Phillip Servio

List of Publications by Year
in descending order

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88 papers	2,515 citations	159585 30 h-index	214800 47 g-index
88 all docs	88 docs citations	88 times ranked	1560 citing authors

#	Article	IF	Citations
1	Measurement of Dissolved Methane in Water in Equilibrium with Its Hydrate. Journal of Chemical & Engineering Data, 2002, 47, 87-90.	1.9	176
2	Effect of temperature and pressure on the solubility of carbon dioxide in water in the presence of gas hydrate. Fluid Phase Equilibria, 2001, 190, 127-134.	2.5	152
3	Morphology of methane and carbon dioxide hydrates formed from water droplets. AICHE Journal, 2003, 49, 269-276.	3.6	134
4	Reducing Ice Adhesion on Nonsmooth Metallic Surfaces: Wettability and Topography Effects. ACS Applied Materials & Interfaces, 2016, 8, 8789-8800.	8.0	111
5	Introducing a new optimization tool for femtosecond laser-induced surface texturing on titanium, stainless steel, aluminum and copper. Optics and Lasers in Engineering, 2015, 66, 258-268.	3.8	101
6	Investigating the effects of hydrophobic and hydrophilic multi-wall carbon nanotubes on methane hydrate growth kinetics. Chemical Engineering Science, 2013, 104, 998-1002.	3.8	82
7	Surfactant Effects on Crystal Growth Dynamics and Crystal Morphology of Methane Hydrate Formed at Gas/Liquid Interface. Crystal Growth and Design, 2016, 16, 6084-6088.	3.0	65
8	The effect of biological and polymeric inhibitors on methane gas hydrate growth kinetics. Fluid Phase Equilibria, 2008, 267, 92-98.	2.5	64
9	Morphological Investigations of Methaneâ˜Hydrate Films Formed on a Glass Surface. Crystal Growth and Design, 2010, 10, 4339-4347.	3.0	63
10	Surfactant effects on methane solubility and mole fraction during hydrate growth. Chemical Engineering Science, 2012, 84, 80-84.	3.8	63
11	Investigating and understanding the effects of multiple femtosecond laser scans on the surface topography of stainless steel 304 and titanium. Applied Surface Science, 2015, 353, 512-521.	6.1	59
12	Prediction of methane and carbon dioxide solubility in water in the presence of hydrate. Fluid Phase Equilibria, 2006, 246, 131-136.	2.5	58
13	Morphology Study of Structure I Methane Hydrate Formation and Decomposition of Water Droplets in the Presence of Biological and Polymeric Kinetic Inhibitors. Crystal Growth and Design, 2009, 9, 3014-3023.	3.0	56
14	Gas Hydrate Growth Model in a Semibatch Stirred Tank Reactor. Industrial & Engineering Chemistry Research, 2007, 46, 5907-5912.	3.7	54
15	Morphology Study of Structure H Hydrate Formation from Water Droplets. Crystal Growth and Design, 2003, 3, 61-66.	3.0	45
16	Reaction rate constant of propane hydrate formation. Fluid Phase Equilibria, 2008, 265, 30-36.	2.5	44
17	Solubility measurements for the CH4 + CO2 + H2O system under hydrateâ€“liquidâ€“vapor equilibrium. Fluid Phase Equilibria, 2010, 296, 106-109.	2.5	44
18	Vaporâ˜Liquid Waterâ˜Hydrate Equilibrium Data for the System N₂ + CO₂ + H₂O. Journal of Chemical & Engineering Data, 2008, 53, 2594-2597.	1.9	43

