

David S Sholl

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The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

240
papers

16,759
citations

70
h-index

122
g-index

249
ext. papers

19,279
ext. citations

7.2
avg, IF

7.47
L-index

#	Paper	IF	Citations
240	Seven chemical separations to change the world. <i>Nature</i> , 2016 , 532, 435-7	50.4	1625
239	Can metal-organic framework materials play a useful role in large-scale carbon dioxide separations?. <i>ChemSusChem</i> , 2010 , 3, 879-91	8.3	518
238	2009 ,		395
237	Chiral selection on inorganic crystalline surfaces. <i>Nature Materials</i> , 2003 , 2, 367-74	27	389
236	Computation-Ready, Experimental Metal-Organic Frameworks: A Tool To Enable High-Throughput Screening of Nanoporous Crystals. <i>Chemistry of Materials</i> , 2014 , 26, 6185-6192	9.6	387
235	Self-diffusion and transport diffusion of light gases in metal-organic framework materials assessed using molecular dynamics simulations. <i>Journal of Physical Chemistry B</i> , 2005 , 109, 15760-8	3.4	374
234	Nanoscale design to enable the revolution in renewable energy. <i>Energy and Environmental Science</i> , 2009 , 2, 559	35.4	311
233	Chemically Meaningful Atomic Charges That Reproduce the Electrostatic Potential in Periodic and Nonperiodic Materials. <i>Journal of Chemical Theory and Computation</i> , 2010 , 6, 2455-68	6.4	282
232	Progress, Opportunities, and Challenges for Applying Atomically Detailed Modeling to Molecular Adsorption and Transport in Metal-Organic Framework Materials. <i>Industrial & Engineering Chemistry Research</i> , 2009 , 48, 2355-2371	3.9	270
231	The materials genome in action: identifying the performance limits for methane storage. <i>Energy and Environmental Science</i> , 2015 , 8, 1190-1199	35.4	263
230	Ultra-thin /ZIF-8 mixed matrix hollow fiber membranes for CO ₂ /N ₂ separations. <i>Journal of Membrane Science</i> , 2012 , 401-402, 76-82	9.6	253
229	Exploring the Framework Hydrophobicity and Flexibility of ZIF-8: From Biofuel Recovery to Hydrocarbon Separations. <i>Journal of Physical Chemistry Letters</i> , 2013 , 4, 3618-3622	6.4	242
228	Efficient calculation of diffusion limitations in metal organic framework materials: a tool for identifying materials for kinetic separations. <i>Journal of the American Chemical Society</i> , 2010 , 132, 7528-39	16.4	239
227	From water to organics in membrane separations. <i>Nature Materials</i> , 2017 , 16, 276-279	27	235
226	Defects in Metal-Organic Frameworks: Challenge or Opportunity?. <i>Journal of Physical Chemistry Letters</i> , 2015 , 6, 3437-44	6.4	230
225	Modification of the Mg/DOBDC MOF with Amines to Enhance CO ₂ Adsorption from Ultradilute Gases. <i>Journal of Physical Chemistry Letters</i> , 2012 , 3, 1136-41	6.4	221
224	Predicting multicomponent adsorption: 50 years of the ideal adsorbed solution theory. <i>AIChE Journal</i> , 2015 , 61, 2757-2762	3.6	219

