Alexander Cowan

List of Publications by Year
in descending order

84 papers	6,727 citations	71102 41 h-index	60623 81 g-index
88 all docs	88 docs citations	88 times ranked	7660 citing authors

#	Article	IF	Citations
1	Electrolysis of low-grade and saline surface water. Nature Energy, 2020, 5, 367-377.	39.5	579
2	The Role of Cobalt Phosphate in Enhancing the Photocatalytic Activity of Î±-Fe₂O₃ toward Water Oxidation. Journal of the American Chemical Society, 2011, 133, 14868-14871.	13.7	533
3	Charge carrier trapping, recombination and transfer in hematite (Î±-Fe2O3) water splitting photoanodes. Chemical Science, 2013, 4, 2724.	7.4	419
4	Dynamics of photogenerated holes in surface modified Î±-Fe ₂ O ₃ photoanodes for solar water splitting. Proceedings of the National Academy of Sciences of the United States of America, 2012, 109, 15640-15645.	7.1	413
5	Long-lived charge separated states in nanostructured semiconductor photoelectrodes for the production of solar fuels. Chemical Society Reviews, 2013, 42, 2281-2293.	38.1	310
6	A stable covalent organic framework for photocatalytic carbon dioxide reduction. Chemical Science, 2020, 11, 543-550.	7.4	265
7	Dynamics of photogenerated holes in nanocrystalline Î±-Fe₂O₃electrodes for water oxidation probed by transient absorption spectroscopy. Chemical Communications, 2011, 47, 716-718.	4.1	261
8	Activation Energies for the Rate-Limiting Step in Water Photooxidation by Nanostructured Î±-Fe₂O₃ and TiO₂. Journal of the American Chemical Society, 2011, 133, 10134-10140.	13.7	247
9	Water Splitting by Nanocrystalline TiO₂ in a Complete Photoelectrochemical Cell Exhibits Efficiencies Limited by Charge Recombination. Journal of Physical Chemistry C, 2010, 114, 4208-4214.	3.1	228
10	Efficient Suppression of Electronâ€"Hole Recombination in Oxygen-Deficient Hydrogen-Treated TiO₂ Nanowires for Photoelectrochemical Water Splitting. Journal of Physical Chemistry C, 2013, 117, 25837-25844.	3.1	222
11	Correlating long-lived photogenerated hole populations with photocurrent densities in hematite water oxidation photoanodes. Energy and Environmental Science, 2012, 5, 6304-6312.	30.8	196
12	Charge Carrier Dynamics on Mesoporous WO₃ during Water Splitting. Journal of Physical Chemistry Letters, 2011, 2, 1900-1903.	4.6	142
13	A Solutionâ€Processable Polymer Photocatalyst for Hydrogen Evolution from Water. Advanced Energy Materials, 2017, 7, 1700479.	19.5	135
14	Acid Treatment Enables Suppression of Electronâ€"Hole Recombination in Hematite for Photoelectrochemical Water Splitting. Angewandte Chemie - International Edition, 2016, 55, 3403-3407.	13.8	132
15	ZnSe quantum dots modified with a Ni(cyclam) catalyst for efficient visible-light driven CO₂ reduction in water. Chemical Science, 2018, 9, 2501-2509.	7.4	127
16	Mechanism of O₂ Production from Water Splitting: Nature of Charge Carriers in Nitrogen Doped Nanocrystalline TiO₂ Films and Factors Limiting O₂ Production. Journal of Physical Chemistry C, 2011, 115, 3143-3150.	3.1	123
17	A Combined Theoretical and Experimental Study on the Role of Spin States in the Chemistry of Fe(CO)5 Photoproducts. Journal of the American Chemical Society, 2009, 131, 3583-3592.	13.7	117
18	Oxygen deficient Î±-Fe₂O₃ photoelectrodes: a balance between enhanced electrical properties and trap-mediated losses. Chemical Science, 2015, 6, 4009-4016.	7.4	92

