.1	29
64	A molecular dynamics study of model SI clathrate hydrates: the effect of guest size and guest-water interaction on decomposition kinetics. <i>Physical Chemistry Chemical Physics</i> , 2015, 17, 9509-9518.	1.3	28
65	Methane recovery from marine gas hydrates: A bench scale study in presence of low dosage benign additives. <i>Applied Energy</i> , 2019, 253, 113566.	5.1	26
66	A comparison of different water models for melting point calculation of methane hydrate using molecular dynamics simulations. <i>Chemical Physics</i> , 2019, 516, 6-14.	0.9	25
67	Synthesis of Octyl Palmitate in Various Supercritical Fluids. <i>Industrial & Engineering Chemistry Research</i> , 2004, 43, 7697-7701.	1.8	24
68	Investigation of the kinetics of mixed methane hydrate formation kinetics in saline and seawater. <i>Applied Energy</i> , 2019, 253, 113515.	5.1	23
69	Sodium Dodecyl Sulfate Preferentially Promotes Enclathration of Methane in Mixed Methane-Tetrahydrofuran Hydrates. <i>IScience</i> , 2019, 14, 136-146.	1.9	23
70	Effect of Cyclooctane and L-Tryptophan on Hydrate Formation from an Equimolar CO ₂ -CH ₄ Gas Mixture Employing a Horizontal-Tray Packed Bed Reactor. <i>Energy & Fuels</i> , 2020, 34, 9840-9851.	2.5	23
71	Separation of coal mine methane gas mixture via sII and sH hydrate formation. <i>Fuel</i> , 2021, 305, 121467.	3.4	23
72	Solidified Hydrogen Storage (Solid-HyStore) via Clathrate Hydrates. <i>Chemical Engineering Journal</i> , 2022, 431, 133702.	6.6	21

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73	Molecular dynamics study on growth of carbon dioxide and methane hydrate from a seed crystal. Chinese Journal of Chemical Engineering, 2019, 27, 2074-2080.	1.7	20
74	A Comprehensive Review on Well Completion Operations and Artificial Lift Techniques for Methane Gas Production from Natural Gas Hydrate Reservoirs. Energy & Fuels, 2021, 35, 11740-11760.	2.5	20
75	A systematic molecular investigation on Sodium Dodecyl Benzene Sulphonate (SDBS) as a Low Dosage Hydrate Inhibitor (LDHI) and the role of Benzene Ring in the structure. Journal of Molecular Liquids, 2021, 337, 116374.	2.3	19
76	The Biosurfactant Surfactin as a Kinetic Promoter for Methane Hydrate Formation. Energy Procedia, 2017, 105, 5011-5017.	1.8	18
77	Molecular View of CO ₂ Capture by Polyethylenimine: Role of Structural and Dynamical Heterogeneity. Langmuir, 2018, 34, 5138-5148.	1.6	18
78	A review of clathrate hydrate nucleation, growth and decomposition studied using molecular dynamics simulation. Journal of Molecular Liquids, 2022, 348, 118025.	2.3	17
79	Effect of Methylamine, Amylamine, and Decylamine on the Formation and Dissociation Kinetics of CO ₂ Hydrate Relevant for Carbon Dioxide Sequestration. Industrial & Engineering Chemistry Research, 2022, 61, 2672-2684.	1.8	17
80	Low-Pressure Synthesis and Characterization of Hydrogen-Filled Ice. Angewandte Chemie - International Edition, 2013, 52, 1531-1534.	7.2	16
81	Molecular Dynamics Simulation and Experimental Study on the Growth of Methane Hydrate in Presence of Methanol and Sodium Chloride. Energy Procedia, 2017, 105, 5026-5033.	1.8	16
82	Macro and Molecular Level Insights on Gas Hydrate Growth in the Presence of Hofmeister Salts. Industrial & Engineering Chemistry Research, 2020, 59, 20591-20600.	1.8	16
83	Crystallization kinetics for carbon dioxide gas hydrate in fixed bed and stirred tank reactor. Korean Journal of Chemical Engineering, 2016, 33, 1922-1930.	1.2	15
84	Impact of H ₂ S Impurity on Carbon Dioxide Hydrate Formation Kinetics in Fixed Bed Arrangements. Industrial & Engineering Chemistry Research, 2016, 55, 7964-7972.	1.8	15
85	Kinetic and Morphology Study of Equimolar CO ₂ -CH ₄ Hydrate Formation in the Presence of Cyclooctane and L-Tryptophan. Energy & Fuels, 2021, 35, 636-648.	2.5	15
86	Investigation on the effect of oxalic acid, succinic acid and aspartic acid on the gas hydrate formation kinetics. Chinese Journal of Chemical Engineering, 2019, 27, 2148-2156.	1.7	14
87	Kinetics of Methane Hydrate Formation in the Presence of 1-Dodecyl-2-pyrrolidinone and Tetrahydrofuran in Pure Water. Industrial & Engineering Chemistry Research, 2021, 60, 7588-7598.	1.8	14
88	Effects of Biosurfactants on Gas Hydrates. Journal of Petroleum & Environmental Biotechnology, 2014, 5, .	0.3	13
89	Kinetic promotion of mixed methane-THF hydrate by additives: Opportune to energy storage. Energy Procedia, 2019, 158, 5287-5292.	1.8	12
90	High-Pressure Rheology of Methane Hydrate Sediment Slurry Using a Modified Couette Geometry. Industrial & Engineering Chemistry Research, 2020, 59, 4079-4092.	1.8	12

