Ian S Metcalfe

List of Publications by Year
in descending order

100 papers	5,538 citations	34 h-index	73 g-index
102 all docs	102 docs citations	102 times ranked	6049 citing authors

#	Article	IF	Citations
1	Carbon capture and storage (CCS): the way forward. Energy and Environmental Science, 2018, 11, 1062-1176.	15.6	2,378
2	Deactivation of Cu/ZnO/Al2O3Methanol Synthesis Catalyst by Sintering. Industrial & Engineering Chemistry Research, 1999, 38, 3868-3872.	1.8	161
3	Chemical looping and oxygen permeable ceramic membranes for hydrogen production â€" a review. Energy and Environmental Science, 2012, 5, 7421.	15.6	146
4	<i>In Situ</i> Observation of Nanoparticle Exsolution from Perovskite Oxides: From Atomic Scale Mechanistic Insight to Nanostructure Tailoring. ACS Nano, 2019, 13, 12996-13005.	7.3	144
5	The use of dense mixed ionic and electronic conducting membranes for chemical production. Journal of Materials Chemistry, 2004, 14, 2475.	6.7	133
6	Demonstration of chemistry at a point through restructuring and catalytic activation at anchored nanoparticles. Nature Communications, 2017, 8, 1855.	5.8	121
7	Catalytic wet oxidation of p-coumaric acid: Partial oxidation intermediates, reaction pathways and catalyst leaching. Applied Catalysis B: Environmental, 1996, 7, 379-396.	10.8	120
8	Oxygen stoichiometries in La1âˆ’xSrxCo1âˆ’yFeyO3âˆ’Î´ perovskites at reduced oxygen partial pressures. Solid State Ionics, 2000, 134, 103-109.	1.3	88
9	Wet air oxidation of aqueous solutions of maleic acid over Ru/CeO2 catalysts. Applied Catalysis B: Environmental, 2001, 35, 1-12.	10.8	86
10	Emergence and Future of Exsolved Materials. Small, 2021, 17, e2006479.	5.2	86
11	An integrated approach to energy and chemicals production. Energy and Environmental Science, 2010, 3, 212-215.	15.6	76
12	Electrochemical Promotion of Catalysis. Journal of Catalysis, 2001, 199, 247-258.	3.1	72
13	Endogenous Nanoparticles Strain Perovskite Host Lattice Providing Oxygen Capacity and Driving Oxygen Exchange and CH₄ Conversion to Syngas. Angewandte Chemie - International Edition, 2020, 59, 2510-2519.	7.2	70
14	Wastewater treatment: wet air oxidation as a precursor to biological treatment. Catalysis Today, 1999, 53, 93-106.	2.2	68
15	Wet air oxidation of polyethylene glycols; mechanisms, intermediates and implications for integrated chemical-biological wastewater treatment. Chemical Engineering Science, 1996, 51, 4219-4235.	1.9	66
16	Exsolved Nickel Nanoparticles Acting as Oxygen Storage Reservoirs and Active Sites for Redox CH₄ Conversion. ACS Applied Energy Materials, 2019, 2, 7288-7298.	2.5	63
17	Air separation using a catalytically modified mixed conducting ceramic hollow fibre membrane module. Journal of Membrane Science, 2007, 288, 175-187.	4.1	58
18	High-stability, high-capacity oxygen carriers: Iron oxide-perovskite composite materials for hydrogen production by chemical looping. Applied Energy, 2015, 157, 382-390.	5.1	54