223	Improved Atoms-in-Molecule Charge Partitioning Functional for Simultaneously Reproducing the Electrostatic Potential and Chemical States in Periodic and Nonperiodic Materials. <i>Journal of Chemical Theory and Computation</i> , 2012 , 8, 2844-67	6.4	210
222	Transport Diffusivities of CH ₄ , CF ₄ , He, Ne, Ar, Xe, and SF ₆ in Silicalite from Atomistic Simulations. <i>Journal of Physical Chemistry B</i> , 2002 , 106, 5058-5067	3.4	193
221	Naturally Chiral Metal Surfaces as Enantiospecific Adsorbents. <i>Journal of Physical Chemistry B</i> , 2001 , 105, 4771-4782	3.4	184
220	Advances, Updates, and Analytics for the Computation-Ready, Experimental Metal-Organic Framework Database: CoRE MOF 2019. <i>Journal of Chemical & Engineering Data</i> , 2019 , 64, 5985-5998 ^{2.8}	2.8	183
219	Materials science. Making high-flux membranes with carbon nanotubes. <i>Science</i> , 2006 , 312, 1003-4	33.3	179
218	Accelerating applications of metal-organic frameworks for gas adsorption and separation by computational screening of materials. <i>Langmuir</i> , 2012 , 28, 14114-28	4	178
217	Screening Metal-Organic Framework Materials for Membrane-based Methane/Carbon Dioxide Separations. <i>Journal of Physical Chemistry C</i> , 2007 , 111, 14055-14059	3.8	173
216	Understanding macroscopic diffusion of adsorbed molecules in crystalline nanoporous materials via atomistic simulations. <i>Accounts of Chemical Research</i> , 2006 , 39, 403-11	24.3	171
215	Molecular Dynamics Simulations of Self-Diffusivities, Corrected Diffusivities, and Transport Diffusivities of Light Gases in Four Silica Zeolites To Assess Influences of Pore Shape and Connectivity. <i>Journal of Physical Chemistry A</i> , 2003 , 107, 10132-10141	2.8	169
214	Adsorption and separation of hydrogen isotopes in carbon nanotubes: Multicomponent grand canonical Monte Carlo simulations. <i>Journal of Chemical Physics</i> , 2002 , 116, 814-824	3.9	167
213	Finding MOFs for highly selective CO ₂ /N ₂ adsorption using materials screening based on efficient assignment of atomic point charges. <i>Journal of the American Chemical Society</i> , 2012 , 134, 4313-23	16.4	165
212	Quantifying large effects of framework flexibility on diffusion in MOFs: CH ₄ and CO ₂ in ZIF-8. <i>ChemPhysChem</i> , 2012 , 13, 3449-52	3.2	164
211	Selecting metal organic frameworks as enabling materials in mixed matrix membranes for high efficiency natural gas purification. <i>Energy and Environmental Science</i> , 2010 , 3, 343	35.4	159
210	Highly tunable molecular sieving and adsorption properties of mixed-linker zeolitic imidazolate frameworks. <i>Journal of the American Chemical Society</i> , 2015 , 137, 4191-7	16.4	155
209	Role of amine structure on carbon dioxide adsorption from ultradilute gas streams such as ambient air. <i>ChemSusChem</i> , 2012 , 5, 2058-64	8.3	151
208	Efficient methods for screening of metal organic framework membranes for gas separations using atomically detailed models. <i>Langmuir</i> , 2009 , 25, 11786-95	4	149
207	Monte Carlo Simulation of Single- and Binary-Component Adsorption of CO ₂ , N ₂ , and H ₂ in Zeolite Na-4A. <i>Energy & Fuels</i> , 2003 , 17, 977-983	4.1	147
206	Direct Air Capture of CO ₂ Using Amine Functionalized MIL-101(Cr). <i>ACS Sustainable Chemistry and Engineering</i> , 2016 , 4, 5761-5768	8.3	131

