

Ifan E L Stephens

List of Publications by Year in descending order

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108
papers

19,465
citations

34105

52
h-index

29157

104
g-index

118
all docs

118
docs citations

118
times ranked

16185
citing authors

#	ARTICLE	IF	CITATIONS
1	Alloys of platinum and early transition metals as oxygen reduction electrocatalysts. <i>Nature Chemistry</i> , 2009, 1, 552-556.	13.6	2,716
2	Progress and Perspectives of Electrochemical CO ₂ Reduction on Copper in Aqueous Electrolyte. <i>Chemical Reviews</i> , 2019, 119, 7610-7672.	47.7	2,708
3	Enabling direct H ₂ O ₂ production through rational electrocatalyst design. <i>Nature Materials</i> , 2013, 12, 1137-1143.	27.5	1,031
4	A rigorous electrochemical ammonia synthesis protocol with quantitative isotope measurements. <i>Nature</i> , 2019, 570, 504-508.	27.8	1,006
5	Understanding the electrocatalysis of oxygen reduction on platinum and its alloys. <i>Energy and Environmental Science</i> , 2012, 5, 6744.	30.8	991
6	Recommended Practices and Benchmark Activity for Hydrogen and Oxygen Electrocatalysis in Water Splitting and Fuel Cells. <i>Advanced Materials</i> , 2019, 31, e1806296.	21.0	841
7	Tuning the activity of Pt alloy electrocatalysts by means of the lanthanide contraction. <i>Science</i> , 2016, 352, 73-76.	12.6	783
8	Toward the Decentralized Electrochemical Production of H ₂ O ₂ : A Focus on the Catalysis. <i>ACS Catalysis</i> , 2018, 8, 4064-4081.	11.2	663
9	Trends in the Electrochemical Synthesis of H ₂ O ₂ : Enhancing Activity and Selectivity by Electrocatalytic Site Engineering. <i>Nano Letters</i> , 2014, 14, 1603-1608.	9.1	521
10	Probing the Active Surface Sites for CO Reduction on Oxide-Derived Copper Electrocatalysts. <i>Journal of the American Chemical Society</i> , 2015, 137, 9808-9811.	13.7	516
11	Tuning the Activity of Pt(111) for Oxygen Electroreduction by Subsurface Alloying. <i>Journal of the American Chemical Society</i> , 2011, 133, 5485-5491.	13.7	447
12	Toward sustainable fuel cells. <i>Science</i> , 2016, 354, 1378-1379.	12.6	384
13	Impact of nanoparticle size and lattice oxygen on water oxidation on NiFeOxHy. <i>Nature Catalysis</i> , 2018, 1, 820-829.	34.4	344
14	The Effect of Size on the Oxygen Electroreduction Activity of Mass-Selected Platinum Nanoparticles. <i>Angewandte Chemie - International Edition</i> , 2012, 51, 4641-4643.	13.8	319
15	Benchmarking the Stability of Oxygen Evolution Reaction Catalysts: The Importance of Monitoring Mass Losses. <i>ChemElectroChem</i> , 2014, 1, 2075-2081.	3.4	301
16	Mass-selected nanoparticles of Pt _x Y as model catalysts for oxygen electroreduction. <i>Nature Chemistry</i> , 2014, 6, 732-738.	13.6	298
17	Oxygen evolution on well-characterized mass-selected Ru and RuO ₂ nanoparticles. <i>Chemical Science</i> , 2015, 6, 190-196.	7.4	298
18	Towards identifying the active sites on RuO ₂ (110) in catalyzing oxygen evolution. <i>Energy and Environmental Science</i> , 2017, 10, 2626-2637.	30.8	278