#	Article	IF	Citations
19	Kinetics of the Higher Alcohol Synthesis over a K-promoted $CuO/ZnO/Al_2O_3$ Catalyst. Industrial & Engineering Chemistry Research, 1994, 33, 2021-2028.	1.8	53
20	Co-electrolysis of H_2O and CO_2 on exsolved Ni nanoparticles for efficient syngas generation at controllable H_2/CO ratios. Applied Catalysis B: Environmental, 2019, 258, 117950.	10.8	53
21	Overcoming chemical equilibrium limitations using a thermodynamically reversible chemical reactor. Nature Chemistry, 2019, 11, 638-643.	6.6	53
22	Intermediate temperature solid oxide fuel cells operated with methanol fuels. Chemical Engineering Science, 2000, 55, 3077-3083.	1.9	52
23	Symmetrical Exsolution of Rh Nanoparticles in Solid Oxide Cells for Efficient Syngas Production from Greenhouse Gases. ACS Catalysis, 2020, 10, 1278-1288.	5.5	52
24	Electrochemical Promotion of Catalysis. Journal of Catalysis, 2001, 199, 259-272.	3.1	50
25	$La_{0.6}Sr_{0.4}Co_{0.2}Fe_{0.8}O_3$â^'Î´ microtubular membranes for hydrogen production from water splitting. Journal of Membrane Science, 2012, 389, 173-181.	4.1	48
26	Partial wet oxidation of p-coumaric acid: Oxidation intermediates, reaction pathways and implications for wastewater treatment. Water Research, 1996, 30, 2969-2976.	5.3	47
27	Supported molten-salt membranes for carbon dioxide permeation. Journal of Materials Chemistry A, 2019, 7, 12951-12973.	5.2	41
28	Kinetics of low frequency sonodegradation of linear alkylbenzene sulfonate solutions. Chemosphere, 2006, 62, 749-755.	4.2	40
29	Towards efficient use of noble metals <i>via</i> exsolution exemplified for CO oxidation. Nanoscale, 2019, 11, 16935-16944.	2.8	40
30	Roadmap on inorganic perovskites for energy applications. JPhys Energy, 2021, 3, 031502.	2.3	40
31	Wet Air Oxidation of Linear Alkylbenzene Sulfonate 1. Effect of Temperature and Pressure. Industrial & Engineering Chemistry Research, 2001, 40, 5507-5516.	1.8	38
32	High performance composite CO_2 separation membranes. Journal of Membrane Science, 2014, 471, 211-218.	4.1	38
33	Integration of Wet Oxidation and Nanofiltration for Treatment of Recalcitrant Organics in Wastewater. Industrial & Engineering Chemistry Research, 1997, 36, 5054-5062.	1.8	37
34	Integrated Wet Air Oxidation and Biological Treatment of Polyethylene Glycol-Containing Wastewaters. Journal of Chemical Technology and Biotechnology, 1997, 70, 147-156.	1.6	35
35	Sulfur-Tolerant, Exsolved Feâ€"Ni Alloy Nanoparticles for CO Oxidation. Topics in Catalysis, 2019, 62, 1149-1156.	1.3	35
36	Study of the Activity and Deactivation of Ni-YSZ Cermet in Dry CH_4 Using Temperature-Programmed Techniques. Industrial & Engineering Chemistry Research, 1995, 34, 1558-1565.	1.8	34

#	Article	IF	Citations
37	Phase interactions in Ni-Cu-Al2O3 mixed oxide oxygen carriers for chemical looping applications. Applied Energy, 2019, 236, 635-647.	5.1	33
38	Chemical treatment of an anionic surfactant wastewater: electrospray-ms studies of intermediates and effect on aerobic biodegradability. Water Research, 2001, 35, 3337-3344.	5.3	32
39	Wet air oxidation (WAO) as a precursor to biological treatment of substituted phenols: Refractory nature of the WAO intermediates. Chemical Engineering Journal, 2008, 144, 205-212.	6.6	31
40	Influence of reactor design on cyclic carbonate synthesis catalysed by a bimetallic aluminium(salen) complex. Journal of CO2 Utilization, 2013, 2, 24-28.	3.3	31
41	Shape-persistent porous organic cage supported palladium nanoparticles as heterogeneous catalytic materials. Nanoscale, 2019, 11, 14929-14936.	2.8	29
42	Hydrogen-permeation characteristics of a SrCeO3-based ceramic separation membrane: Thermal, ageing and surface-modification effects. Solid State Ionics, 2010, 181, 230-235.	1.3	27
43	Trends and Prospects of Bimetallic Exsolution. Chemistry - A European Journal, 2021, 27, 6666-6675.	1.7	27
44	Wet Air Oxidation of Linear Alkylbenzene Sulfonate 2. Effect of pH. Industrial & Engineering Chemistry Research, 2001, 40, 5517-5525.	1.8	26
45	Stabilised-zirconia solid electrolyte membranes in catalysis. Catalysis Today, 1994, 20, 283-293.	2.2	24
46	Exsolution of Catalytically Active Iridium Nanoparticles from Strontium Titanate. ACS Applied Materials & Interfaces, 2020, 12, 37444-37453.	4.0	24
47	Low temperature methane conversion with perovskite-supported <i>exo</i>/<i>endo</i>-particles. Journal of Materials Chemistry A, 2020, 8, 12406-12417.	5.2	22
48	H2FC SUPERGEN: An overview of the Hydrogen and Fuel Cell research across the UK. International Journal of Hydrogen Energy, 2015, 40, 5534-5543.	3.8	21
49	Biodegradability of linear alkylbenzene sulfonates subjected to wet air oxidation. Journal of Chemical Technology and Biotechnology, 2002, 77, 1039-1049.	1.6	20
50	Composite CO2 separation membranes: Insights on kinetics and stability. Journal of Membrane Science, 2017, 541, 253-261.	4.1	20
51	Microstructure and performance of novel Ni anode for hollow fibre solid oxide fuel cells. Solid State Ionics, 2009, 180, 800-804.	1.3	18
52	Steam Reforming of Methanol with Sm₂O₃âˆ’CeO₂-Supported Palladium Catalysts: Influence of the Thermal Treatments of Catalyst and Support. Industrial & Engineering Chemistry Research, 2009, 48, 8364-8372.	1.8	18
53	A simple method for the determination of surface exchange and ionic transport kinetics in oxides. Solid State Ionics, 2000, 136-137, 991-996.	1.3	17
54	Production of high purity H2 through chemical-looping waterâ€“gas shift at reforming temperatures â€“ The importance of non-stoichiometric oxygen carriers. Chemical Engineering Journal, 2021, 423, 130174.	6.6	16