205	Role of Lewis and Brønsted Acid Sites in the Dehydration of Glycerol over Niobia. <i>ACS Catalysis</i> , 2014 , 4, 3180-3192	13.1	124
204	Direct Tests of the Darken Approximation for Molecular Diffusion in Zeolites Using Equilibrium Molecular Dynamics. <i>Journal of Physical Chemistry B</i> , 2001 , 105, 3151-3154	3.4	124
203	Temperature and Loading-Dependent Diffusion of Light Hydrocarbons in ZIF-8 as Predicted Through Fully Flexible Molecular Simulations. <i>Journal of the American Chemical Society</i> , 2015 , 137, 15760-15771	16.4	121
202	Rational Tuning of Water Vapor and CO ₂ Adsorption in Highly Stable Zr-Based MOFs. <i>Journal of Physical Chemistry C</i> , 2012 , 116, 23526-23532	3.8	121
201	Crystal-Size-Dependent Structural Transitions in Nanoporous Crystals: Adsorption-Induced Transitions in ZIF-8. <i>Journal of Physical Chemistry C</i> , 2014 , 118, 20727-20733	3.8	118
200	Carbon dioxide and methane transport in DDR zeolite: insights from molecular simulations into carbon dioxide separations in small pore zeolites. <i>Journal of the American Chemical Society</i> , 2009 , 131, 7896-904	16.4	115
199	Analysis of Equilibrium-Based TSA Processes for Direct Capture of CO ₂ from Air. <i>Industrial & Engineering Chemistry Research</i> , 2012 , 51, 8631-8645	3.9	112
198	Adsorption and Diffusion of Small Alcohols in Zeolitic Imidazolate Frameworks ZIF-8 and ZIF-90. <i>Journal of Physical Chemistry C</i> , 2013 , 117, 3169-3176	3.8	111
197	Structure and mobility of metal clusters in MOFs: Au, Pd, and AuPd clusters in MOF-74. <i>Journal of the American Chemical Society</i> , 2012 , 134, 12807-16	16.4	109
196	Prediction of CO ₂ Adsorption Properties in Zeolites Using Force Fields Derived from Periodic Dispersion-Corrected DFT Calculations. <i>Journal of Physical Chemistry C</i> , 2012 , 116, 10692-10701	3.8	107
195	Recent developments in first-principles force fields for molecules in nanoporous materials. <i>Journal of Materials Chemistry A</i> , 2014 , 2, 274-291	13	104
194	Structures of glycine, enantiopure alanine, and racemic alanine adlayers on Cu(110) and Cu(100) surfaces. <i>Journal of Physical Chemistry B</i> , 2005 , 109, 16764-73	3.4	100
193	How Reproducible Are Isotherm Measurements in Metal-Organic Frameworks?. <i>Chemistry of Materials</i> , 2017 , 29, 10487-10495	9.6	98
192	Facet-Specific Stability of ZIF-8 in the Presence of Acid Gases Dissolved in Aqueous Solutions. <i>Chemistry of Materials</i> , 2016 , 28, 6960-6967	9.6	96
191	A Comprehensive Set of High-Quality Point Charges for Simulations of Metal-Organic Frameworks. <i>Chemistry of Materials</i> , 2016 , 28, 785-793	9.6	95
190	Molecular Simulations and Theoretical Predictions for Adsorption and Diffusion of CH ₄ /H ₂ and CO ₂ /CH ₄ Mixtures in ZIFs. <i>Journal of Physical Chemistry C</i> , 2011 , 115, 12560-12566	3.8	95
189	Light isotope separation in carbon nanotubes through quantum molecular sieving. <i>Physical Review B</i> , 2001 , 63,	3.3	93
188	Identification of Metal-Organic Framework Materials for Adsorption Separation of Rare Gases: Applicability of Ideal Adsorbed Solution Theory (IAST) and Effects of Inaccessible Framework Regions. <i>Journal of Physical Chemistry C</i> , 2012 , 116, 13183-13195	3.8	92

187	High-throughput screening of metal-organic frameworks for CO ₂ separation. <i>ACS Combinatorial Science</i> , 2012 , 14, 263-7	3.9	91
186	Accurate Treatment of Electrostatics during Molecular Adsorption in Nanoporous Crystals without Assigning Point Charges to Framework Atoms. <i>Journal of Physical Chemistry C</i> , 2011 , 115, 4824-4836	3.8	91
185	Propane dehydrogenation catalyzed by gallosilicate MFI zeolites with perturbed acidity. <i>Journal of Catalysis</i> , 2017 , 345, 113-123	7.3	86
184	CO ₂ capture via adsorption in amine-functionalized sorbents. <i>Current Opinion in Chemical Engineering</i> , 2016 , 12, 82-90	5.4	84
183	Computational Characterization of Defects in Metal-Organic Frameworks: Spontaneous and Water-Induced Point Defects in ZIF-8. <i>Journal of Physical Chemistry Letters</i> , 2016 , 7, 459-64	6.4	82
182	Structural and Mechanistic Differences in Mixed-Linker Zeolitic Imidazolate Framework Synthesis by Solvent Assisted Linker Exchange and de Novo Routes. <i>Journal of the American Chemical Society</i> , 2017 , 139, 5906-5915	16.4	81
181	MOF stability and gas adsorption as a function of exposure to water, humid air, SO ₂ , and NO ₂ . <i>Microporous and Mesoporous Materials</i> , 2013 , 173, 86-91	5.3	81
180	Thermal, Oxidative and CO ₂ Induced Degradation of Primary Amines Used for CO ₂ Capture: Effect of Alkyl Linker on Stability. <i>Journal of Physical Chemistry C</i> , 2014 , 118, 12302-12311	3.8	80
179	Propane Dehydrogenation over Alumina-Supported Iron/Phosphorus Catalysts: Structural Evolution of Iron Species Leading to High Activity and Propylene Selectivity. <i>ACS Catalysis</i> , 2016 , 6, 5673-5683	13.1	79
178	Computational identification of a metal organic framework for high selectivity membrane-based CO ₂ /CH ₄ separations: Cu(hfipbb)(H ₂ hfipbb) _{0.5} . <i>Physical Chemistry Chemical Physics</i> , 2009 , 11, 11389-94	3.6	77
177	Molecular chemisorption on open metal sites in Cu ₃ (benzenetricarboxylate) ₂ : A spatially periodic density functional theory study. <i>Journal of Chemical Physics</i> , 2010 , 133, 094509	3.9	76
176	Ab initio lattice-gas modeling of interstitial hydrogen diffusion in CuPd alloys. <i>Physical Review B</i> , 2005 , 71,	3.3	76
175	Pore size analysis of >250,000 hypothetical zeolites. <i>Physical Chemistry Chemical Physics</i> , 2011 , 13, 5053-60	3.6	75
174	Large-Scale Refinement of Metal-Organic Framework Structures Using Density Functional Theory. <i>Chemistry of Materials</i> , 2017 , 29, 2521-2528	9.6	74
173	Developing chiral surfaces for enantioselective chemical processing. <i>AIChE Journal</i> , 2009 , 55, 2484-2490	3.6	72
172	Interactions of SO ₂ -Containing Acid Gases with ZIF-8: Structural Changes and Mechanistic Investigations. <i>Journal of Physical Chemistry C</i> , 2016 , 120, 27221-27229	3.8	71
171	Comparisons of diffusive and viscous contributions to transport coefficients of light gases in single-walled carbon nanotubes. <i>Molecular Simulation</i> , 2005 , 31, 643-649	2	71
170	Predictive assessment of surface resistances in zeolite membranes using atomically detailed models. <i>Journal of Physical Chemistry B</i> , 2005 , 109, 7237-44	3.4	65