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19	Orientation-Dependent Oxygen Evolution on RuO ₂ without Lattice Exchange. ACS Energy Letters, 2017, 2, 876-881.	17.4	251
20	Pt ₅ Gd as a Highly Active and Stable Catalyst for Oxygen Electroreduction. Journal of the American Chemical Society, 2012, 134, 16476-16479.	13.7	234
21	Progress and Perspectives in Photo- and Electrochemical Oxidation of Biomass for Sustainable Chemicals and Hydrogen Production. Advanced Energy Materials, 2021, 11, 2101180.	19.5	200
22	Toward an Active and Stable Catalyst for Oxygen Evolution in Acidic Media: Ti-Stabilized MnO ₂ . Advanced Energy Materials, 2015, 5, 1500991.	19.5	177
23	The Pt(111)/Electrolyte Interface under Oxygen Reduction Reaction Conditions: An Electrochemical Impedance Spectroscopy Study. Langmuir, 2011, 27, 2058-2066.	3.5	170
24	Acetaldehyde as an Intermediate in the Electroreduction of Carbon Monoxide to Ethanol on Oxide-Derived Copper. Angewandte Chemie - International Edition, 2016, 55, 1450-1454.	13.8	166
25	Operando identification of site-dependent water oxidation activity on ruthenium dioxide single-crystal surfaces. Nature Catalysis, 2020, 3, 516-525.	34.4	166
26	Minimizing the Use of Platinum in Hydrogen-Evolving Electrodes. Angewandte Chemie - International Edition, 2011, 50, 1476-1477.	13.8	150
27	Trends in Activity and Dissolution on RuO ₂ under Oxygen Evolution Conditions: Particles versus Well-Defined Extended Surfaces. ACS Energy Letters, 2018, 3, 2045-2051.	17.4	144
28	CO ₂ Electroreduction on Well-Defined Bimetallic Surfaces: Cu Overlayers on Pt(111) and Pt(211). Journal of Physical Chemistry C, 2013, 117, 20500-20508.	3.1	119
29	Spectroelectrochemical study of water oxidation on nickel and iron oxyhydroxide electrocatalysts. Nature Communications, 2019, 10, 5208.	12.8	118
30	Opportunities and challenges in the electrocatalysis of CO ₂ and CO reduction using bifunctional surfaces: A theoretical and experimental study of Au-Cd alloys. Journal of Catalysis, 2016, 343, 215-231.	6.2	115
31	Methods for nitrogen activation by reduction and oxidation. Nature Reviews Methods Primers, 2021, 1, .	21.2	107
32	Structure Sensitivity in the Electrocatalytic Reduction of CO ₂ with Gold Catalysts. Angewandte Chemie - International Edition, 2019, 58, 3774-3778.	13.8	106
33	Enhanced activity and stability of Pt-La and Pt-Ce alloys for oxygen electroreduction: the elucidation of the active surface phase. Journal of Materials Chemistry A, 2014, 2, 4234.	10.3	105
34	Identical locations transmission electron microscopy study of Pt/C electrocatalyst degradation during oxygen reduction reaction. Journal of Power Sources, 2011, 196, 6085-6091.	7.8	104
35	Importance of Surface IrO _x in Stabilizing RuO ₂ for Oxygen Evolution. Journal of Physical Chemistry B, 2018, 122, 947-955.	2.6	95
36	Design of an Active Site towards Optimal Electrocatalysis: Overlayers, Surface Alloys and Near-Surface Alloys of Cu/Pt(111). Angewandte Chemie - International Edition, 2012, 51, 11845-11848.	13.8	94

