Dirk Wallacher

List of Publications by Year
in descending order

86 papers	3,438 citations	126708 33 h-index	143772 57 g-index
93 all docs	93 docs citations	93 times ranked	4429 citing authors

#	Article	IF	Citations
1	A pressure-amplifying framework material with negative gas adsorption transitions. Nature, 2016, 532, 348-352.	13.7	490
2	Improving the Hydrogenâ€Adsorption Properties of a Hydroxyâ€Modified MILâ€53(Al) Structural Analogue by Lithium Doping. Angewandte Chemie - International Edition, 2009, 48, 4639-4642.	7.2	202
3	Capillary rise of water in hydrophilic nanopores. Physical Review E, 2009, 79, 067301.	0.8	157
4	Capillary Condensation in Linear Mesopores of Different Shape. Physical Review Letters, 2004, 92, 195704.	2.9	153
5	Methane storage mechanism in the metal-organic framework Cu3(btc)2: An in situ neutron diffraction study. Microporous and Mesoporous Materials, 2010, 136, 50-58.	2.2	132
6	CO₂ Sorption to Subsingle Hydration Layer Montmorillonite Clay Studied by Excess Sorption and Neutron Diffraction Measurements. Environmental Science & Technology, 2013, 47, 205-211.	4.6	96
7	Exceptional adsorption-induced cluster and network deformation in the flexible metalâ€“organic framework DUT-8(Ni) observed by in situ X-ray diffraction and EXAFS. Physical Chemistry Chemical Physics, 2015, 17, 17471-17479.	1.3	96
8	The effect of crystallite size on pressure amplification in switchable porous solids. Nature Communications, 2018, 9, 1573.	5.8	92
9	Quenching of lamellar ordering in an n -alkane embedded in nanopores. Europhysics Letters, 2004, 65, 351-357.	0.7	86
10	Flexible and Hydrophobic Zn-Based Metalâ€“Organic Framework. Inorganic Chemistry, 2011, 50, 8367-8374.	1.9	74
11	Illuminating solid gas storage in confined spaces â€“ methane hydrate formation in porous model carbons. Physical Chemistry Chemical Physics, 2016, 18, 20607-20614.	1.3	73
12	Towards general network architecture design criteria for negative gas adsorption transitions in ultraporous frameworks. Nature Communications, 2019, 10, 3632.	5.8	73
13	A Stimuliâ€Responsive Zirconium Metalâ€“Organic Framework Based on Supermolecular Design. Angewandte Chemie - International Edition, 2017, 56, 10676-10680.	7.2	72
14	Exploiting Dynamic Opening of Apertures in a Partially Fluorinated MOF for Enhancing H₂ Desorption Temperature and Isotope Separation. Journal of the American Chemical Society, 2019, 141, 19850-19858.	6.6	60
15	In situ monitoring of structural changes during the adsorption on flexible porous coordination polymers by X-ray powder diffraction: Instrumentation and experimental results. Microporous and Mesoporous Materials, 2014, 188, 190-195.	2.2	58
16	Experimental Evidence of Confined Methane Hydrate in Hydrophilic and Hydrophobic Model Carbons. Journal of Physical Chemistry C, 2019, 123, 24071-24079.	1.5	52
17	Analysis of Microporosity in Ordered Mesoporous Hierarchically Structured Silica by Combining Physisorption With in Situ Small-Angle Scattering (SAXS and SANS). Langmuir, 2009, 25, 12670-12681.	1.6	51
18	Pore Size Effects on the Sorption of Supercritical CO₂ in Mesoporous CPG-10 Silica. Journal of Physical Chemistry C, 2012, 116, 917-922.	1.5	50