169	Methods for Computing Accurate Atomic Spin Moments for Collinear and Noncollinear Magnetism in Periodic and Nonperiodic Materials. <i>Journal of Chemical Theory and Computation</i> , 2011 , 7, 4146-64	6.4	62
168	Atomically Detailed Models of the Effect of Thermal Roughening on the Enantiospecificity of Naturally Chiral Platinum Surfaces. <i>Langmuir</i> , 2002 , 18, 3737-3748	4	62
167	Molecular dynamics simulation of framework flexibility effects on noble gas diffusion in HKUST-1 and ZIF-8. <i>Microporous and Mesoporous Materials</i> , 2014 , 194, 190-199	5.3	61
166	Synergistic Effects of Water and SO ₂ on Degradation of MIL-125 in the Presence of Acid Gases. <i>Journal of Physical Chemistry C</i> , 2016 , 120, 27230-27240	3.8	59
165	First principles derived, transferable force fields for CO ₂ adsorption in Na-exchanged cationic zeolites. <i>Physical Chemistry Chemical Physics</i> , 2013 , 15, 12882-94	3.6	58
164	Hierarchical Ga-MFI Catalysts for Propane Dehydrogenation. <i>Chemistry of Materials</i> , 2017 , 29, 7213-7222	9.6	58
163	Surface interactions of C and C(3) polyols with Al ₂ O ₃ and the role of coadsorbed water. <i>Langmuir</i> , 2013 , 29, 581-93	4	58
162	Examining the accuracy of ideal adsorbed solution theory without curve-fitting using transition matrix Monte Carlo simulations. <i>Langmuir</i> , 2007 , 23, 6431-7	4	58
161	Predicting Single-Component Permeance through Macroscopic Zeolite Membranes from Atomistic Simulations. <i>Industrial & Engineering Chemistry Research</i> , 2000 , 39, 3737-3746	3.9	56
160	Monolith-Supported Amine-Functionalized Mg(dobpdc) Adsorbents for CO Capture. <i>ACS Applied Materials & Interfaces</i> , 2017 , 9, 17042-17050	9.5	53
159	Benchmarking density functional theory predictions of framework structures and properties in a chemically diverse test set of metal-organic frameworks. <i>Journal of Materials Chemistry A</i> , 2015 , 3, 22432-22440	13.4	49
158	CO ₂ Dynamics in Pure and Mixed-Metal MOFs with Open Metal Sites. <i>Journal of Physical Chemistry C</i> , 2017 , 121, 25778-25787	3.8	49
157	Density Functional Theory Study of H and CO Adsorption on Alkali-Promoted Mo ₂ C Surfaces. <i>Journal of Physical Chemistry C</i> , 2011 , 115, 6870-6876	3.8	49
156	AZn ₂ (BH ₄) ₅ (A = Li, Na) and NaZn(BH ₄) ₃ : Structural Studies. <i>Journal of Physical Chemistry C</i> , 2010 , 114, 19127-19133	3.8	49
155	Acid Gas Stability of Zeolitic Imidazolate Frameworks: Generalized Kinetic and Thermodynamic Characteristics. <i>Chemistry of Materials</i> , 2018 , 30, 4089-4101	9.6	49
154	Prediction of Water Adsorption in Copper-Based Metal-Organic Frameworks Using Force Fields Derived from Dispersion-Corrected DFT Calculations. <i>Journal of Physical Chemistry C</i> , 2013 , 117, 7519-7525	3.8	46
153	Using first-principles calculations to accelerate materials discovery for hydrogen purification membranes by modeling amorphous metals. <i>Energy and Environmental Science</i> , 2008 , 1, 175	35.4	46
152	Identification of High-CO ₂ -Capacity Cationic Zeolites by Accurate Computational Screening. <i>Chemistry of Materials</i> , 2016 , 28, 3887-3896	9.6	46

