Cyrille Costentin

List of Publications by Year
in descending order

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91	papers
10,048	citations
45	h-index
91	g-index
95	all docs
95	docs citations
95	times ranked
9087	citing authors

53794

43889

#	Article	IF	Citations
1	Catalysis of the electrochemical reduction of carbon dioxide. Chemical Society Reviews, 2013, 42, 2423-2436.	38.1	1,382
2	A Local Proton Source Enhances CO ₂ Electroreduction to CO by a Molecular Fe Catalyst. Science, 2012, 338, 90-94.	12.6	1,075
3	Turnover Numbers, Turnover Frequencies, and Overpotential in Molecular Catalysis of Electrochemical Reactions. Cyclic Voltammetry and Preparative-Scale Electrolysis. Journal of the American Chemical Society, 2012, 134, 11235-11242.	13.7	647
4	Through-Space Charge Interaction Substituent Effects in Molecular Catalysis Leading to the Design of the Most Efficient Catalyst of CO₂-to-CO Electrochemical Conversion. Journal of the American Chemical Society, 2016, 138, 16639-16644.	13.7	482
5	Electrochemical Approach to the Mechanistic Study of Proton-Coupled Electron Transfer. Chemical Reviews, 2008, 108, 2145-2179.	47.7	376
6	Multielectron, Multistep Molecular Catalysis of Electrochemical Reactions: Benchmarking of Homogeneous Catalysts. ChemElectroChem, 2014, 1, 1226-1236.	3.4	345
7	How Do Pseudocapacitors Store Energy? Theoretical Analysis and Experimental Illustration. ACS Applied Materials & Interfaces, 2017, 9, 8649-8658.	8.0	293
8	Current Issues in Molecular Catalysis Illustrated by Iron Porphyrins as Catalysts of the CO₂-to-CO Electrochemical Conversion. Accounts of Chemical Research, 2015, 48, 2996-3006.	15.6	279
9	Efficient and selective molecular catalyst for the CO ₂ -to-CO electrochemical conversion in water. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 6882-6886.	7.1	278
10	Concerted Protonâˆ’Electron Transfers: Electrochemical and Related Approaches. Accounts of Chemical Research, 2010, 43, 1019-1029.	15.6	240
11	Ultraefficient homogeneous catalyst for the CO ₂ -to-CO electrochemical conversion. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 14990-14994.	7.1	236
12	Proton-Coupled Electron Transfer Cleavage of Heavy-Atom Bonds in Electrocatalytic Processes. Cleavage of a Câ€“O Bond in the Catalyzed Electrochemical Reduction of CO₂. Journal of the American Chemical Society, 2013, 135, 9023-9031.	13.7	209
13	Pendant Acidâ€“Base Groups in Molecular Catalysts: H-Bond Promoters or Proton Relays? Mechanisms of the Conversion of CO₂ to CO by Electrogenerated Iron(0)Porphyrins Bearing Prepositioned Phenol Functionalities. Journal of the American Chemical Society, 2014, 136, 11821-11829.	13.7	209
14	Boron-Capped Tris(glyoximato) Cobalt Clathrochelate as a Precursor for the Electrodeposition of Nanoparticles Catalyzing H₂ Evolution in Water. Journal of the American Chemical Society, 2012, 134, 6104-6107.	13.7	169
15	Fragmentation of Aryl Halide Ï€ Anion Radicals. Bending of the Cleaving Bond and Activation vs Driving Force Relationships. Journal of the American Chemical Society, 2004, 126, 16051-16057.	13.7	153
16	Towards an intelligent design of molecular electrocatalysts. Nature Reviews Chemistry, 2017, 1, .	30.2	153
17	Protonâ€“Electron Transport and Transfer in Electrocatalytic Films. Application to a Cobalt-Based O2-Evolution Catalyst. Journal of the American Chemical Society, 2013, 135, 10492-10502.	13.7	151
18	Benchmarking of Homogeneous Electrocatalysts: Overpotential, Turnover Frequency, Limiting Turnover Number. Journal of the American Chemical Society, 2015, 137, 5461-5467.	13.7	141