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19	Correlating pore size and shape to local disorder in microporous carbon: A combined small angle neutron and X-ray scattering study. Carbon, 2017, 123, 440-447.	5.4	50
20	Hydraulic transport across hydrophilic and hydrophobic nanopores: Flow experiments with water and<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:mi>n</mml:mi><mml:mtext>-hexane</mml:mtext></mml:mr Physical Review E, 2016, 93, 013102.	0.8	47
21	Specific Isotope-Responsive Breathing Transition in Flexible Metalâ€"Organic Frameworks. Journal of the American Chemical Society, 2020, 142, 13278-13282.	6.6	47
22	Pore Hierarchy in Mesoporous Silicas Evidenced by In-Situ SANS during Nitrogen Physisorption. Langmuir, 2007, 23, 4724-4727.	1.6	45
23	Freezing and melting of Ar in mesopores studied by optical transmission. Physical Review B, 2003, 67, .	1.1	44
24	In Situ Observation of Gating Phenomena in the Flexible Porous Coordination Polymer Zn₂(BPnDC)₂(bpy) (SNU-9) in a Combined Diffraction and Gas Adsorption Experiment. Inorganic Chemistry, 2014, 53, 1513-1520.	1.9	43
25	Gaining Insights on the H₂â€"Sorbent Interactions: Robust soc-MOF Platform as a Case Study. Chemistry of Materials, 2016, 28, 7353-7361.	3.2	43
26	Characteristics of flexibility in metal-organic framework solid solutions of composition [Zn2(BME-bdc)x(DB-bdc)2â^'xdabco]n: In situ powder X-ray diffraction, in situ NMR spectroscopy, and molecular dynamics simulations. Microporous and Mesoporous Materials, 2015, 216, 64-74.	2.2	41
27	In Situ Monitoring of Unique Switching Transitions in the Pressure-Amplifying Flexible Framework Material DUT-49 by High-Pressure ¹²⁹Xe NMR Spectroscopy. Journal of Physical Chemistry C, 2017, 121, 5195-5200.	1.5	41
28	Formation of Crossâ€Linked Chloroperoxidase Aggregates in the Pores of Mesocellular Foams: Characterization by SANS and Catalytic Properties. ChemSusChem, 2009, 2, 161-164.	3.6	40
29	Small-angle X-ray scattering in droplet-based microfluidics. Lab on A Chip, 2013, 13, 1529.	3.1	39
30	Poly(ionic liquid)-derived nanoporous carbon analyzed by combination of gas physisorption and small-angle neutron scattering. Carbon, 2015, 82, 425-435.	5.4	37
31	Thermodynamic and Structural Investigations of Condensates of Small Molecules in Mesopores. Zeitschrift Fur Physikalische Chemie, 2008, 222, 257-285.	1.4	34
32	Tuning the flexibility in MOFs by SBU functionalization. Dalton Transactions, 2016, 45, 4407-4415.	1.6	34
33	Peering into the structural evolution of glass-like carbons derived from phenolic resin by combining small-angle neutron scattering with an advanced evaluation method for wide-angle X-ray scattering. Carbon, 2019, 141, 169-181.	5.4	33
34	Cooperative light-induced breathing of soft porous crystals via azobenzene buckling. Nature Communications, 2022, 13, 1951.	5.8	33
35	Melting and Freezing of Argon in a Granular Packing of Linear Mesopore Arrays. Physical Review Letters, 2008, 100, 175701.	2.9	32
36	Adsorption in Periodically Ordered Mesoporous Organosilica Materials Studied by in Situ Small-Angle X-ray Scattering and Small-Angle Neutron Scattering. Langmuir, 2010, 26, 6583-6592.	1.6	31