151	Efficient and Accurate Methods for Characterizing Effects of Framework Flexibility on Molecular Diffusion in Zeolites: CH ₄ Diffusion in Eight Member Ring Zeolites. <i>Journal of Physical Chemistry C</i> , 2013 , 117, 13462-13473	3.8	45
150	Enantiospecific adsorption of chiral hydrocarbons on naturally chiral Pt and Cu surfaces. <i>Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films</i> , 1999 , 17, 1700-1704	2.9	45
149	Screening of Copper Open Metal Site MOFs for Olefin/Paraffin Separations Using DFT-Derived Force Fields. <i>Journal of Physical Chemistry C</i> , 2016 , 120, 23044-23054	3.8	45
148	Control of Metal-Organic Framework Crystal Topology by Ligand Functionalization: Functionalized HKUST-1 Derivatives. <i>Crystal Growth and Design</i> , 2014 , 14, 6122-6128	3.5	43
147	The Physico-chemical Properties of Cinchona Alkaloids Responsible for their Unique Performance in Chiral Catalysis. <i>Topics in Catalysis</i> , 2008 , 48, 120-127	2.3	43
146	Heat-Treatment of Defective UiO-66 from Modulated Synthesis: Adsorption and Stability Studies. <i>Journal of Physical Chemistry C</i> , 2017 , 121, 23471-23479	3.8	42
145	First-principles studies of chiral step reconstructions of Cu(100) by adsorbed glycine and alanine. <i>Journal of Chemical Physics</i> , 2006 , 124, 74703	3.9	42
144	Influences of concerted cluster diffusion on single-file diffusion of CF ₄ in AlPO ₄ -5 and Xe in AlPO ₄ -31. <i>Journal of Chemical Physics</i> , 2000 , 112, 817-824	3.9	42
143	Thin Hydrogen-Selective SAPO-34 Zeolite Membranes for Enhanced Conversion and Selectivity in Propane Dehydrogenation Membrane Reactors. <i>Chemistry of Materials</i> , 2016 , 28, 4397-4402	9.6	41
142	Propane Dehydrogenation over In ₂ O ₃ -Ta ₂ O ₃ -Al ₂ O ₃ Mixed Oxides. <i>ChemCatChem</i> , 2016 , 8, 214-221	5.2	41
141	Transition State Theory Methods To Measure Diffusion in Flexible Nanoporous Materials: Application to a Porous Organic Cage Crystal. <i>Journal of Physical Chemistry C</i> , 2016 , 120, 1110-1120	3.8	40
140	Flexibility of Ordered Surface Hydroxyls Influences the Adsorption of Molecules in Single-Walled Aluminosilicate Nanotubes. <i>Journal of Physical Chemistry Letters</i> , 2010 , 1, 1235-1240	6.4	40
139	Efficiently Exploring Adsorption Space to Identify Privileged Adsorbents for Chemical Separations of a Diverse Set of Molecules. <i>ChemSusChem</i> , 2018 , 11, 1567-1575	8.3	39
138	Effects of Intrinsic Flexibility on Adsorption Properties of Metal-Organic Frameworks at Dilute and Nondilute Loadings. <i>ACS Applied Materials & Interfaces</i> , 2019 , 11, 31060-31068	9.5	39
137	High-T _c Layered Ferrielectric Crystals by Coherent Spinodal Decomposition. <i>ACS Nano</i> , 2015 , 9, 12365-12367	16.7	39
136	Importance of Kinetics in Surface Alloying: A Comparison of the Diffusion Pathways of Pd and Ag Atoms on Cu(111). <i>Journal of Physical Chemistry C</i> , 2009 , 113, 12863-12869	3.8	39
135	Structure Elucidation of Mixed-Linker Zeolitic Imidazolate Frameworks by Solid-State (1)H CRAMPS NMR Spectroscopy and Computational Modeling. <i>Journal of the American Chemical Society</i> , 2016 , 138, 7325-36	16.4	39
134	Establishing upper bounds on CO ₂ swing capacity in sub-ambient pressure swing adsorption via molecular simulation of metal-organic frameworks. <i>Journal of Materials Chemistry A</i> , 2017 , 5, 12258-12265	13	38

