Rustem Valiullin

List of Publications by Year
in descending order

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128 papers	4,080 citations	117625 34 h-index	133252 59 g-index
135 all docs	135 docs citations	135 times ranked	3924 citing authors

#	Article	IF	Citations
1	Mass transfer in mesoporous materials: the benefit of microscopic diffusion measurement. Chemical Society Reviews, 2013, 42, 4172.	38.1	221
2	Exploration of molecular dynamics during transient sorption of fluids in mesoporous materials. Nature, 2006, 443, 965-968.	27.8	218
3	The Role of Mesopores in Intracrystalline Transport in USY Zeolite:Â PFG NMR Diffusion Study on Various Length Scales. Journal of the American Chemical Society, 2005, 127, 13055-13059.	13.7	211
4	Transport properties of hierarchical microâ€“mesoporous materials. Chemical Society Reviews, 2016, 45, 3439-3467.	38.1	202
5	Comparison of NMR Cryoporometry, Mercury Intrusion Porosimetry, and DSC Thermoporosimetry in Characterizing Pore Size Distributions of Compressed Finely Ground Calcium Carbonate Structures. Industrial & Engineering Chemistry Research, 2004, 43, 7920-7927.	3.7	127
6	Enhanced charge transport in nano-confined ionic liquids. Soft Matter, 2012, 8, 289-293.	2.7	119
7	How Hydrogen Bonds Influence the Mobility of Imidazolium-Based Ionic Liquids. A Combined Theoretical and Experimental Study of 1-n-Butyl-3-methylimidazolium Bromide. Journal of Physical Chemistry B, 2011, 115, 15280-15288.	2.6	118
8	Charge transport and diffusion of ionic liquids in nanoporous silica membranes. Physical Chemistry Chemical Physics, 2010, 12, 13798.	2.8	109
9	Diffusion in ionic liquids: the interplay between molecular structure and dynamics. Soft Matter, 2011, 7, 1678.	2.7	104
10	Concentration-dependent self-diffusion of liquids in nanopores: A nuclear magnetic resonance study. Journal of Chemical Physics, 2004, 120, 11804-11814.	3.0	83
11	Correlating phase behaviour and diffusion in mesopores: perspectives revealed by pulsed field gradient NMR. Physical Chemistry Chemical Physics, 2009, 11, 2833.	2.8	83
12	Time dependent self-diffusion coefficient of molecules in porous media. Journal of Chemical Physics, 2001, 114, 452.	3.0	82
13	Understanding capillary condensation and hysteresis in porous silicon: Network effects within independent pores. Physical Review E, 2008, 78, 060601.	2.1	80
14	Understanding adsorption and desorption processes in mesoporous materials with independent disordered channels. Physical Review E, 2009, 80, 031607.	2.1	67
15	Molecular exchange processes in partially filled porous glass as seen with NMR diffusometry. Physical Review E, 1997, 55, 2664-2671.	2.1	66
16	The morphology of coexisting liquid and frozen phases in porous materials as revealed by exchange of nuclear spin magnetization followed by 1H nuclear magnetic resonance. Journal of Chemical Physics, 2002, 117, 2307-2316.	3.0	63
17	Dynamics of water diffusion in mesoporous zeolites. Microporous and Mesoporous Materials, 2011, 142, 236-244.	4.4	62
18	Exploring the hierarchy of transport phenomena in hierarchical pore systems by NMR diffusion measurement. Microporous and Mesoporous Materials, 2012, 164, 273-279.	4.4	61