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37	Engineering micromechanics of soft porous crystals for negative gas adsorption. Chemical Science, 2020, 11, 9468-9479.	3.7	30
38	Direct Measurements of Pore Fluid Density by Vibrating Tube Densimetry. Langmuir, 2012, 28, 5070-5078.	1.6	29
39	Molecular dynamics of n-hexane: A quasi-elastic neutron scattering study on the bulk and spatially nanochannel-confined liquid. Journal of Chemical Physics, 2012, 136, 124505.	1.2	28
40	Influence of surface wettability on methane hydrate formation in hydrophilic and hydrophobic mesoporous silicas. Chemical Engineering Journal, 2021, 405, 126955.	6.6	28
41	Coherent analysis of disordered mesoporous adsorbents using small angle X-ray scattering and physisorption experiments. Physical Chemistry Chemical Physics, 2014, 16, 6583.	1.3	25
42	Upgrade project NEATâ€²2016â€¯at Helmholtz Zentrum Berlin â€“ What can be done on the medium power neutron source. Physica B: Condensed Matter, 2018, 551, 506-511.	1.3	25
43	Sorption Phase of Supercritical CO₂in Silica Aerogel: Experiments and Mesoscale Computer Simulations. Journal of Physical Chemistry C, 2014, 118, 15525-15533.	1.5	24
44	Solid-state synthesis of LiBD4 observed by in situ neutron diffraction. Physical Chemistry Chemical Physics, 2008, 10, 5859.	1.3	22
45	A ferroelectric liquid crystal confined in cylindrical nanopores: reversible smectic layer buckling, enhanced light rotation and extremely fast electro-optically active Goldstone excitations. Nanoscale, 2017, 9, 19086-19099.	2.8	22
46	BerILL: The ultimate humidity chamber for neutron scattering. Journal of Neutron Research, 2019, 21, 65-76.	0.4	22
47	Detection of Homogeneous Distribution of Functional Groups in Mesoporous Silica by Small Angle Neutron Scattering and in Situ Adsorption of Nitrogen or Water. Langmuir, 2011, 27, 5516-5522.	1.6	21
48	Neutron Diffraction Study of He Solidified in a Mesoporous Glass. Journal of Low Temperature Physics, 2005, 138, 1013-1024.	0.6	20
49	BH₄^{âˆ’} Self-Diffusion in Liquid LiBH₄. Journal of Physical Chemistry A, 2010, 114, 10117-10121.	1.1	20
50	The role of temperature and adsorbate on negative gas adsorption transitions of the mesoporous metalâ€“organic framework DUT-49. Faraday Discussions, 2021, 225, 168-183.	1.6	19
51	Capillary condensation monitored in birefringent porous silicon layers. Journal of Applied Physics, 2003, 94, 4913.	1.1	18
52	In situ neutron diffraction under high pressureâ€”Providing an insight into working catalysts. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2012, 673, 51-55.	0.7	17
53	Conformation-controlled hydrogen storage in the CAU-1 metalâ€“organic framework. Physical Chemistry Chemical Physics, 2016, 18, 29258-29267.	1.3	15
54	In Situ Hydrogenation of the Zintl Phase SrGe. Inorganic Chemistry, 2017, 56, 1072-1079.	1.9	14

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55	Massive Pressure Amplification by Stimulated Contraction of Mesoporous Frameworks**. Angewandte Chemie - International Edition, 2021, 60, 11735-11739.	7.2	14
56	Triple Point Behavior of Ar and N2 in Mesopores. Journal of Low Temperature Physics, 2005, 140, 91-103.	0.6	13
57	Controlled Pore Formation on Mesoporous Single Crystalline Silicon Nanowires: Threshold and Mechanisms. Journal of Nanomaterials, 2015, 2015, 1-11.	1.5	13
58	Formation of Periodically Arranged Nanobubbles in Mesopores: Capillary Bridge Formation and Cavitation during Sorption and Solidification in an Hierarchical Porous SBA-15 Matrix. Langmuir, 2016, 32, 2928-2936.	1.6	13
59	Oxygen release from BaLnMn2O6 (Ln: Pr, Nd, Y) under reducing conditions as studied by neutron diffraction. Journal of Materials Science, 2017, 52, 6476-6485.	1.7	13
60	Quantum Dynamics of H₂ and D₂ Confined in Hydrate Structures as a Function of Pressure and Temperature. Journal of Physical Chemistry C, 2019, 123, 1888-1903.	1.5	12
61	CO₂ Capture by Nickel Hydroxide Interstratified in the Nanolayered Space of a Synthetic Clay Mineral. Journal of Physical Chemistry C, 2020, 124, 26222-26231.	1.5	12
62	Deformation mechanism of nanoporous materials upon water freezing and melting. Applied Physics Letters, 2012, 101, .	1.5	11
63	Poly-NIPAM Microgels with Different Cross-Linker Densities. , 2013, , 63-76.		11
64	Phonons in mesoporous silicon: The influence of nanostructuring on the dispersion in the Debye regime. Microporous and Mesoporous Materials, 2017, 243, 263-270.	2.2	11
65	CO2 Adsorption Enhanced by Tuning the Layer Charge in a Clay Mineral. Langmuir, 2021, , .	1.6	11
66	Capillary sublimation of Ar in mesoporous glass. Physical Review B, 2005, 71, .	1.1	10
67	Pore Size Gradient Effect in Monolithic Silica Mesopore Networks Revealed by In-Situ SAXS Physisorption. Langmuir, 2020, 36, 11996-12009.	1.6	10
68	A Stimuliâ€Responsive Zirconium Metalâ€"Organic Framework Based on Supermolecular Design. Angewandte Chemie, 2017, 129, 10816-10820.	1.6	9
69	Elucidating the Sorption Mechanism of Dibromomethane in Disordered Mesoporous Silica Adsorbents. Langmuir, 2015, 31, 6332-6342.	1.6	7
70	How do rod-like molecules freeze and arrange in mesopores?. Journal of Physics Condensed Matter, 2003, 15, S309-S314.	0.7	6
71	Distribution of functional groups in periodic mesoporous organosilica materials studied by small-angle neutron scattering with in situ adsorption of nitrogen. Beilstein Journal of Nanotechnology, 2012, 3, 428-437.	1.5	6
72	On the Complex Structural Picture of the Ionic Conductor Sr₆Ta₂O₁₁. Journal of Physical Chemistry C, 2013, 117, 9543-9549.	1.5	6