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37	Iron-Treated NiO as a Highly Transparent p-Type Protection Layer for Efficient Si-Based Photoanodes. <i>Journal of Physical Chemistry Letters</i> , 2014, 5, 3456-3461.	4.6	93
38	Elucidating the activity of stepped Pt single crystals for oxygen reduction. <i>Physical Chemistry Chemical Physics</i> , 2014, 16, 13625.	2.8	92
39	Benchmarking Pt-based electrocatalysts for low temperature fuel cell reactions with the rotating disk electrode: oxygen reduction and hydrogen oxidation in the presence of CO (review article). <i>Electrochimica Acta</i> , 2015, 179, 647-657.	5.2	86
40	Oxygen Electroreduction Activity and X-Ray Photoelectron Spectroscopy of Platinum and Early Transition Metal Alloys. <i>ChemCatChem</i> , 2012, 4, 341-349.	3.7	84
41	The enhanced activity of mass-selected Pt Gd nanoparticles for oxygen electroreduction. <i>Journal of Catalysis</i> , 2015, 328, 297-307.	6.2	83
42	Dual-Metal Atom Electrocatalysts: Theory, Synthesis, Characterization, and Applications. <i>Advanced Energy Materials</i> , 2022, 12, .	19.5	78
43	Ionic conductivity of $Ce_{1-x}Nd_xO_{2-x/2}$. <i>Solid State Ionics</i> , 2006, 177, 669-676.	2.7	76
44	2022 roadmap on low temperature electrochemical CO ₂ reduction. <i>JPhys Energy</i> , 2022, 4, 042003.	5.3	76
45	Fundamental limitation of electrocatalytic methane conversion to methanol. <i>Physical Chemistry Chemical Physics</i> , 2018, 20, 11152-11159.	2.8	73
46	Electroreduction of CO on Polycrystalline Copper at Low Overpotentials. <i>ACS Energy Letters</i> , 2018, 3, 634-640.	17.4	73
47	Elucidation of the Oxygen Reduction Volcano in Alkaline Media using a Copper-Platinum(111) Alloy. <i>Angewandte Chemie - International Edition</i> , 2018, 57, 2800-2805.	13.8	72
48	Spectroelectrochemical Analysis of the Water Oxidation Mechanism on Doped Nickel Oxides. <i>Journal of the American Chemical Society</i> , 2022, 144, 7622-7633.	13.7	66
49	Carbon catalysts for electrochemical hydrogen peroxide production in acidic media. <i>Electrochimica Acta</i> , 2018, 272, 192-202.	5.2	63
50	Structure-Sensitivity and Electrolyte Effects in CO ₂ Electroreduction: From Model Studies to Applications. <i>ChemCatChem</i> , 2019, 11, 3626-3645.	3.7	61
51	Scalable Synthesis of Carbon-Supported Platinum-Lanthanide and Rare-Earth Alloys for Oxygen Reduction. <i>ACS Catalysis</i> , 2018, 8, 2071-2080.	11.2	59
52	<i>Operando</i> XAS Study of the Surface Oxidation State on a Monolayer IrO _x on RuO _x and Ru Oxide Based Nanoparticles for Oxygen Evolution in Acidic Media. <i>Journal of Physical Chemistry B</i> , 2018, 122, 878-887.	2.6	59
53	Direct observation of the dealloying process of a platinum-yttrium nanoparticle fuel cell cathode and its oxygenated species during the oxygen reduction reaction. <i>Physical Chemistry Chemical Physics</i> , 2015, 17, 28121-28128.	2.8	54
54	Probing the nanoscale structure of the catalytically active overlayer on Pt alloys with rare earths. <i>Nano Energy</i> , 2016, 29, 249-260.	16.0	49

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55	Pt Skin Versus Pt Skeleton Structures of Pt ₃ Sc as Electrocatalysts for Oxygen Reduction. Topics in Catalysis, 2014, 57, 245-254.	2.8	47
56	Polycrystalline and Single-Crystal Cu Electrodes: Influence of Experimental Conditions on the Electrochemical Properties in Alkaline Media. Chemistry - A European Journal, 2018, 24, 17743-17755.	3.3	46
57	Surface Orientation Dependent Water Dissociation on Rutile Ruthenium Dioxide. Journal of Physical Chemistry C, 2018, 122, 17802-17811.	3.1	44
58	Acetaldehyde as an Intermediate in the Electroreduction of Carbon Monoxide to Ethanol on Oxide-Derived Copper. Angewandte Chemie, 2016, 128, 1472-1476.	2.0	39
59	Operando investigation of Au-MnOx thin films with improved activity for the oxygen evolution reaction. Electrochimica Acta, 2017, 230, 22-28.	5.2	39
60	High Specific and Mass Activity for the Oxygen Reduction Reaction for Thin Film Catalysts of Sputtered Pt ₃ Y. Advanced Materials Interfaces, 2017, 4, 1700311.	3.7	39
61	Benchmarking Pt and Pt-lanthanide sputtered thin films for oxygen electroreduction: fabrication and rotating disk electrode measurements. Electrochimica Acta, 2017, 247, 708-721.	5.2	39
62	Towards an atomistic understanding of electrocatalytic partial hydrocarbon oxidation: propene on palladium. Energy and Environmental Science, 2019, 12, 1055-1067.	30.8	39
63	Is lithium the key for nitrogen electroreduction?. Science, 2021, 372, 1149-1150.	12.6	37
64	Correlation between diffusion barriers and alloying energy in binary alloys. Physical Chemistry Chemical Physics, 2016, 18, 3302-3307.	2.8	33
65	Degradation in lithium ion battery current collectors. JPhys Energy, 2021, 3, 032015.	5.3	32
66	Operando Measurement of Layer Breathing Modes in Lithiated Graphite. ACS Energy Letters, 0, , 1633-1638.	17.4	31
67	Probing adsorption phenomena on a single crystal Pt-alloy surface under oxygen reduction reaction conditions. Electrochimica Acta, 2012, 82, 517-523.	5.2	28
68	Concentrated Electrolytes for Enhanced Stability of Al-Alloy Negative Electrodes in Li-Ion Batteries. Journal of the Electrochemical Society, 2019, 166, A1867-A1874.	2.9	28
69	The effect of ammonia upon the electrocatalysis of hydrogen oxidation and oxygen reduction on polycrystalline platinum. Journal of Power Sources, 2012, 220, 205-210.	7.8	27
70	Towards the elucidation of the high oxygen electroreduction activity of Pt _x Y: surface science and electrochemical studies of Y/Pt(111). Physical Chemistry Chemical Physics, 2014, 16, 13718-13725.	2.8	27
71	Fine-tuning the activity of oxygen evolution catalysts: The effect of oxidation pre-treatment on size-selected Ru nanoparticles. Catalysis Today, 2016, 262, 57-64.	4.4	27
72	A cell for the controllable thermal treatment and electrochemical characterisation of single crystal alloy electrodes. Electrochemistry Communications, 2012, 23, 33-36.	4.7	25