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19	Diffusion in Hierarchical Mesoporous Materials: Applicability and Generalization of the Fast-Exchange Diffusion Model. Langmuir, 2012, 28, 3621-3632.	3.5	60
20	Collagen networks determine viscoelastic properties of connective tissues yet do not hinder diffusion of the aqueous solvent. Soft Matter, 2019, 15, 3055-3064.	2.7	60
21	A new view of diffusion in nanoporous materials. Chemie-Ingenieur-Technik, 2010, 82, 779-804.	0.8	57
22	Probing Memory Effects in Confined Fluids via Diffusion Measurements. Langmuir, 2008, 24, 6429-6432.	3.5	56
23	Freezing and melting transitions of liquids in mesopores with ink-bottle geometry. New Journal of Physics, 2007, 9, 272-272.	2.9	51
24	Monitoring Molecular Mass Transfer in Cation-Free Nanoporous Host Crystals of Type AlPO-LTA. Journal of the American Chemical Society, 2012, 134, 7725-7732.	13.7	45
25	Singleâ€Particle and Ensemble Diffusivitiesâ€”Test of Ergodicity. Angewandte Chemie - International Edition, 2012, 51, 1152-1155.	13.8	43
26	Scale-dependent diffusion anisotropy in nanoporous silicon. Scientific Reports, 2017, 7, 40207.	3.3	43
27	Molecular dynamics under confinement to one dimension: options of measurement and accessible information. New Journal of Physics, 2005, 7, 15-15.	2.9	42
28	LÃ©vy walks of strong adsorbates on surfaces: Computer simulation and spin-lattice relaxation. Physical Review E, 1997, 56, 4371-4375.	2.1	41
29	Intracrystalline Diffusion in Mesoporous Zeolites. ChemPhysChem, 2012, 13, 1495-1499.	2.1	41
30	Surface Self-Diffusion of Organic Molecules Adsorbed in Porous Silicon. Journal of Physical Chemistry B, 2005, 109, 5746-5752.	2.6	40
31	Pulsed field gradient NMR diffusion measurement in nanoporous materials. Adsorption, 2021, 27, 453-484.	3.0	40
32	Direct Assessment of Transport Properties of Supercritical Fluids Confined to Nanopores. Journal of the American Chemical Society, 2007, 129, 10344-10345.	13.7	38
33	The Impact of Mesopores on Mass Transfer in Nanoporous Materials: Evidence of Diffusion Measurement by NMR. Chemie-Ingenieur-Technik, 2011, 83, 166-176.	0.8	38
34	Tracing pore connectivity and architecture in nanostructured silica SBA-15. Microporous and Mesoporous Materials, 2008, 110, 37-40.	4.4	36
35	Temperature effects on phase equilibrium and diffusion in mesopores. Physical Review E, 2007, 75, 041202.	2.1	35
36	Waterâ€Mediated Proton Conduction in a Robust Triazolyl Phosphonate Metalâ€“Organic Framework with Hydrophilic Nanochannels. Chemistry - A European Journal, 2014, 20, 8862-8866.	3.3	35

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37	Revealing the Transient Concentration of CO₂ in a Mixedâ€Matrix Membrane by IR Microimaging and Molecular Modeling. Angewandte Chemie - International Edition, 2018, 57, 5156-5160.	13.8	35
38	Freezing and Melting Transitions under Mesoscalic Confinement: Application of the Kosselâ€“Stranski Crystal-Growth Model. Journal of Physical Chemistry C, 2015, 119, 4312-4323.	3.1	34
39	Phase separation of a binary liquid mixture in porous media studied by nuclear magnetic resonance cryoporometry. Journal of Chemical Physics, 2002, 116, 1072-1076.	3.0	32
40	Field-Cycling Relaxometry as a Molecular Rheology Technique: Common Analysis of NMR, Shear Modulus and Dielectric Loss Data of Polymers vs Dendrimers. Macromolecules, 2015, 48, 7521-7534.	4.8	32
41	Freezing of fluids in disordered mesopores. Journal of Chemical Physics, 2008, 129, 154702.	3.0	30
42	Pulsed field gradient NMR study of surface diffusion in mesoporous adsorbents. Microporous and Mesoporous Materials, 2009, 125, 58-62.	4.4	30
43	Guest Diffusion in Interpenetrating Networks of Micro- and Mesopores. Journal of the American Chemical Society, 2011, 133, 2437-2443.	13.7	30
44	Diffusion Study by IR Micro-Imaging of Molecular Uptake and Release on Mesoporous Zeolites of Structure Type CHA and LTA. Materials, 2013, 6, 2662-2688.	2.9	30
45	Characterization of pore size distribution in porous silicon by NMR cryoporosimetry and adsorption methods. Colloid Journal, 2008, 70, 507-514.	1.3	29
46	Probing Pore Connectivity in Random Porous Materials by Scanning Freezing and Melting Experiments. Langmuir, 2010, 26, 6380-6385.	3.5	29
47	Understanding Adsorption and Transport of Light Gases in Hierarchical Materials Using Molecular Simulation and Effective Medium Theory. Journal of Physical Chemistry C, 2014, 118, 14355-14370.	3.1	29
48	Orientational ordering of linearn-alkanes in silicon nanotubes. Physical Review E, 2006, 73, 051605.	2.1	28
49	Probing Mass Transfer in Mesoporous Faujasiteâ€Type Zeolite Nanosheet Assemblies. ChemPhysChem, 2014, 15, 1681-1686.	2.1	28
50	Filling Dynamics of Closed End Nanocapillaries. Langmuir, 2014, 30, 1290-1294.	3.5	28
51	Mesoporeâ€Promoted Transport in Microporous Materials. Chemie-Ingenieur-Technik, 2015, 87, 1794-1809.	0.8	28
52	Low-temperature phase separation of a binary liquid mixture in porous materials studied by cryoporometry and pulsed-field-gradient NMR. Physical Review E, 2002, 66, 031508.	2.1	27
53	Transport enhancement in binderless zeolite X- and A-type molecular sieves revealed by PFG NMR diffusometry. Microporous and Mesoporous Materials, 2014, 188, 126-132.	4.4	27
54	The Mechanism of Pseudomorphic Transformation of Spherical Silica Gel into MCM-41 Studied by PFG NMR Diffusometry. Materials, 2013, 6, 3688-3709.	2.9	26