133	Thermal Fluctuations in the Structure of Naturally Chiral Pt surfaces. <i>Topics in Catalysis</i> , 2002 , 18, 193-200.	3.8	38
132	Understanding Structure, Metal Distribution, and Water Adsorption in Mixed-Metal MOF-74. <i>Journal of Physical Chemistry C</i> , 2017 , 121, 627-635	3.8	37
131	Insights into the Stability of Zeolitic Imidazolate Frameworks in Humid Acidic Environments from First-Principles Calculations. <i>Journal of Physical Chemistry C</i> , 2018 , 122, 4339-4348	3.8	37
130	Efficient simulation of binary adsorption isotherms using transition matrix Monte Carlo. <i>Langmuir</i> , 2006 , 22, 709-16	4	37
129	Computational Identification and Experimental Evaluation of Metal-Organic Frameworks for Xylene Enrichment. <i>Journal of Physical Chemistry C</i> , 2016 , 120, 12075-12082	3.8	37
128	How Useful Are Common Simulants of Chemical Warfare Agents at Predicting Adsorption Behavior?. <i>Journal of Physical Chemistry C</i> , 2018 , 122, 26061-26069	3.8	37
127	Temperature-regulated guest admission and release in microporous materials. <i>Nature Communications</i> , 2017 , 8, 15777	17.4	36
126	Liquid-Phase Multicomponent Adsorption and Separation of Xylene Mixtures by Flexible MIL-53 Adsorbents. <i>Journal of Physical Chemistry C</i> , 2018 , 122, 386-397	3.8	36
125	Metal-organic frameworks: a porous maze. <i>Nature Chemistry</i> , 2011 , 3, 429-30	17.6	36
124	Computational Prediction of Metal Organic Frameworks Suitable for Molecular Infiltration as a Route to Development of Conductive Materials. <i>Journal of Physical Chemistry Letters</i> , 2015 , 6, 1586-91	6.4	35
123	Effect of Framework Flexibility on C8 Aromatic Adsorption at High Loadings in Metal-Organic Frameworks. <i>Journal of Physical Chemistry C</i> , 2016 , 120, 370-376	3.8	35
122	How Well Do Approximate Models of Adsorption-Based CO2 Capture Processes Predict Results of Detailed Process Models?. <i>Industrial & Engineering Chemistry Research</i> , 2020 , 59, 7097-7108	3.9	35
121	Antiphase domain boundaries at the Fe3O4(001) surface. <i>Physical Review B</i> , 2012 , 85,	3.3	34
120	Formation Mechanisms and Defect Engineering of Imine-Based Porous Organic Cages. <i>Chemistry of Materials</i> , 2018 , 30, 262-272	9.6	34
119	Osmotic ensemble methods for predicting adsorption-induced structural transitions in nanoporous materials using molecular simulations. <i>Journal of Chemical Physics</i> , 2011 , 134, 184103	3.9	33
118	Using first-principles calculations to predict surface resistances to H2 transport through metal alloy membranes. <i>Journal of Membrane Science</i> , 2007 , 303, 162-172	9.6	32
117	Brownian dynamics simulation of the motion of a rigid sphere in a viscous fluid very near a wall. <i>Journal of Chemical Physics</i> , 2000 , 113, 9268-9278	3.9	31
116	Butanol Separation from Humid CO2-Containing Multicomponent Vapor Mixtures by Zeolitic Imidazolate Frameworks. <i>ACS Sustainable Chemistry and Engineering</i> , 2017 , 5, 9467-9476	8.3	30