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19	Photochemical CO₂ reduction using structurally controlled g-C₃N₄. Physical Chemistry Chemical Physics, 2016, 18, 24825-24829.	2.8	89
20	Air-stable photoconductive films formed from perylene bisimide gelators. Journal of Materials Chemistry C, 2014, 2, 5570-5575.	5.5	85
21	Electrocatalytic CO2 reduction with a membrane supported manganese catalyst in aqueous solution. Chemical Communications, 2014, 50, 12698-12701.	4.1	81
22	Improving the efficiency of electrochemical CO₂ reduction using immobilized manganese complexes. Faraday Discussions, 2015, 183, 147-160.	3.2	75
23	A highly active nickel electrocatalyst shows excellent selectivity for CO₂ reduction in acidic media. Chemical Science, 2016, 7, 1521-1526.	7.4	74
24	A Sequential Molecular Mechanics/Quantum Mechanics Study of the Electronic Spectra of Amides. Journal of the American Chemical Society, 2004, 126, 13502-13511.	13.7	68
25	A delicate balance of complexation vs. activation of alkanes interacting with [Re(Cp)(CO)(PF3)] studied with NMR and time-resolved IR spectroscopy. Proceedings of the National Academy of Sciences of the United States of America, 2007, 104, 6927-6932.	7.1	67
26	Monitoring the direct and indirect damage of DNA bases and polynucleotides by using time-resolved infrared spectroscopy. Proceedings of the National Academy of Sciences of the United States of America, 2006, 103, 2150-2153.	7.1	64
27	Self-sorted photoconductive xerogels. Chemical Science, 2016, 7, 6499-6505.	7.4	63
28	Water electrolysis: Direct from the sea or not to be?. Joule, 2021, 5, 1921-1923.	24.0	63
29	Formation and reactivity of organometallic alkane complexes. Coordination Chemistry Reviews, 2008, 252, 2504-2511.	18.8	61
30	Detection of catalytic intermediates at an electrode surface during carbon dioxide reduction by an earth-abundant catalyst. Nature Catalysis, 2018, 1, 952-959.	34.4	59
31	Charge carrier separation in nanostructured TiO2 photoelectrodes for water splitting. Physical Chemistry Chemical Physics, 2013, 15, 8772.	2.8	58
32	A functionalised nickel cyclam catalyst for CO₂ reduction: electrocatalysis, semiconductor surface immobilisation and light-driven electron transfer. Physical Chemistry Chemical Physics, 2015, 17, 1562-1566.	2.8	58
33	Time-resolved infrared (TRIR) study on the formation and reactivity of organometallic methane and ethane complexes in room temperature solution. Proceedings of the National Academy of Sciences of the United States of America, 2007, 104, 6933-6938.	7.1	57
34	Interfacial charge separation in Cu₂O/RuO_x as a visible light driven CO₂ reduction catalyst. Physical Chemistry Chemical Physics, 2014, 16, 5922-5926.	2.8	55
35	Water Oxidation with Cobaltâ€Loaded Linear Conjugated Polymer Photocatalysts. Angewandte Chemie - International Edition, 2020, 59, 18695-18700.	13.8	55
36	Highly Efficient and Selective Metal Oxy-Boride Electrocatalysts for Oxygen Evolution from Alkali and Saline Solutions. ACS Applied Energy Materials, 2020, 3, 7619-7628.	5.1	54