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55	Capillary Condensation and Evaporation in Irregular Channels: Sorption Isotherm for Serially Connected Pore Model. Journal of Physical Chemistry C, 2019, 123, 16239-16249.	3.1	25
56	Concentration-dependent self-diffusion of adsorbates in mesoporous materials. Magnetic Resonance Imaging, 2005, 23, 209-214.	1.8	24
57	How to compare diffusion processes assessed by single-particle tracking and pulsed field gradient nuclear magnetic resonance. Journal of Chemical Physics, 2011, 135, 144118.	3.0	23
58	The interplay between inter- and intra-molecular dynamics in a series of alkylcitrates. Soft Matter, 2013, 9, 4681.	2.7	22
59	Peculiarities of self-diffusion of alkane molecules in kaolinite. Applied Magnetic Resonance, 1991, 2, 83-91.	1.2	21
60	Improving structural analysis of disordered mesoporous materials using NMR cryoporometry. Microporous and Mesoporous Materials, 2013, 178, 15-19.	4.4	21
61	Self-diffusion of water and oil in peanuts investigated by PFG NMR. Magnetic Resonance Imaging, 1998, 16, 583-586.	1.8	20
62	Diffusion in microporous materials with embedded mesoporosities. Microporous and Mesoporous Materials, 2013, 178, 84-89.	4.4	19
63	Entropy-Driven Enhanced Self-Diffusion in Confined Reentrant Supernematics. Physical Review Letters, 2010, 105, 227802.	7.8	18
64	Structural characterization of porous solids by simultaneously monitoring the low-temperature phase equilibria and diffusion of intrapore fluids using nuclear magnetic resonance. New Journal of Physics, 2011, 13, 015008.	2.9	18
65	Probing mesopore connectivity in hierarchical nanoporous materials. Carbon, 2012, 50, 4804-4808.	10.3	18
66	Exploring Mass Transfer in Mesoporous Zeolites by NMR Diffusometry. Materials, 2012, 5, 699-720.	2.9	18
67	Diffusion hysteresis in mesoporous materials. European Physical Journal: Special Topics, 2007, 141, 107-112.	2.6	17
68	Micro-imaging of liquidâ€“vapor phase transition in nano-channels. Microporous and Mesoporous Materials, 2015, 214, 143-148.	4.4	17
69	Adsorption Isotherm and Aggregate Properties of Fluorosurfactants on Alumina Measured by 19F NMR. Langmuir, 2002, 18, 8096-8101.	3.5	15
70	Diffusion in Nanoporous Host Systems. Annual Reports on NMR Spectroscopy, 2013, 79, 23-72.	1.5	15
71	Improving mass-transfer in controlled pore glasses as supports for the platinum-catalyzed aromatics hydrogenation. Catalysis Science and Technology, 2015, 5, 3137-3146.	4.1	15
72	Diffusion in nanopores: inspecting the grounds. Adsorption, 2021, 27, 267-281.	3.0	15