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73	Role of Catalyst in Controlling N ₂ Reduction Selectivity: A Unified View of Nitrogenase and Solid Electrodes. ACS Catalysis, 2021, 11, 6596-6601.	11.2	25
74	Spectroelectrochemistry of Water Oxidation Kinetics in Molecular versus Heterogeneous Oxide Iridium Electrocatalysts. Journal of the American Chemical Society, 2022, 144, 8454-8459.	13.7	25
75	Correlating Microstructure and Activity for Polysulfide Reduction and Oxidation at WS ₂ Electrocatalysts. Journal of the Electrochemical Society, 2013, 160, A757-A768.	2.9	23
76	New Platinum Alloy Catalysts for Oxygen Electroreduction Based on Alkaline Earth Metals. Electroanalysis, 2017, 8, 594-604.	3.0	23
77	Redox-State Kinetics in Water-Oxidation IrO _x Electrocatalysts Measured by <i>Operando</i> Spectroelectrochemistry. ACS Catalysis, 2021, 11, 15013-15025.	11.2	23
78	Monitoring the active sites for the hydrogen evolution reaction at model carbon surfaces. Physical Chemistry Chemical Physics, 2021, 23, 10051-10058.	2.8	21
79	Metal coordination in C ₂ N-like materials towards dual atom catalysts for oxygen reduction. Journal of Materials Chemistry A, 2022, 10, 6023-6030.	10.3	21
80	Exploring the phase space of time of flight mass selected Pt _x Y nanoparticles. Physical Chemistry Chemical Physics, 2014, 16, 26506-26513.	2.8	20
81	Structure Sensitivity in the Electrocatalytic Reduction of CO ₂ with Gold Catalysts. Angewandte Chemie, 2019, 131, 3814-3818.	2.0	18
82	Active Phase Formation and Stability of Gd/Pt(111) Electrocatalysts for Oxygen Reduction: An In Situ Grazing Incidence X-Ray Diffraction Study. Chemistry - A European Journal, 2018, 24, 12280-12290.	3.3	17
83	The Role of Electrocatalysis in a Sustainable Future: From Renewable Energy Conversion and Storage to Emerging Reactions. ChemPhysChem, 2019, 20, 2900-2903.	2.1	17
84	The importance of being together. Science, 2015, 350, 164-165.	12.6	16
85	Pt Gd alloy formation on Pt(111): Preparation and structural characterization. Surface Science, 2016, 652, 114-122.	1.9	16
86	Quantification of liquid products from the electroreduction of CO ₂ and CO using static headspace-gas chromatography and nuclear magnetic resonance spectroscopy. Catalysis Today, 2017, 288, 54-62.	4.4	16
87	Understanding What Controls the Rate of Electrochemical Oxygen Evolution. Joule, 2021, 5, 16-18.	24.0	14
88	Activity and Selectivity for O ₂ Reduction to H ₂ O ₂ on Transition Metal Surfaces. ECS Transactions, 2013, 58, 53-62.	0.5	13
89	Activity "or Lack Thereof" of RuO ₂ -Based Electrodes in the Electrocatalytic Reduction of CO ₂ . Journal of Physical Chemistry C, 2019, 123, 17765-17773.	3.1	13
90	Engineering the Electrochemical Interface of Oxygen Reduction Electrocatalysts with Ionic Liquids: A Review. Advanced Energy and Sustainability Research, 2021, 2, 2000062.	5.8	13

