Ian S Metcalfe

List of Publications by Year
in descending order

100 papers	5,538 citations	117453 34 h-index	79541 73 g-index
102 all docs	102 docs citations	102 times ranked	6049 citing authors

#	Article	IF	Citations
1	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
2	Revisiting the thermal and chemical expansion and stability of La0.6Sr0.4FeO3âˆ’. Journal of Solid State Chemistry, 2021, 293, 121838.	1.4	7
3	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
4	Trends and Prospects of Bimetallic Exsolution. Chemistry - A European Journal, 2021, 27, 6666-6675.	1.7	27
5	Emergence and Future of Exsolved Materials. Small, 2021, 17, e2006479.	5.2	86
6	Frontispiece: Trends and Prospects of Bimetallic Exsolution. Chemistry - A European Journal, 2021, 27, .	1.7	1
7	Roadmap on inorganic perovskites for energy applications. JPhys Energy, 2021, 3, 031502.	2.3	40
8	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
9	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
10	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
11	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
12	Exsolution of Catalytically Active Iridium Nanoparticles from Strontium Titanate. ACS Applied Materials & Interfaces, 2020, 12, 37444-37453.	4.0	24
13	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
14	Measuring Membrane Permeation Rates through the Optical Visualization of a Single Pore. ACS Applied Materials & Interfaces, 2020, 12, 16436-16441.	4.0	1
15	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
16	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
17	Dendritic silver self-assembly in molten-carbonate membranes for efficient carbon dioxide capture. Energy and Environmental Science, 2020, 13, 1766-1775.	15.6	15
18	Combining Exsolution and Infiltration for Redox, Low Temperature CH4 Conversion to Syngas. Catalysts, 2020, 10, 468.	1.6	12

#	Article	IF	Citations
19	Tracking the evolution of a single composite particle during redox cycling for application in H2 production. Scientific Reports, 2020, 10, 5266.	1.6	6
20	Co-electrolysis of H2O and CO2 on exsolved Ni nanoparticles for efficient syngas generation at controllable H2/CO ratios. Applied Catalysis B: Environmental, 2019, 258, 117950.	10.8	53
21	Shape-persistent porous organic cage supported palladium nanoparticles as heterogeneous catalytic materials. Nanoscale, 2019, 11, 14929-14936.	2.8	29
22	<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
23	Towards efficient use of noble metals <i>via</i> exsolution exemplified for CO oxidation. Nanoscale, 2019, 11, 16935-16944.	2.8	40
24	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
25	Overcoming chemical equilibrium limitations using a thermodynamically reversible chemical reactor. Nature Chemistry, 2019, 11, 638-643.	6.6	53
26	Supported molten-salt membranes for carbon dioxide permeation. Journal of Materials Chemistry A, 2019, 7, 12951-12973.	5.2	41
27	Phase interactions in Ni-Cu-Al2O3 mixed oxide oxygen carriers for chemical looping applications. Applied Energy, 2019, 236, 635-647.	5.1	33
28	Sulfur-Tolerant, Exsolved Feâ€"Ni Alloy Nanoparticles for CO Oxidation. Topics in Catalysis, 2019, 62, 1149-1156.	1.3	35
29	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
30	Carbon capture and storage (CCS): the way forward. Energy and Environmental Science, 2018, 11, 1062-1176.	15.6	2,378
31	Demonstration of chemistry at a point through restructuring and catalytic activation at anchored nanoparticles. Nature Communications, 2017, 8, 1855.	5.8	121
32	Composite CO2 separation membranes: Insights on kinetics and stability. Journal of Membrane Science, 2017, 541, 253-261.	4.1	20
33	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
34	Selective, high-temperature permeation of nitrogen oxides using a supported molten salt membrane. Energy and Environmental Science, 2015, 8, 1220-1223.	15.6	9
35	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
36	â€˜Uphillâ€™ permeation of carbon dioxide across a composite molten salt-ceramic membrane. Journal of Membrane Science, 2015, 485, 87-93.	4.1	11

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37	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
38	System studies and understanding durability: general discussion. Faraday Discussions, 2015, 182, 437-456.	1.6	0
39	Fundamental electrochemistry: general discussion. Faraday Discussions, 2015, 182, 177-212.	1.6	1
40	Materials development: general discussion. Faraday Discussions, 2015, 182, 307-328.	1.6	0
41	The impact of sulfur contamination on the performance of La0.6Sr0.4Co0.2Fe0.8O3âˆ’Î´ oxygen transport membranes. Solid State Ionics, 2014, 262, 262-265.	1.3	11
42	High performance composite CO2 separation membranes. Journal of Membrane Science, 2014, 471, 211-218.	4.1	38
43	High temperature gas separation through dual ion-conducting membranes. Current Opinion in Chemical Engineering, 2013, 2, 217-222.	3.8	1
44	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
45	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
46	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
47	Electrochemical promotion of a Pt catalyst supported on La0.6Sr0.4Co0.2Fe0.8O3âˆ’Î´ hollow fibre membranes. Solid State Ionics, 2012, 225, 382-385.	1.3	11
48	A combinatorial approach to synthesis of the La0.8Sr0.2Co1âˆ’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
49	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
50	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
51	Chemical looping and oxygen permeable ceramic membranes for hydrogen production â€“ a review. Energy and Environmental Science, 2012, 5, 7421.	15.6	146
52	The role of sodium surface species on oxygen charge transfer in the Pt/YSZ system. Electrochimica Acta, 2012, 76, 112-119.	2.6	6
53	La0.6Sr0.4Co0.2Fe0.8O3âˆ’Î´ microtubular membranes for hydrogen production from water splitting. Journal of Membrane Science, 2012, 389, 173-181.	4.1	48
54	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