#	Article	IF	Citations
55	Wet air oxidation and ultrasound for the removal of linear alkylbenzene sulfonates from wastewater: the beneficial role of catalysis. Topics in Catalysis, 2005, 33, 141-148.	1.3	15
56	Beyond surface redox and oxygen mobility at pd-polar ceria (100) interface: Underlying principle for strong metal-support interactions in green catalysis. Applied Catalysis B: Environmental, 2020, 270, 118843.	10.8	15
57	Dendritic silver self-assembly in molten-carbonate membranes for efficient carbon dioxide capture. Energy and Environmental Science, 2020, 13, 1766-1775.	15.6	15
58	Role of the Three-Phase Boundary of the Platinumâ€"Support Interface in Catalysis: A Model Catalyst Kinetic Study. ACS Catalysis, 2016, 6, 5865-5872.	5.5	14
59	Wet Air Oxidation of Aqueous Solutions of Linear Alkylbenzene Sulfonates. Industrial & Engineering Chemistry Research, 2000, 39, 3659-3665.	1.8	13
60	Comparative studies between classic and wireless electrochemical promotion of a Pt catalyst for ethylene oxidation. Journal of Applied Electrochemistry, 2008, 38, 1121-1126.	1.5	13
61	Controlled spillover in a single catalyst pellet: Rate modification, mechanism and relationship with electrochemical promotion. Journal of Catalysis, 2011, 281, 188-197.	3.1	13
62	Catalytic and non-catalytic wet air oxidation of sodium dodecylbenzene sulfonate: Kinetics and biodegradability enhancement. Journal of Hazardous Materials, 2007, 144, 655-662.	6.5	12
63	Morphological control of electroless plated Ni anodes: Influence on fuel cell performance. Solid State Ionics, 2008, 179, 2042-2046.	1.3	12
64	Remote control of the activity of a Pt catalyst supported on a mixed ionic electronic conducting membrane. Solid State Ionics, 2008, 179, 1347-1350.	1.3	12
65	Combining Exsolution and Infiltration for Redox, Low Temperature CH4 Conversion to Syngas. Catalysts, 2020, 10, 468.	1.6	12
66	Controlling molten carbonate distribution in dual-phase molten salt-ceramic membranes to increase carbon dioxide permeation rates. Journal of Membrane Science, 2021, 617, 118640.	4.1	12
67	Temperature programmed investigation of La(Ca)CrO3 anode for the oxidation of methane in solid oxide fuel cells. Catalysis Today, 1996, 27, 285-288.	2.2	11
68	Microstructure and Performance Investigation of a Solid Oxide Fuel Cells Based on Highly Asymmetric YSZ Microtubular Electrolytes. Industrial & Engineering Chemistry Research, 2010, 49, 6062-6068.	1.8	11
69	Electrochemical promotion of a Pt catalyst supported on La0.6Sr0.4Co0.2Fe0.8O3â^'Î´ hollow fibre membranes. Solid State Ionics, 2012, 225, 382-385.	1.3	11
70	The impact of sulfur contamination on the performance of La0.6Sr0.4Co0.2Fe0.8O3â^'Î´ oxygen transport membranes. Solid State Ionics, 2014, 262, 262-265.	1.3	11
71	â€˜Uphillâ€™ permeation of carbon dioxide across a composite molten salt-ceramic membrane. Journal of Membrane Science, 2015, 485, 87-93.	4.1	11
72	The effects of sulphur poisoning on the microstructure, composition and oxygen transport properties of perovskite membranes coated with nanoscale alumina layers. Journal of Membrane Science, 2021, 618, 118736.	4.1	10