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19	Gasâ€“liquid mass transfer in a slurry bubble column operated at gas hydrate forming conditions. Chemical Engineering Science, 2009, 64, 3709-3716.	3.8	42
20	New insights into the effect of polyvinylpyrrolidone (PVP) concentration on methane hydrate growth. 2. Liquid phase methane mole fraction. Chemical Engineering Science, 2015, 126, 91-98.	3.8	41
21	Ideal Strength of Methane Hydrate and Ice I_h from First-Principles. Crystal Growth and Design, 2015, 15, 5301-5309.	3.0	39
22	Equilibrium Studies for the System Methane + Carbon Dioxide + Neohexane + Water. Journal of Chemical & Engineering Data, 2008, 53, 1745-1749.	1.9	38
23	Reaction rate constant of methane clathrate formation. Fuel, 2010, 89, 294-301.	6.4	37
24	CO2 and CH4 mole fraction measurements during hydrate growth in a semi-batch stirred tank reactor and its significance to kinetic modeling. Fluid Phase Equilibria, 2009, 276, 150-155.	2.5	35
25	Ab initioDFT study of structural and mechanical properties of methane and carbon dioxide hydrates. Molecular Simulation, 2015, 41, 572-579.	2.0	35
26	Kinetics of carbon dioxide gas hydrates with tetrabutylammonium bromide and functionalized multi-walled carbon nanotubes. Energy, 2017, 128, 414-420.	8.8	34
27	Reaction rate constant of CO₂ hydrate formation and verification of old premises pertaining to hydrate growth kinetics. AIChE Journal, 2008, 54, 2964-2970.	3.6	32
28	Measurement of Dissolved Propane in Water in the Presence of Gas Hydrate. Journal of Chemical & Engineering Data, 2007, 52, 1449-1451.	1.9	31
29	Phase equilibria, solubility and modeling study of CO 2 /CH 4 + tetra- n -butylammonium bromide aqueous semi-clathrate systems. Fluid Phase Equilibria, 2015, 388, 160-168.	2.5	31
30	Atomistic modeling of structure II gas hydrate mechanics: Compressibility and equations of state. AIP Advances, 2016, 6, .	1.3	31
31	Evaluating Surfactants and Their Effect on Methane Mole Fraction during Hydrate Growth. Industrial & Engineering Chemistry Research, 2012, 51, 13144-13149.	3.7	30
32	Profiling the Concentration of the Kinetic Inhibitor Polyvinylpyrrolidone throughout the Methane Hydrate Formation Process. Energy & Fuels, 2015, 29, 2329-2335.	5.1	28
33	The Effect of Hydrophilic and Hydrophobic Multi-Wall Carbon Nanotubes on Methane Dissolution Rates in Water at Three Phase Equilibrium (Vâ^'L_wâ^'H) Conditions. Industrial & Engineering Chemistry Research, 2014, 53, 14519-14525.	3.7	27
34	New insights into the effect of polyvinylpyrrolidone (PVP) concentration on methane hydrate growth. 1. Growth rate. Chemical Engineering Science, 2015, 126, 99-105.	3.8	26
35	Effects of As-Produced and Amine-Functionalized Multi-Wall Carbon Nanotubes on Carbon Dioxide Hydrate Formation. Energy & Fuels, 2015, 29, 5259-5266.	5.1	25
36	Molecular Dynamics Characterization of Temperature and Pressure Effects on the Water-Methane Interface. Colloids and Interface Science Communications, 2018, 24, 75-81.	4.1	24