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91	Elucidation of the Oxygen Reduction Volcano in Alkaline Media using a Copper–Platinum(111) Alloy. <i>Angewandte Chemie</i> , 2018, 130, 2850-2855.	2.0	10
92	Determination of Core–Shell Structures in Pd–Hg Nanoparticles by STEM–EDX. <i>ChemCatChem</i> , 2015, 7, 3748-3752.	3.7	9
93	How to Minimise Hydrogen Evolution on Carbon Based Materials?. <i>Journal of the Electrochemical Society</i> , 2022, 169, 054516.	2.9	6
94	Probing Crossover Degradation Effects in Nickel-Rich LiNi _x Mn _y Co _z O ₂ Lithium-Ion Battery Cathodes with Ultrasensitive on-Chip Electrochemistry Mass Spectrometry. <i>ECS Meeting Abstracts</i> , 2022, MA2022-01, 350-350.	0.0	3
95	X-ray Absorption Spectroscopy Investigation of Platinum–Gadolinium Thin Films with Different Stoichiometry for the Oxygen Reduction Reaction. <i>Catalysts</i> , 2020, 10, 978.	3.5	2
96	Frontispiece: Elucidation of the Oxygen Reduction Volcano in Alkaline Media using a Copper–Platinum(111) Alloy. <i>Angewandte Chemie - International Edition</i> , 2018, 57, .	13.8	1
97	Oxygen Evolution Reaction Catalyst Development: Benchmarking IrO _x Catalyst Activity and Stability. <i>ECS Meeting Abstracts</i> , 2022, MA2022-01, 1367-1367.	0.0	1
98	Fuel Cells: High Specific and Mass Activity for the Oxygen Reduction Reaction for Thin Film Catalysts of Sputtered Pt ₃ Y (<i>Adv. Mater. Interfaces</i> 13/2017). <i>Advanced Materials Interfaces</i> , 2017, 4, .	3.7	0
99	Frontispiz: Elucidation of the Oxygen Reduction Volcano in Alkaline Media using a Copper–Platinum(111) Alloy. <i>Angewandte Chemie</i> , 2018, 130, .	2.0	0
100	Frontispiece: Active-Phase Formation and Stability of Gd/Pt(111) Electrocatalysts for Oxygen Reduction: An In Situ Grazing Incidence X-Ray Diffraction Study. <i>Chemistry - A European Journal</i> , 2018, 24, .	3.3	0
101	(Keynote) Why Is Lithium Uniquely Able to Reduce Nitrogen to Ammonia Under Ambient Conditions?. <i>ECS Meeting Abstracts</i> , 2021, MA2021-02, 1542-1542.	0.0	0
102	Towards Active and Stable Bifunctional NiCo ₂ O ₄ Catalysts for O ₂ Evolution and Reduction in Alkaline Media. <i>ECS Meeting Abstracts</i> , 2020, MA2020-02, 3860-3860.	0.0	0
103	(Invited) Nitrogen Activation by Reduction and Oxidation: A Primer for Rigorous and Reproducible Measurements. <i>ECS Meeting Abstracts</i> , 2021, MA2021-02, 1552-1552.	0.0	0
104	Electrocatalytic Reduction of Furfural Using Single-Atom Molecular Catalysts. <i>ECS Meeting Abstracts</i> , 2022, MA2022-01, 961-961.	0.0	0
105	Deconvoluting Transport and Kinetics on Ionic Liquid-Modified Fe Catalysts for Oxygen Reduction. <i>ECS Meeting Abstracts</i> , 2022, MA2022-01, 1471-1471.	0.0	0
106	Tuning CO ₂ to CO Conversion on Metal-Doped Carbon Catalysts. <i>ECS Meeting Abstracts</i> , 2022, MA2022-01, 1613-1613.	0.0	0
107	How to Impede Hydrogen Evolution on Carbon Based Materials?. <i>ECS Meeting Abstracts</i> , 2022, MA2022-01, 1481-1481.	0.0	0
108	Targeted Synthesis of Metal Dual Atom Electrocatalysts. <i>ECS Meeting Abstracts</i> , 2022, MA2022-01, 629-629.	0.0	0