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19	Dissection of Electronic Substituent Effects in Multielectronâ€“Multistep Molecular Catalysis. Electrochemical CO₂-to-CO Conversion Catalyzed by Iron Porphyrins. Journal of Physical Chemistry C, 2016, 120, 28951-28960.	3.1	139
20	Elucidation of a Redox-Mediated Reaction Cycle for Nickel-Catalyzed Cross Coupling. Journal of the American Chemical Society, 2019, 141, 89-93.	13.7	119
21	The electrochemical approach to concerted protonâ€”electron transfers in the oxidation of phenols in water. Proceedings of the National Academy of Sciences of the United States of America, 2009, 106, 18143-18148.	7.1	112
22	Electron transfer and bond breaking: Recent advances. Chemical Physics, 2006, 324, 40-56.	1.9	108
23	Efficient electrolyzer for CO ₂ splitting in neutral water using earth-abundant materials. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, 5526-5529.	7.1	105
24	Concerted Protonâˆ’Electron Transfer Reactions in Water. Are the Driving Force and Rate Constant Depending on pH When Water Acts as Proton Donor or Acceptor?. Journal of the American Chemical Society, 2007, 129, 5870-5879.	13.7	104
25	Conduction and Reactivity in Heterogeneous-Molecular Catalysis: New Insights in Water Oxidation Catalysis by Phosphate Cobalt Oxide Films. Journal of the American Chemical Society, 2016, 138, 5615-5622.	13.7	100
26	Energy storage: pseudocapacitance in prospect. Chemical Science, 2019, 10, 5656-5666.	7.4	99
27	Adiabatic and Non-adiabatic Concerted Protonâˆ’Electron Transfers. Temperature Effects in the Oxidation of Intramolecularly Hydrogen-Bonded Phenols. Journal of the American Chemical Society, 2007, 129, 9953-9963.	13.7	98
28	Molecular Catalysis of O₂ Reduction by Iron Porphyrins in Water: Heterogeneous versus Homogeneous Pathways. Journal of the American Chemical Society, 2015, 137, 13535-13544.	13.7	97
29	Interplay of Homogeneous Reactions, Mass Transport, and Kinetics in Determining Selectivity of the Reduction of CO₂ on Gold Electrodes. ACS Central Science, 2019, 5, 1097-1105.	11.3	97
30	Self-healing catalysis in water. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, 13380-13384.	7.1	95
31	Oxygen Reduction Reaction Promoted by Manganese Porphyrins. ACS Catalysis, 2018, 8, 8671-8679.	11.2	91
32	Electrochemical concerted proton and electron transfers. Potential-dependent rate constant, reorganization factors, proton tunneling and isotope effects. Journal of Electroanalytical Chemistry, 2006, 588, 197-206.	3.8	87
33	Electrochemistry of Acids on Platinum. Application to the Reduction of Carbon Dioxide in the Presence of Pyridinium Ion in Water. Journal of the American Chemical Society, 2013, 135, 17671-17674.	13.7	87
34	Molecular Catalysis of H₂ Evolution: Diagnosing Heterolytic versus Homolytic Pathways. Journal of the American Chemical Society, 2014, 136, 13727-13734.	13.7	87
35	â€œThermalâ€•SRN1 Reactions:â€‰ How Do They Work? Novel Evidence that the Driving Force Controls the Transition between Stepwise and Concerted Mechanisms in Dissociative Electron Transfers. Journal of the American Chemical Society, 1999, 121, 4451-4460.	13.7	73
36	Intrinsic reactivity and driving force dependence in concerted protonâ€“electron transfers to water illustrated by phenol oxidation. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 3367-3372.	7.1	71