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37	Photocatalyst Z-scheme system composed of a linear conjugated polymer and BiVO₄ for overall water splitting under visible light. Journal of Materials Chemistry A, 2020, 8, 16283-16290.	10.3	52
38	Zero-Gap Bipolar Membrane Electrolyzer for Carbon Dioxide Reduction Using Acid-Tolerant Molecular Electrocatalysts. Journal of the American Chemical Society, 2022, 144, 7551-7556.	13.7	52
39	Photochemical CO₂ reduction in water using a co-immobilised nickel catalyst and a visible light sensitiser. Chemical Communications, 2016, 52, 14200-14203.	4.1	48
40	The Role of Electrodeâ€“Catalyst Interactions in Enabling Efficient CO₂ Reduction with Mo(bpy)(CO)₄ As Revealed by Vibrational Sum-Frequency Generation Spectroscopy. Journal of the American Chemical Society, 2017, 139, 13791-13797.	13.7	48
41	Ultrafast IR spectroscopy of the short-lived transients formed by UV excitation of cytosine derivatives. Chemical Communications, 2007, , 2130.	4.1	47
42	Water oxidation intermediates on iridium oxide electrodes probed by <i>in situ</i> electrochemical SHINERS. Chemical Communications, 2020, 56, 1129-1132.	4.1	41
43	Controlling Visible Light Driven Photoconductivity in Self-Assembled Perylene Bisimide Structures. Journal of Physical Chemistry C, 2016, 120, 18479-18486.	3.1	40
44	Photocatalytic Overall Water Splitting Under Visible Light Enabled by a Particulate Conjugated Polymer Loaded with Palladium and Iridium**. Angewandte Chemie - International Edition, 2022, 61, .	13.8	40
45	pH dependent photocatalytic hydrogen evolution by self-assembled perylene bisimides. Journal of Materials Chemistry A, 2017, 5, 7555-7563.	10.3	39
46	Advanced Spectroelectrochemical Techniques to Study Electrode Interfaces Within Lithium-Ion and Lithium-Oxygen Batteries. Annual Review of Analytical Chemistry, 2019, 12, 323-346.	5.4	39
47	Controlling Photocatalytic Activity by Selfâ€Assembly â€“ Tuning Perylene Bisimide Photocatalysts for the Hydrogen Evolution Reaction. Advanced Energy Materials, 2020, 10, 2002469.	19.5	33
48	Dynamics of Solidâ€Electrolyte Interphase Formation on Silicon Electrodes Revealed by Combinatorial Electrochemical Screening. Angewandte Chemie - International Edition, 2022, 61, .	13.8	32
49	Design of a highly photocatalytically active ZnO/CuWO 4 nanocomposite. Journal of Colloid and Interface Science, 2016, 483, 93-101.	9.4	30
50	Photocatalytic Water Oxidation by a Pyrochlore Oxide upon Irradiation with Visible Light: Rhodium Substitution Into Yttrium Titanate. Angewandte Chemie - International Edition, 2014, 53, 14480-14484.	13.8	29
51	Vibrational sum-frequency generation spectroscopy of electrode surfaces: studying the mechanisms of sustainable fuel generation and utilisation. Physical Chemistry Chemical Physics, 2019, 21, 12067-12086.	2.8	29
52	Water-Soluble Manganese Complex for Selective Electrocatalytic CO₂ Reduction to CO. Organometallics, 2019, 38, 1224-1229.	2.3	28
53	Acid Treatment Enables Suppression of Electronâ€“Hole Recombination in Hematite for Photoelectrochemical Water Splitting. Angewandte Chemie, 2016, 128, 3464-3468.	2.0	27
54	Directing the mechanism of CO₂ reduction by a Mn catalyst through surface immobilization. Physical Chemistry Chemical Physics, 2018, 20, 6811-6816.	2.8	26