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55	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
56	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
57	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
58	An integrated approach to energy and chemicals production. Energy and Environmental Science, 2010, 3, 212-215.	15.6	76
59	Microstructure and performance of novel Ni anode for hollow fibre solid oxide fuel cells. Solid State Ionics, 2009, 180, 800-804.	1.3	18
60	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
61	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
62	Morphological control of electroless plated Ni anodes: Influence on fuel cell performance. Solid State Ionics, 2008, 179, 2042-2046.	1.3	12
63	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
64	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
65	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
66	Air separation using a catalytically modified mixed conducting ceramic hollow fibre membrane module. Journal of Membrane Science, 2007, 288, 175-187.	4.1	58
67	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
68	Kinetics of low frequency sonodegradation of linear alkylbenzene sulfonate solutions. Chemosphere, 2006, 62, 749-755.	4.2	40
69	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
70	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
71	The use of dense mixed ionic and electronic conducting membranes for chemical production. Journal of Materials Chemistry, 2004, 14, 2475.	6.7	133
72	Biodegradability of linear alkylbenzene sulfonates subjected to wet air oxidation. Journal of Chemical Technology and Biotechnology, 2002, 77, 1039-1049.	1.6	20

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73	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
74	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
75	Wet Air Oxidation of Linear Alkylbenzene Sulfonate 1. Effect of Temperature and Pressure. Industrial & Engineering Chemistry Research, 2001, 40, 5507-5516.	1.8	38
76	Wet Air Oxidation of Linear Alkylbenzene Sulfonate 2. Effect of pH. Industrial & Engineering Chemistry Research, 2001, 40, 5517-5525.	1.8	26
77	Electrochemical Promotion of Catalysis. Journal of Catalysis, 2001, 199, 247-258.	3.1	72
78	Electrochemical Promotion of Catalysis. Journal of Catalysis, 2001, 199, 259-272.	3.1	50
79	Wet air oxidation of aqueous solutions of maleic acid over Ru/CeO2 catalysts. Applied Catalysis B: Environmental, 2001, 35, 1-12.	10.8	86
80	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
81	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
82	Oxygen stoichiometries in La1â^'xSrxCo1â^'yFeyO3â^'Î´ perovskites at reduced oxygen partial pressures. Solid State Ionics, 2000, 134, 103-109.	1.3	88
83	Intermediate temperature solid oxide fuel cells operated with methanol fuels. Chemical Engineering Science, 2000, 55, 3077-3083.	1.9	52
84	Wet Air Oxidation of Aqueous Solutions of Linear Alkylbenzene Sulfonates. Industrial & Engineering Chemistry Research, 2000, 39, 3659-3665.	1.8	13
85	Wastewater treatment: wet air oxidation as a precursor to biological treatment. Catalysis Today, 1999, 53, 93-106.	2.2	68
86	Deactivation of Cu/ZnO/Al2O3Methanol Synthesis Catalyst by Sintering. Industrial & Engineering Chemistry Research, 1999, 38, 3868-3872.	1.8	161
87	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
88	Integration of Wet Oxidation and Nanofiltration for Treatment of Recalcitrant Organics in Wastewater. Industrial & Engineering Chemistry Research, 1997, 36, 5054-5062.	1.8	37
89	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
90	Integrated Wet Air Oxidation and Biological Treatment of Polyethylene Glycol-Containing Wastewaters. , 1997, 70, 147.		1

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91	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
92	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
93	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
94	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
95	Study of the Activity and Deactivation of Ni-YSZ Cermet in Dry CH4 Using Temperature-Programmed Techniques. Industrial & Engineering Chemistry Research, 1995, 34, 1558-1565.	1.8	34
96	Potentiometric Sensor for Monitoring the State of Oxide Catalysts. Journal of the Electrochemical Society, 1995, 142, 952-957.	1.3	2
97	Stabilised-zirconia solid electrolyte membranes in catalysis. Catalysis Today, 1994, 20, 283-293.	2.2	24
98	Kinetics of the Higher Alcohol Synthesis over a K-promoted CuO/ZnO/Al2O3 Catalyst. Industrial & Engineering Chemistry Research, 1994, 33, 2021-2028.	1.8	53
99	Solid electrolyte electrochemical cells for catalyst sensing. Catalysis, 0, , 1-36.	0.6	2
100	Impact of Gasâ€"Solid Reaction Thermodynamics on the Performance of a Chemical Looping Ammonia Synthesis Process. Energy & Fuels, 0, , .	2.5	4