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73	Phase transitions in disordered mesoporous solids. Scientific Reports, 2017, 7, 7216.	3.3	14
74	Diffusion of guest molecules in MCM-41 agglomerates. Journal of Chemical Physics, 2007, 126, 054705.	3.0	13
75	A novel approach for advanced thermoporometry characterization of mesoporous solids: Transition kernels and the serially connected pore model. Microporous and Mesoporous Materials, 2020, 309, 110534.	4.4	13
76	Sorption Isotherm Reconstruction and Extraction of Pore Size Distributions for Serially Connected Pore Model (SCPM) Structures Employing Algorithmic and Statistical Models. Journal of Physical Chemistry C, 2020, 124, 21591-21607.	3.1	13
77	Diffusion processes in mesoporous adsorbents probed by NMR. Adsorption, 2007, 13, 239-245.	3.0	12
78	Diffusion and Molecular Exchange in Hollow Coreâ€“Shell Silica Nanoparticles. Langmuir, 2015, 31, 10285-10295.	3.5	12
79	Transport Properties of Mixed-Matrix Membranes: A Kinetic Monte Carlo Study. Physical Review Applied, 2019, 12, .	3.8	12
80	Impact of Geometrical Disorder on Phase Equilibria of Fluids and Solids Confined in Mesoporous Materials. Langmuir, 2021, 37, 3521-3537.	3.5	12
81	Dynamical aspects of the adsorption hysteresis phenomenon. Magnetic Resonance Imaging, 2007, 25, 481-484.	1.8	11
82	The evidence of NMR diffusometry on pore space heterogeneity in activated carbon. Microporous and Mesoporous Materials, 2011, 141, 184-191.	4.4	11
83	Tracing Molecular Propagation in Dextran Solutions by Pulsed Field Gradient NMR. Journal of Physical Chemistry Letters, 2012, 3, 1854-1857.	4.6	11
84	Comparative Gas Sorption and Cryoporometry Study of Mesoporous Glass Structure: Application of the Serially Connected Pore Model. Frontiers in Chemistry, 2019, 7, 230.	3.6	11
85	Supercritical fluids in mesoporesâ€”new insight using NMR. Adsorption, 2007, 13, 197-200.	3.0	10
86	Normal and anomalous diffusion of non-interacting particles in linear nanopores. European Physical Journal: Special Topics, 2008, 161, 109-120.	2.6	10
87	Rotational and translational diffusion in glass-forming N,N,-diethyl-3-methylbenzamide (DEET). Soft Matter, 2011, 7, 10565.	2.7	10
88	Transport properties of gas-expanded liquids in bulk and under confinement. Journal of Supercritical Fluids, 2013, 75, 43-47.	3.2	10
89	Ice Nucleation in Periodic Arrays of Spherical Nanocages. Journal of Physical Chemistry C, 2017, 121, 23788-23792.	3.1	10
90	NMR magnetization transfer as a tool for characterization of nanoporous materials. Magnetic Resonance Imaging, 2003, 21, 299-303.	1.8	9