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37	Water (in Water) as an Intrinsically Efficient Proton Acceptor in Concerted Proton Electron Transfers. Journal of the American Chemical Society, 2011, 133, 6668-6674.	13.7	65
38	Concerted proton-coupled electron transfers in aquo/hydroxo/oxo metal complexes: Electrochemistry of [Os ^{II} (bpy) ₂ py(OH ₂)] ²⁺ in water. Proceedings of the National Academy of Sciences of the United States of America, 2009, 106, 11829-11836.	7.1	61
39	Concepts and tools for mechanism and selectivity analysis in synthetic organic electrochemistry. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 11147-11152.	7.1	61
40	Homogeneous Molecular Catalysis of Electrochemical Reactions: Catalyst Benchmarking and Optimization Strategies. Journal of the American Chemical Society, 2017, 139, 8245-8250.	13.7	59
41	Homogeneous Molecular Catalysis of Electrochemical Reactions: Manipulating Intrinsic and Operational Factors for Catalyst Improvement. Journal of the American Chemical Society, 2018, 140, 16669-16675.	13.7	56
42	Role of Protonation and of Axial Ligands in the Reductive Dechlorination of Alkyl Chlorides by Vitamin B12 Complexes. Reductive Cleavage of Chloroacetonitrile by Co(I) Cobalamins and Cobinamides. Journal of the American Chemical Society, 2005, 127, 5049-5055.	13.7	52
43	Evidencing Fast, Massive, and Reversible H⁺ Insertion in Nanostructured TiO₂ Electrodes at Neutral pH. Where Do Protons Come From?. Journal of Physical Chemistry C, 2017, 121, 10325-10335.	3.1	48
44	Tertiary Amine-Assisted Electroreduction of Carbon Dioxide to Formate Catalyzed by Iron Tetraphenylporphyrin. ACS Energy Letters, 2020, 5, 72-78.	17.4	48
45	Breaking Bonds with Electrons and Protons. Models and Examples. Accounts of Chemical Research, 2014, 47, 271-280.	15.6	47
46	Molecular catalysis of electrochemical reactions. Current Opinion in Electrochemistry, 2017, 2, 26-31.	4.8	45
47	Catalysis of CO₂ Electrochemical Reduction by Protonated Pyridine and Similar Molecules. Useful Lessons from a Methodological Misadventure. ACS Energy Letters, 2018, 3, 695-703.	17.4	42
48	Cyclic Voltammetry Analysis of Electrocatalytic Films. Journal of Physical Chemistry C, 2015, 119, 12174-12182.	3.1	41
49	Protonâ€"Electron Conductivity in Thin Films of a Cobaltâ€"Oxygen Evolving Catalyst. ACS Applied Energy Materials, 2019, 2, 3-12.	5.1	39
50	Concerted heavy-atom bond cleavage and proton and electron transfers illustrated by proton-assisted reductive cleavage of an Oâ€"O bond. Proceedings of the National Academy of Sciences of the United States of America, 2011, 108, 8559-8564.	7.1	35
51	Direct Electrochemical P(V) to P(III) Reduction of Phosphine Oxide Facilitated by Triaryl Borates. Journal of the American Chemical Society, 2018, 140, 13711-13718.	13.7	34
52	Catalysis and Inhibition in the Electrochemical Reduction of CO₂ on Platinum in the Presence of Protonated Pyridine. New Insights into Mechanisms and Products. Journal of the American Chemical Society, 2017, 139, 13922-13928.	13.7	33
53	Ligand â€œnoninnocenceâ€•in coordination complexes vs. kinetic, mechanistic, and selectivity issues in electrochemical catalysis. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 9104-9109.	7.1	33
54	Molecular approach to catalysis of electrochemical reaction in porous films. Current Opinion in Electrochemistry, 2019, 15, 58-65.	4.8	33

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55	Concerted Protonâ€“Electron Transfers. Consistency between Electrochemical Kinetics and their Homogeneous Counterparts.. Journal of the American Chemical Society, 2011, 133, 19160-19167.	13.7	30
56	Impactful Role of Cocatalysts on Molecular Electrocatalytic Hydrogen Production. ACS Catalysis, 2021, 11, 4561-4567.	11.2	26
57	Stepwise and Concerted Pathways in Thermal and Photoinduced Electron-Transfer/Bond-Breaking Reactions. Journal of Physical Chemistry A, 2000, 104, 7492-7501.	2.5	25
58	Why Are Proton Transfers at Carbon Slow? Self-Exchange Reactions. Journal of the American Chemical Society, 2004, 126, 14787-14795.	13.7	25
59	Cyclic Voltammetry of Electrocatalytic Films: Fast Catalysis Regimes. ChemElectroChem, 2015, 2, 1774-1784.	3.4	25
60	Multielectron, multisubstrate molecular catalysis of electrochemical reactions: Formal kinetic analysis in the total catalysis regime. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, 11303-11308.	7.1	24
61	Electrochemical Energy Storage: Questioning the Popular <i>v</i>/<i>v</i>^{1/2} Scan Rate Diagnosis in Cyclic Voltammetry. Journal of Physical Chemistry Letters, 2020, 11, 9846-9849.	4.6	24
62	Molecular Catalysis of Electrochemical Reactions. Overpotential and Turnover Frequency: Unidirectional and Bidirectional Systems. ACS Catalysis, 2021, 11, 5678-5687.	11.2	22
63	Unraveling the charge transfer/electron transport in mesoporous semiconductive TiO₂ films by voltabsorptometry. Physical Chemistry Chemical Physics, 2015, 17, 10592-10607.	2.8	21
64	Catalysis of Electrochemical Reactions by Surface-Active Sites: Analyzing the Occurrence and Significance of Volcano Plots by Cyclic Voltammetry. ACS Catalysis, 2017, 7, 4876-4880.	11.2	20
65	On the Conversion Efficiency of CO2 Electroreduction on Gold. Joule, 2019, 3, 1565-1568.	24.0	20
66	Dual-Phase Molecular-like Charge Transport in Nanoporous Transition Metal Oxides. Journal of Physical Chemistry C, 2019, 123, 1966-1973.	3.1	20
67	Conductive Mesoporous Catalytic Films. Current Distortion and Performance Degradation by Dual-Phase Ohmic Drop Effects. Analysis and Remedies. Journal of Physical Chemistry C, 2016, 120, 21263-21271.	3.1	19
68	Hydrogen and proton exchange at carbon. Imbalanced transition state and mechanism crossover. Chemical Science, 2020, 11, 1006-1010.	7.4	19
69	Cyclic voltammetry modeling of proton transport effects on redox charge storage in conductive materials: application to a TiO₂ mesoporous film. Physical Chemistry Chemical Physics, 2017, 19, 17944-17951.	2.8	18
70	Cyclic voltammetry of fast conducting electrocatalytic films. Physical Chemistry Chemical Physics, 2015, 17, 19350-19359.	2.8	16
71	Homogeneous Catalysis of Electrochemical Reactions: The Steady-State and Nonsteady-State Statuses of Intermediates. ACS Catalysis, 2018, 8, 5286-5297.	11.2	16
72	Heterogeneous Molecular Catalysis of Electrochemical Reactions: Volcano Plots and Catalytic Tafel Plots. ACS Applied Materials & Interfaces, 2017, 9, 19894-19899.	8.0	14