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37	Characterization of nucleation of methane hydrate crystals: Interfacial theory and molecular simulation. Journal of Colloid and Interface Science, 2019, 557, 556-567.	9.4	21
38	Molecular dynamics characterization of the water-methane, ethane, and propane gas mixture interfaces. Chemical Engineering Science, 2019, 208, 114769.	3.8	20
39	Dynamic viscosity of methane and carbon dioxide hydrate systems from pure water at high-pressure driving forces. Chemical Engineering Science, 2022, 252, 117282.	3.8	20
40	Incipient Equilibrium Propane Hydrate Formation Conditions in Aqueous Triethylene Glycol Solutions. Journal of Chemical & Engineering Data, 1997, 42, 800-801.	1.9	19
41	Poly(styrene/pentafluorostyrene)â€blockâ€poly(vinyl alcohol/vinylpyrrolidone) amphiphilic block copolymers for kinetic gas hydrate inhibitors: Synthesis, micellization behavior, and methane hydrate kinetic inhibition. Journal of Polymer Science Part A, 2018, 56, 2445-2457.	2.3	18
42	Multiscale Modeling and Simulation of Water and Methane Hydrate Crystal Interface. Crystal Growth and Design, 2019, 19, 5142-5151.	3.0	18
43	Elastic properties and anisotropic behavior of structure-H (sH) gas hydrate from first principles. Chemical Engineering Science, 2020, 227, 115948.	3.8	18
44	Fractal and Lacunarity Analyses: Quantitative Characterization of Hierarchical Surface Topographies. Microscopy and Microanalysis, 2016, 22, 168-177.	0.4	17
45	Role of induction time on carbon dioxide and methane gas hydrate kinetics. Journal of Natural Gas Science and Engineering, 2017, 43, 81-89.	4.4	16
46	Effects of Hydrophobic and Hydrophilic Graphene Nanoflakes on Methane Hydrate Kinetics. Energy & Fuels, 2019, 33, 11705-11711.	5.1	15
47	Structural properties of sH hydrate: a DFT study of anisotropy and equation of state. Molecular Simulation, 2019, 45, 1524-1537.	2.0	15
48	Stressâ€Sensor Device Based on Flexoelectric Liquid Crystalline Membranes. ChemPhysChem, 2014, 15, 1405-1412.	2.1	14
49	Behavior of Surface-Functionalized Multiwall Carbon Nanotube Nanofluids during Phase Change from Liquid Water to Solid Ice. Crystal Growth and Design, 2015, 15, 3969-3982.	3.0	14
50	The effect of high driving force on the methane hydrate-polyvinylpyrrolidone system. Journal of Natural Gas Science and Engineering, 2016, 34, 1-5.	4.4	14
51	Methane gas hydrate kinetics with mixtures of sodium dodecyl sulphate and tetrabutylammonium bromide. Canadian Journal of Chemical Engineering, 2018, 96, 1620-1626.	1.7	14
52	Heat Capacity, Thermal Expansion Coefficient, and GrÃ¼neisen Parameter of CH₄, CO₂, and C₂H₆ Hydrates and Ice I_h via Density Functional Theory and Phonon Calculations. Crystal Growth and Design, 2020, 20, 5947-5955.	3.0	14
53	The Tuning of LIPSS Wettability during Laser Machining and through Post-Processing. Nanomaterials, 2021, 11, 973.	4.1	14
54	Measuring the Effect of Multi-Wall Carbon Nanotubes on Tetrahydrofuranâ€“Water Hydrate Front Velocities Using Thermal Imaging. Crystal Growth and Design, 2013, 13, 4017-4024.	3.0	13

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55	Amphiphilic Block Copolymers with Vinyl Caprolactam as Kinetic Gas Hydrate Inhibitors. Energies, 2021, 14, 341.	3.1	13
56	From Infrared Spectra to Macroscopic Mechanical Properties of sH Gas Hydrates through Atomistic Calculations. Molecules, 2020, 25, 5568.	3.8	12
57	The effect of hydrate promoter SDS on methane dissolution rates at the three phase (H-Lw-V) equilibrium condition. Journal of Natural Gas Science and Engineering, 2016, 35, 1579-1586.	4.4	11
58	Gas hydrate phase equilibria measurement techniques and phase rule considerations. Journal of Chemical Thermodynamics, 2012, 44, 1-4.	2.0	10
59	Ice-dependent liquid-phase convective cells during the melting of frozen sessile droplets containing water and multiwall carbon nanotubes. International Journal of Heat and Mass Transfer, 2016, 101, 27-37.	4.8	10
60	Multiscale Piezoelasticity of Methane Gas Hydrates: From Bonds to Cages to Lattices. Energy & Fuels, 2022, 36, 10591-10600.	5.1	10
61	The importance of liquid phase compositions in gas hydrate modeling: Carbon dioxideâ€“methaneâ€“water case study. Journal of Chemical Thermodynamics, 2014, 68, 153-160.	2.0	9
62	Quantitative stability analyses of multiwall carbon nanotube nanofluids following water/ice phase change cycling. Nanotechnology, 2017, 28, 055702.	2.6	9
63	First-Principles Elastic and Anisotropic Characteristics of Structure-H Gas Hydrate under Pressure. Crystals, 2021, 11, 477.	2.2	9
64	Prediction of methane and carbon dioxide solubilities for the CH4+CO2+H2O system under hydrateâ€“liquidâ€“vapor equilibrium. Fluid Phase Equilibria, 2011, 305, 97-100.	2.5	8
65	Solubility Measurements for the N₂ + CO₂ + H₂O System under Hydrateâ€“Liquidâ€“Vapor Equilibrium. Journal of Chemical & Engineering Data, 2014, 59, 2547-2550.	1.9	8
66	Rate of Entropy Production in Evolving Interfaces and Membranes under Astigmatic Kinematics: Shape Evolution in Geometric-Dissipation Landscapes. Entropy, 2020, 22, 909.	2.2	8
67	Theoretical temperature dependency of gas hydrate former solubility under hydrate-liquid water equilibrium. Journal of Chemical Thermodynamics, 2007, 39, 737-741.	2.0	7
68	Dynamic Simulation of Gas Hydrate Formation in a Three-Phase Slurry Reactor. Industrial & Engineering Chemistry Research, 2009, 48, 6983-6991.	3.7	7
69	Molecular mobility in carbon dioxide hydrates. Molecular Systems Design and Engineering, 2017, 2, 500-506.	3.4	7
70	Effects of Hydrophobic and Hydrophilic Graphene Nanoflakes on Methane Dissolution Rates in Water under Vaporâ€“Liquidâ€“Hydrate Equilibrium Conditions. Industrial & Engineering Chemistry Research, 2021, 60, 2677-2685.	3.7	7
71	Biaxial nanowrinkling in cholesteric surfaces: Egg carton surfaces through chiral anchoring. Colloids and Interface Science Communications, 2021, 41, 100372.	4.1	7
72	Piezoâ€elasticity and stability limits of monocrystal methane gas hydrates: Atomisticâ€continuum characterization. Canadian Journal of Chemical Engineering, 2023, 101, 639-650.	1.7	7