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91	Estimation of pore sizes in porous silicon by scanning electron microscopy and NMR cryoporometry. Journal of Surface Investigation, 2008, 2, 919-922.	0.5	9
92	Comment on â€œSingle-File Diffusion of Confined Water Inside SWNTs: An NMR Studyâ€• ACS Nano, 2010, 4, 3537-3537.	14.6	9
93	Role of stringlike, supramolecular assemblies in reentrant supernematic liquid crystals. Physical Review E, 2011, 83, 051704.	2.1	9
94	Water Transport in Periodic Mesoporous Organosilica Materials. Journal of Physical Chemistry C, 2018, 122, 12673-12680.	3.1	6
95	Diffusion of cyclohexane in native and surface-modified mesoporous glasses. Adsorption, 2011, 17, 93-99.	3.0	5
96	Liquidâ€“liquid phase separation in micropores. Current Applied Physics, 2004, 4, 370-372.	2.4	4
97	Diffusion NMR of Fluids Confined to Mesopores under High Pressures. , 2011, , .		4
98	Guest Diffusion in Binderless Highâ€Performance NaX Molecular Sieves. Chemie-Ingenieur-Technik, 2011, 83, 2251-2259.	0.8	4
99	Modeling the Influence of Side Stream and Ink Bottle Structures on Adsorption/Desorption Dynamics of Fluids in Long Pores. Langmuir, 2015, 31, 188-198.	3.5	4
100	Diffusive Spreading of Molecules in Nanoporous Materials. , 2018, , 171-202.		4
101	Nuclear Magnetic Resonance Cryoporometry Study of Solidâ€“Liquid Equilibria in Interconnected Spherical Nanocages. Journal of Physical Chemistry C, 2021, 125, 26916-26926.	3.1	4
102	Diffusion in complementary pore spaces. Adsorption, 2016, 22, 879-890.	3.0	3
103	On the Comparative Analysis of Different Phase Coexistences in Mesoporous Materials. Materials, 2022, 15, 2350.	2.9	3
104	Porous Materials. , 2006, , 231-250.		2
105	Phase State and Dynamics of Fluids in Mesoporous Solids. , 2011, , .		2
106	Chapter 12. Confined Fluids: NMR Perspectives on Confinements and on Fluid Dynamics. New Developments in NMR, 2016, , 390-434.	0.1	2
107	Connecting dynamic pore filling mechanisms with equilibrium and out of equilibrium configurations of fluids in nanopores. Journal of Chemical Physics, 2022, 156, 134702.	3.0	2
108	RÃ¼cktitelbild: Single-Particle and Ensemble Diffusivities-Test of Ergodicity (Angew. Chem. 5/2012). Angewandte Chemie, 2012, 124, 1308-1308.	2.0	1

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109	Exploring Internal Structure of Nanoporous Glasses Obtained by Leaching of Phaseâ€Separated Alkali Borosilicate Glasses. Chemie-Ingenieur-Technik, 2013, 85, 1734-1741.	0.8	1
110	Mesopore Diffusion Within Porous Silicon. , 2014, , 1-10.		1
111	NMR Cryoporometry and Estimation of Pore Sizes in Mesoporous Silicon. , 2014, , 1-8.		1
112	Structure-correlated diffusion anisotropy in nanoporous channel networks by Monte Carlo simulations and percolation theory. European Physical Journal B, 2017, 90, 1.	1.5	1
113	Mesopore Diffusion Within Porous Silicon. , 2014, , 221-230.		1
114	Mesopore Diffusion Within Porous Silicon. , 2018, , 331-340.		1
115	Comment on â€œComputer Simulation of Static and Dynamic Properties During Transient Sorption of Fluids in Mesoporous Materialsâ€• Journal of Physical Chemistry C, 2010, 114, 9187-9188.	3.1	0
116	Diffusion and phase equilibria of binary fluids inÂmesopores. Adsorption, 2011, 17, 69-74.	3.0	0
117	Back Cover: Singleâ€Particle and Ensemble Diffusivitiesâ€”Test of Ergodicity (Angew. Chem. Int. Ed. 5/2012). Angewandte Chemie - International Edition, 2012, 51, 1282-1282.	13.8	0
118	Mesoporous Silicon. , 2014, , 115-127.		0
119	Mesoporous Silicon. , 2014, , 1-12.		0
120	Diffusion properties of liquid crystal-based microemulsions. Colloid and Polymer Science, 2014, 292, 1961-1969.	2.1	0
121	Einblicke in die Verteilung von CO₂â€MolekÃ¼len und deren zeitliche Entwicklung durch Mikroâ€Bildgebung mittels IRâ€Spektroskopie und molekulardynamische Modellierung. Angewandte Chemie, 2018, 130, 5250-5255.	2.0	0
122	Transport-Optimized Nanoporous Materials for Mass Separation and Conversion as Designed by Microscopic Diffusion Measurement. , 2018, 19, 96-124.		0
123	NMR Cryoporometry and Estimation of Pore Sizes in Mesoporous Silicon. , 2014, , 439-447.		0
124	Mesopore Diffusion Within Porous Silicon. , 2016, , 1-10.		0
125	Mesoporous Silicon. , 2017, , 1-15.		0
126	NMR Cryoporometry Characterization of Mesoporous Silicon. , 2017, , 1-9.		0

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127	Mesoporous Silicon. , 2018, , 133-147.		0
128	NMR Cryoporometry Characterization of Mesoporous Silicon. , 2018, , 601-609.		0