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73	Nature of Electronic Conduction in â€œPseudocapacitiveâ€•Films: Transition from the Insulator State to Band-Conduction. ACS Applied Materials & Interfaces, 2019, 11, 28769-28773.	8.0	14
74	Electrophotocatalysis: Cyclic Voltammetry as an Analytical Tool. Journal of Physical Chemistry Letters, 2020, 11, 6097-6104.	4.6	14
75	Properties of Site-Specifically Incorporated 3-Aminotyrosine in Proteins To Study Redox-Active Tyrosines: <i>Escherichia coli</i> Ribonucleotide Reductase as a Paradigm. Biochemistry, 2018, 57, 3402-3415.	2.5	12
76	Effective Homogeneous Catalysis of Electrochemical Reduction of Nitrous Oxide to Dinitrogen at Rhenium Carbonyl Catalysts. ACS Catalysis, 2021, 11, 6099-6103.	11.2	12
77	Driving force dependence of inner-sphere electron transfer for the reduction of CO2 on a gold electrode. Journal of Chemical Physics, 2020, 153, 094701.	3.0	11
78	Proton-Coupled Electron Transfer Catalyst: Homogeneous Catalysis. Application to the Catalysis of Electrochemical Alcohol Oxidation in Water. ACS Catalysis, 2020, 10, 6716-6725.	11.2	11
79	Hydrogen Evolution Mediated by Cobalt Diimineâ€•Dioxime Complexes: Insights into the Role of the Ligand Acid/Base Functionalities.. ChemElectroChem, 2021, 8, 2671-2679.	3.4	10
80	Oxygen activation at a dicobalt centre of a dipyridylethane naphthyridine complex. Dalton Transactions, 2018, 47, 11903-11908.	3.3	9
81	Proton-Coupled Electron Transfer Catalyst: Heterogeneous Catalysis. Application to an Oxygen Evolution Catalyst. ACS Catalysis, 2020, 10, 7958-7967.	11.2	8
82	p-Block Metal Oxide Noninnocence in the Oxygen Evolution Reaction in Acid: The Case of Bismuth Oxide. Chemistry of Materials, 2022, 34, 826-835.	6.7	8
83	A Pioneering Career in Electrochemistry: Jean-Michel SavÃ©ant. ACS Catalysis, 2021, 11, 3224-3238.	11.2	7
84	Homogeneous molecular catalysis of the electrochemical reduction of N₂O to N₂: redox <i>vs.</i> chemical catalysis. Chemical Science, 2021, 12, 12726-12732.	7.4	6
85	Photoinduced Catalysis of Redox Reactions. Turnover Numbers, Turnover Frequency, and Limiting Processes: Kinetic Analysis and Application to Light-Driven Hydrogen Production. ACS Catalysis, 2022, 12, 6246-6254.	11.2	6
86	Proton-coupled electron transfer of macrocyclic ring hydrogenation: The chlorinphlorin. Proceedings of the National Academy of Sciences of the United States of America, 2022, 119, e2122063119.	7.1	6
87	A cobalt oxideâ€“polypyrrole nanocomposite as an efficient and stable electrode material for electrocatalytic water oxidation. Sustainable Energy and Fuels, 2021, 5, 4710-4723.	4.9	5
88	Electron Transfer at the Metal Oxide/Electrolyte Interface: A Simple Methodology for Quantitative Kinetics Evaluation. Journal of Physical Chemistry C, 2018, 122, 12761-12770.	3.1	4
89	Investigating Charge Transfer in Functionalized Mesoporous EISAâ€“SnO₂ Films. Journal of Physical Chemistry C, 2017, 121, 23207-23217.	3.1	1
90	Molecular Catalysis of Electrochemical Reactions: Competition between Reduction of the Substrate and Deactivation of the Catalyst by a Cosubstrate Application to N₂O Reduction. ChemElectroChem, 2021, 8, 3740-3744.	3.4	1

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91	In Memoriam of Jeanâ€Michel SavÃ©ant (1933â€“2020). ChemElectroChem, 2021, 8, 2752-2753.	3.4	0