115	Effect of correlated flights on particle mobilities during single-file diffusion. <i>Physical Review E</i> , 1997 , 55, 7753-7756	2.4	30
114	Moving Beyond Adsorption Capacity in Design of Adsorbents for CO ₂ Capture from Ultradilute Feeds: Kinetics of CO ₂ Adsorption in Materials with Stepped Isotherms. <i>Industrial & Engineering Chemistry Research</i> , 2019 , 58, 366-377	3.9	30
113	Effect of Surface Structure of TiO ₂ Nanoparticles on CO ₂ Adsorption and SO ₂ Resistance. <i>ACS Sustainable Chemistry and Engineering</i> , 2017 , 5, 9295-9306	8.3	29
112	Research Challenges in Avoiding Showstoppers in Developing Materials for Large-Scale Energy Applications. <i>Joule</i> , 2017 , 1, 208-211	27.8	28
111	Quantitative assessment of hydrogen diffusion by activated hopping and quantum tunneling in ordered intermetallics. <i>Physical Review B</i> , 2005 , 72,	3.3	28
110	DFT-Derived Force Fields for Modeling Hydrocarbon Adsorption in MIL-47(V). <i>Langmuir</i> , 2015 , 31, 8453-68	6.8	27
109	Multiscale models of sweep gas and porous support effects on zeolite membranes. <i>AIChE Journal</i> , 2005 , 51, 867-877	3.6	26
108	Characterization of the Thermodynamic Stability of Solvated Metal-Organic Framework Polymorphs Using Molecular Simulations. <i>Journal of Physical Chemistry C</i> , 2013 , 117, 20636-20642	3.8	25
107	Thermodynamics of Pore Filling Metal Clusters in Metal Organic Frameworks: Pd in UiO-66. <i>Journal of Physical Chemistry Letters</i> , 2012 , 3, 3702-6	6.4	25
106	Self-diffusion and macroscopic diffusion of hydrogen in amorphous metals from first-principles calculations. <i>Journal of Chemical Physics</i> , 2009 , 130, 244705	3.9	25
105	Stability analysis of doped materials for reversible hydrogen storage in destabilized metal hydrides. <i>Physical Review B</i> , 2007 , 76,	3.3	25
104	Assessing the Impact of Point Defects on Molecular Diffusion in ZIF-8 Using Molecular Simulations. <i>Journal of Physical Chemistry Letters</i> , 2018 , 9, 4037-4044	6.4	25
103	DFT-based force field development for noble gas adsorption in metal organic frameworks. <i>Journal of Materials Chemistry A</i> , 2015 , 3, 23539-23548	13	24
102	Competitive Binding of Ethylene, Water, and Carbon Monoxide in Metal-Organic Framework Materials with Open Cu Sites. <i>Journal of Physical Chemistry C</i> , 2018 , 122, 8960-8966	3.8	24
101	Engineering Porous Organic Cage Crystals with Increased Acid Gas Resistance. <i>Chemistry - A European Journal</i> , 2016 , 22, 10743-7	4.8	24
100	Does repeat synthesis in materials chemistry obey a power law?. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2020 , 117, 877-882	11.5	23
99	Tuning Binding Tendencies of Small Molecules in Metal-Organic Frameworks with Open Metal Sites by Metal Substitution and Linker Functionalization. <i>Journal of Physical Chemistry C</i> , 2018 , 122, 27486-27494	2.8	23
98	Selecting Adsorbents to Separate Diverse Near-Azeotropic Chemicals. <i>Journal of Physical Chemistry C</i> , 2020 , 124, 3664-3670	3.8	22

97	Adsorption and Diffusion of 4d and 5d Transition Metal Adatoms on Graphene/Ru(0001) and the Implications for Cluster Nucleation. <i>Topics in Catalysis</i> , 2014 , 57, 69-79	2.3	22
96	Computational Screening of Functionalized UiO-66 Materials for Selective Contaminant Removal from Air. <i>Journal of Physical Chemistry C</i> , 2017 , 121, 20396-20406	3.8	22
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