#	Article	IF	Citations
73	Beneficial combination of wet oxidation, membrane separation and biodegradation processes for treatment of polymer processing wastewaters. Canadian Journal of Chemical Engineering, 2000, 78, 418-422.	0.9	9
74	Selective, high-temperature permeation of nitrogen oxides using a supported molten salt membrane. Energy and Environmental Science, 2015, 8, 1220-1223.	15.6	9
75	Endogenous Nanoparticles Strain Perovskite Host Lattice Providing Oxygen Capacity and Driving Oxygen Exchange and CH 4 Conversion to Syngas. Angewandte Chemie, 2020, 132, 2531-2540.	1.6	9
76	Autonomous and intrinsic self-healing Al2O3 membrane employing highly-wetting and CO2-selective molten salts. Journal of Membrane Science, 2020, 600, 117855.	4.1	7
77	Revisiting the thermal and chemical expansion and stability of La0.6Sr0.4FeO3â˘'. Journal of Solid State Chemistry, 2021, 293, 121838.	1.4	7
78	Effects of separation layer thickness on oxygen permeation and mechanical strength of DL-HFMR-ScSZ. Journal of Membrane Science, 2012, 415-416, 229-236.	4.1	6
79	A combinatorial approach to synthesis of the La0.8Sr0.2Co1â˘'yMnyO3Â±Î´ family of perovskite-type mixed conducting metal oxides and characterisation of the surface oxygen mobility. Solid State Ionics, 2012, 225, 182-185.	1.3	6
80	The role of sodium surface species on oxygen charge transfer in the Pt/YSZ system. Electrochimica Acta, 2012, 76, 112-119.	2.6	6
81	Tracking the evolution of a single composite particle during redox cycling for application in H2 production. Scientific Reports, 2020, 10, 5266.	1.6	6
82	Development and testing of an intermediate temperature glass sealant for use in mixed ionic and electronic conducting membrane reactors. Solid State Ionics, 2010, 181, 767-774.	1.3	5
83	Methanol synthesis from CO2/H2 over Pd promoted Cu/ZnO/Al2O3 catalysts. Studies in Surface Science and Catalysis, 1998, 114, 351-356.	1.5	4
84	Calibration of a kinetic model for wet air oxidation (WAO) of substituted phenols: Influence of experimental data on model prediction and practical identifiability. Chemical Engineering Journal, 2009, 150, 328-336.	6.6	4
85	Impact of Gasâ€"Solid Reaction Thermodynamics on the Performance of a Chemical Looping Ammonia Synthesis Process. Energy & Fuels, 0, , .	2.5	4
86	Influence of impurities and catalyst surface characteristics on the oxygen charge transfer reaction in the Pt/YSZ system. Solid State Ionics, 2012, 225, 390-394.	1.3	3
87	The role of sodium surface species on electrochemical promotion of catalysis in a Pt/YSZ system: The case of ethylene oxidation. Journal of Catalysis, 2013, 303, 100-109.	3.1	3
88	Potentiometric Sensor for Monitoring the State of Oxide Catalysts. Journal of the Electrochemical Society, 1995, 142, 952-957.	1.3	2
89	Solid electrolyte electrochemical cells for catalyst sensing. Catalysis, 0, , 1-36.	0.6	2
90	Electrochemical promotion of catalysis: the use of transition state theory for the prediction of reaction rate modification. Solid State Ionics, 2002, 152-153, 669-674.	1.3	2

#	Article	IF	Citations
91	The role of low coverage sodium surface species on electrochemical promotion in a Pt/YSZ system. Solid State Ionics, 2012, 225, 386-389.	1.3	2
92	High temperature gas separation through dual ion-conducting membranes. Current Opinion in Chemical Engineering, 2013, 2, 217-222.	3.8	1
93	Fundamental electrochemistry: general discussion. Faraday Discussions, 2015, 182, 177-212.	1.6	1
94	An investigation into the stability and use of non-stoichiometric YBaCo4O7+Î´ for oxygen enrichment processes. Solid State Ionics, 2018, 320, 292-296.	1.3	1
95	Measuring Membrane Permeation Rates through the Optical Visualization of a Single Pore. ACS Applied Materials & Interfaces, 2020, 12, 16436-16441.	4.0	1
96	Frontispiece: Trends and Prospects of Bimetallic Exsolution. Chemistry - A European Journal, 2021, 27, .	1.7	1
97	Integrated Wet Air Oxidation and Biological Treatment of Polyethylene Glycol-Containing Wastewaters. , 1997, 70, 147.		1
98	Comment on â€œWork Function Changes of Polarized Electrodes on Solid Electrolytesâ€•[J. Electrochem. Soc., 152, E138 (2005)]. Journal of the Electrochemical Society, 2006, 153, L15.	1.3	0
99	System studies and understanding durability: general discussion. Faraday Discussions, 2015, 182, 437-456.	1.6	0
100	Materials development: general discussion. Faraday Discussions, 2015, 182, 307-328.	1.6	0