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55	Strong Impact of Intramolecular Hydrogen Bonding on the Cathodic Path of [Re(3,3â€²-dihydroxy-2,2â€²-bipyridine)(CO)3Cl] and Catalytic Reduction of Carbon Dioxide. Inorganic Chemistry, 2020, 59, 5564-5578.	4.0	22
56	<i>In situ</i> study of the low overpotential â€œdimer pathwayâ€•for electrocatalytic carbon dioxide reduction by manganese carbonyl complexes. Physical Chemistry Chemical Physics, 2019, 21, 7389-7397.	2.8	21
57	Photocatalytically active ladder polymers. Faraday Discussions, 2019, 215, 84-97.	3.2	20
58	How to go beyond C₁ products with electrochemical reduction of CO₂. Sustainable Energy and Fuels, 2021, 5, 5893-5914.	4.9	19
59	Time-Resolved Spectroscopy of ZnTe Photocathodes for Solar Fuel Production. Journal of Physical Chemistry C, 2017, 121, 22073-22080.	3.1	18
60	Potential and pitfalls: On the use of transient absorption spectroscopy for <i>in situ</i> and operando studies of photoelectrodes. Journal of Chemical Physics, 2020, 153, 150901.	3.0	18
61	Manganese Carbonyl Complexes as Selective Electrocatalysts for CO₂ Reduction in Water and Organic Solvents. Accounts of Chemical Research, 2022, 55, 955-965.	15.6	17
62	Hydrophilic, Hole-Delocalizing Ligand Shell to Promote Charge Transfer from Colloidal CdSe Quantum Dots in Water. Journal of Physical Chemistry C, 2017, 121, 15160-15168.	3.1	16
63	Metalâ€“organic conjugated microporous polymer containing a carbon dioxide reduction electrocatalyst. Sustainable Energy and Fuels, 2019, 3, 2990-2994.	4.9	16
64	Water Oxidation with Cobaltâ€Loaded Linear Conjugated Polymer Photocatalysts. Angewandte Chemie, 2020, 132, 18854-18859.	2.0	16
65	Stable Ta₂O₅ Overlayers on Hematite for Enhanced Photoelectrochemical Water Splitting Efficiencies. ChemPhotoChem, 2018, 2, 183-189.	3.0	15
66	Tuning the local chemical environment of ZnSe quantum dots with dithiols towards photocatalytic CO₂ reduction. Chemical Science, 2022, 13, 5988-5998.	7.4	15
67	Gelation enabled charge separation following visible light excitation using self-assembled perylene bisimides. Physical Chemistry Chemical Physics, 2019, 21, 26466-26476.	2.8	12
68	Electrochemical carbon dioxide reduction in ionic liquids at high pressure. Faraday Discussions, 2021, 230, 331-343.	3.2	12
69	Intermediate identification. Nature Chemistry, 2016, 8, 740-741.	13.6	11
70	Time-Resolved Raman Spectroscopy of Polaron Formation in a Polymer Photocatalyst. Journal of Physical Chemistry Letters, 2021, 12, 10899-10905.	4.6	11
71	Noncovalent immobilization of a nickel cyclam catalyst on carbon electrodes for CO2 reduction using aqueous electrolyte. Electrochimica Acta, 2021, 392, 139015.	5.2	9
72	Alkaline Water Oxidation Using a Bimetallic Phosphoâ€Boride Electrocatalyst. ChemSusChem, 2020, 13, 6534-6540.	6.8	8

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73	Photocatalytic Overall Water Splitting Under Visible Light Enabled by a Particulate Conjugated Polymer Loaded with Palladium and Iridium**. Angewandte Chemie, 2022, 134, .	2.0	7
74	Cell Design for Picosecond Time-Resolved Infrared Spectroscopy in High-Pressure Liquids and Supercritical Fluids. Applied Spectroscopy, 2008, 62, 24-29.	2.2	6
75	CO₂reduction reactions: general discussion. Faraday Discussions, 2015, 183, 261-290.	3.2	6
76	Hybrid Photocathodes for Carbon Dioxide Reduction: Interfaces for Charge Separation and Selective Catalysis. ChemPhotoChem, 2021, 5, 595-610.	3.0	6
77	Solar to fuel: Recent developments in conversion of sunlight into high value chemicals. APL Materials, 2020, 8, .	5.1	2
78	Dynamics of Solidâ€Electrolyte Interphase Formation on Silicon Electrodes Revealed by Combinatorial Electrochemical Screening. Angewandte Chemie, 0, , .	2.0	2
79	Capture agents, conversion mechanisms, biotransformations and biomimetics: general discussion. Faraday Discussions, 2015, 183, 463-487.	3.2	1
80	Rationalizing the Efficiency of Hydrogen-Treated TiO2 Nanomaterials in Light Driven Water-Splitting Applications. , 2017, , 215-248.		0
81	Thermal catalytic conversion: general discussion. Faraday Discussions, 2021, 230, 124-151.	3.2	0
82	Emerging technologies: general discussion. Faraday Discussions, 2021, 230, 388-412.	3.2	0
83	Sum-Frequency and Surface Sensitive Spectroscopy of Electrode and Photoelectrode Surfaces. , 0, , .		0
84	Sum-Frequency and Surface Sensitive Spectroscopy of Electrode and Photoelectrode Surfaces. , 0, , .		0