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73	Dynamic viscosity of methane hydrate systems from non-Einsteinian, plasma-functionalized carbon nanotube nanofluids. Nanoscale, 2022, 14, 10211-10225.	5.6	7
74	Reaction rate constant of CO₂â€“Tetraâ€nâ€butylammounium bromide semiâ€clathrate formation. Canadian Journal of Chemical Engineering, 2016, 94, 2138-2144.	1.7	6
75	Mechanogeometry of nanowrinkling in cholesteric liquid crystal surfaces. Physical Review E, 2020, 101, 062705.	2.1	6
76	The behaviour of plasma-functionalized graphene nanoflake nanofluids during phase change from liquid water to solid ice. Nanotechnology, 2020, 31, 455703.	2.6	6
77	Bulk liquid and gas mole fraction measurements during hydrate growth for the CH4+ CO2+ H2O system. Journal of Chemical Thermodynamics, 2018, 117, 113-118.	2.0	5
78	Hâ^'L_Wâ^'V Equilibrium Measurements for the CH₄ + C₂H₆ + H₂O Hydrate Forming System. Journal of Chemical & Engineering Data, 2010, 55, 3680-3683.	1.9	4
79	Effects of nitrogen-doped graphene nanoflakes on methane hydrate formation. Journal of Natural Gas Science and Engineering, 2021, 96, 104336.	4.4	4
80	Wrinkling pattern formation with periodic nematic orientation: From egg cartons to corrugated surfaces. Physical Review E, 2022, 105, 034702.	2.1	4
81	TinyLev acoustically levitated water: Direct observation of collective, inter-droplet effects through morphological and thermal analysis of multiple droplets. Journal of Colloid and Interface Science, 2022, 619, 84-95.	9.4	4
82	Fundamental challenges to methane recovery from gas hydrates. Topics in Catalysis, 2005, 32, 101-104.	2.8	3
83	The crystallization of sub-cooled water: Measuring the front velocity and mushy zone composition via thermal imaging. International Journal of Heat and Mass Transfer, 2014, 77, 940-945.	4.8	3
84	Solubility measurements for the CH 4 Â+ÂC 2 H 6 Â+ÂH 2 O system under hydrate-liquid-vapour equilibrium. Journal of Natural Gas Science and Engineering, 2015, 26, 130-134.	4.4	3
85	Thermal fluctuation spectrum of flexoelectric viscoelastic semiflexible filaments and polymers: A line liquid crystal model. Canadian Journal of Chemical Engineering, 2022, 100, 3162-3173.	1.7	3
86	Theoretical pressure dependency of carbon dioxide solubility under hydrateâ€“liquid water equilibrium. Canadian Journal of Chemical Engineering, 2010, 88, 307-311.	1.7	2
87	Recent advances in density functional theory and molecular dynamics simulation of mechanical, interfacial, and thermal properties of natural gas hydrates in Canada. Canadian Journal of Chemical Engineering, 2022, 100, 2557-2571.	1.7	2
88	Complex Nanowrinkling in Chiral Liquid Crystal Surfaces: From Shaping Mechanisms to Geometric Statistics. Nanomaterials, 2022, 12, 1555.	4.1	0