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91	CO ₂ –CH ₄ Hydrate Formation Using L-Tryptophan and Cyclooctane Employing a Conventional Stirred Tank Reactor. Energy & Fuels, 2021, 35, 13224-13239.	2.5	11
92	Effect of shape of protrusions and roughness on the hydrophilicity of a surface. Chemical Physics Letters, 2017, 685, 34-39.	1.2	10
93	Morphology and dynamics of self-assembled structures in mixed surfactant systems (SDS+CAPB) in the context of methane hydrate growth. Journal of Molecular Liquids, 2020, 319, 114296.	2.3	10
94	In Situ Characterization of Mixed CH ₄ –THF Hydrates Formed from Seawater: High-Pressure Calorimetric and Spectroscopic Analysis. Journal of Physical Chemistry C, 2021, 125, 16435-16443.	1.5	10
95	Modeling Growth Kinetics of Methane Hydrate in Stirred Tank Batch Reactors. ACS Engineering Au, 0, , .	2.3	10
96	Effect of sodium tripolyphosphate (STPP) and tetrasodium pyrophosphate (TSPP) on the formation kinetics of CO ₂ hydrate in bulk and porous media in the presence of pure water and seawater relevant for CO ₂ sequestration. International Journal of Greenhouse Gas Control, 2022, 114, 103564.	2.3	10
97	Rhamnolipids produced by Pseudomonas aeruginosa promotes methane hydrates formation in fixed bed silica gel medium. Marine Geophysical Researches, 2021, 42, 1.	0.5	9
98	The Impact of Pressure and Temperature on Tetra-n-butyl Ammonium Bromide Semi-clathrate Process for Carbon Dioxide Capture. Energy Procedia, 2014, 61, 1780-1783.	1.8	8
99	In Operando Generation and Storage of Hydrogen by Coupling Monolithically Integrated Photoelectrochemical Cell with Clathrate Hydrates Molecular Storage. ACS Applied Energy Materials, 2020, 3, 6834-6844.	2.5	7
100	Molecular Insights About Gas Hydrate Formation. Springer Proceedings in Physics, 2019, , 311-322.	0.1	7
101	Carbon Dioxide Capture from Flue Gas Using Tri-Sodium Phosphate as an Effective Sorbent. Energies, 2019, 12, 2889.	1.6	6
102	Reply to Choukroun et al.: IR and TPD data suggest the formation of clathrate hydrates in laboratory experiments simulating ISM. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 14409-14410.	3.3	5
103	Pre and Post Combustion Capture of Carbon Dioxide via Hydrate Formation. , 2006, , .		4
104	Gas Hydrates. Encyclopedia of Earth Sciences Series, 2018, , 535-541.	0.1	3
105	Formation and Dissociation Kinetics in Simulated Hydrate Bearing Reservoir. Current Environmental Engineering, 2018, 5, 78-85.	0.6	2
106	Combination of Silica Gel and Surfactin Promoting Methane Hydrate Formation. Journal of Energy Resources Technology, Transactions of the ASME, 2021, 143, .	1.4	2
107	Role of Rhamnolipid: A Biosurfactant in Methane Gas Hydrate Formation Kinetics. Springer Proceedings in Energy, 2016, , 333-343.	0.2	1
108	Natural Gas Hydrates: Energy Locked in Cages. Clean Energy Production Technologies, 2022, , 155-171.	0.3	1

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109	Methane hydrate dissociation in the presence of novel benign additives. Energy Procedia, 2019, 158, 5856-5865.	1.8	0
110	Rapid Methane Storage in Seawater Via Clathrate Hydrates. SSRN Electronic Journal, 0, , .	0.4	0
111	Hydrate-Based Desalination Technology: A Sustainable Approach. Clean Energy Production Technologies, 2022, , 193-205.	0.3	0