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73	Solid phases of spatially nanoconfined oxygen: A neutron scattering study. Journal of Chemical Physics, 2014, 140, 024705.	1.2	6
74	Deuterium absorption in Mg70Al30 thin films with bilayer catalysts: A comparative neutron reflectometry study. Journal of Alloys and Compounds, 2011, 509, 5466-5471.	2.8	5
75	Hydrogenation properties of Li Sr1âˆ'AlSi studied by quantum-chemical methods (0â‰xâ‰1) and in-situ neutron powder diffraction (x=1). Journal of Solid State Chemistry, 2015, 221, 318-324.	1.4	4
76	An All-in-one Sample Holder for Macromolecular X-ray Crystallography with Minimal Background Scattering. Journal of Visualized Experiments, 2019, , .	0.2	4
77	An advanced structural characterization of templated meso-macroporous carbon monoliths by small- and wide-angle scattering techniques. Beilstein Journal of Nanotechnology, 2020, 11, 310-322.	1.5	4
78	Phonons in highly-crystalline mesoporous silicon: The absence of phonon-softening upon structuring silicon on sub-10Ânanometer length scales. Microporous and Mesoporous Materials, 2021, 312, 110814.	2.2	4
79	Direct Observation of the Xenon Physisorption Process in Mesopores by Combining <i>In Situ</i> Anomalous Small-Angle X-ray Scattering and X-ray Absorption Spectroscopy. Journal of Physical Chemistry Letters, 2021, 12, 4018-4023.	2.1	4
80	Massive Pressure Amplification by Stimulated Contraction of Mesoporous Frameworks**. Angewandte Chemie, 2021, 133, 11841-11845.	1.6	2
81	A Laue diffractometer for ambient and non-ambient neutron structural analysis. Acta Crystallographica Section A: Foundations and Advances, 2017, 73, C135-C135.	0.0	1
82	In situ Neutron Diffraction Study of a Methanol Synthesis Catalyst under Working Conditions. Zeitschrift Fur Anorganische Und Allgemeine Chemie, 2010, 636, 2088-2088.	0.6	0
83	Enhanced temperature and gas options at BESSY II beamline KMC-2. Acta Crystallographica Section A: Foundations and Advances, 2017, 73, C283-C283.	0.0	0
84	All-in-one sample holder for macromolecular crystallography. Acta Crystallographica Section A: Foundations and Advances, 2019, 75, e64-e64.	0.0	0
85	Evolution of distance between Ï‰ particles in metastable Î²-Ti alloy determined from in-situ small angle neutron scattering. MATEC Web of Conferences, 2020, 321, 12027.	0.1	0
86	Thermodynamic and Structural Investigations of Condensates of Small Molecules in Mesopores. , 2008, , 33-61.		0