Petko Chernev

List of Publications by Year
in descending order

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77 papers	7,136 citations	117625 34 h-index	74163 75 g-index
80 all docs	80 docs citations	80 times ranked	8366 citing authors

#	ARTICLE	IF	CITATIONS
1	Water Oxidation by Pentapyridyl Base Metal Complexes? A Case Study. Inorganic Chemistry, 2022, 61, 9104-9118.	4.0	5
2	Molecular basis for turnover inefficiencies (misses) during water oxidation in photosystem II. Chemical Science, 2022, 13, 8667-8678.	7.4	9
3	Electronic and geometric structure effects on one-electron oxidation of first-row transition metals in the same ligand framework. Dalton Transactions, 2021, 50, 660-674.	3.3	3
4	The exchange of the fast substrate water in the S₂ state of photosystem II is limited by diffusion of bulk water through channels â€“ implications for the water oxidation mechanism. Chemical Science, 2021, 12, 12763-12775.	7.4	18
5	Operando tracking of oxidation-state changes by coupling electrochemistry with time-resolved X-ray absorption spectroscopy demonstrated for water oxidation by a cobalt-based catalyst film. Analytical and Bioanalytical Chemistry, 2021, 413, 5395-5408.	3.7	16
6	Room temperature XFEL crystallography reveals asymmetry in the vicinity of the two phylloquinones in photosystem I. Scientific Reports, 2021, 11, 21787.	3.3	11
7	Electrochemical oxidation of ferricyanide. Scientific Reports, 2021, 11, 23058.	3.3	17
8	Structural dynamics in the water and proton channels of photosystem II during the S2 to S3 transition. Nature Communications, 2021, 12, 6531.	12.8	73
9	Revisiting Metalâ€“Organic Frameworks for Oxygen Evolution: A Case Study. Inorganic Chemistry, 2020, 59, 15335-15342.	4.0	29
10	Light-driven formation of manganese oxide by todayâ€™s photosystem II supports evolutionarily ancient manganese-oxidizing photosynthesis. Nature Communications, 2020, 11, 6110.	12.8	34
11	Electrochemical alcohols oxidation mediated by N-hydroxyphthalimide on nickel foam surface. Scientific Reports, 2020, 10, 19378.	3.3	13
12	A synthetic manganeseâ€“calcium cluster similar to the catalyst of Photosystem II: challenges for biomimetic water oxidation. Dalton Transactions, 2020, 49, 5597-5605.	3.3	13
13	Exploring the Limits of Self-Repair in Cobalt Oxide Films for Electrocatalytic Water Oxidation. ACS Catalysis, 2020, 10, 7990-7999.	11.2	21
14	Tuning cobalt eg occupation of Co-NCNT by manipulation of crystallinity facilitates more efficient oxygen evolution and reduction. Journal of Catalysis, 2020, 383, 221-229.	6.2	11
15	Spin transition in a ferrous chloride complex supported by a pentapyridine ligand. Chemical Communications, 2020, 56, 2703-2706.	4.1	3
16	Untangling the sequence of events during the S ₂ â†’ S ₃ transition in photosystem II and implications for the water oxidation mechanism. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 12624-12635.	7.1	149
17	Nickelâ€“Vanadium Layered Double Hydroxide under Water-Oxidation Reaction: New Findings and Challenges. ACS Sustainable Chemistry and Engineering, 2019, 7, 17252-17262.	6.7	35
18	Formation of unexpectedly active Niâ€“Fe oxygen evolution electrocatalysts by physically mixing Ni and Fe oxyhydroxides. Chemical Communications, 2019, 55, 818-821.	4.1	57

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19	Electromodified NiFe Alloys as Electrocatalysts for Water Oxidation: Mechanistic Implications of Timeâ€Resolved UV/Vis Tracking of Oxidation State Changes. ChemSusChem, 2019, 12, 1966-1976.	6.8	33
20	Origin of the heat-induced improvement of catalytic activity and stability of MnO_x electrocatalysts for water oxidation. Journal of Materials Chemistry A, 2019, 7, 17022-17036.	10.3	25
21	Self-supported Ni(OH)2/MnO2 on CFP as a flexible anode towards electrocatalytic urea conversion: The role of composition on activity, redox states and reaction dynamics. Electrochimica Acta, 2019, 318, 32-41.	5.2	33
22	Structural and functional role of anions in electrochemical water oxidation probed by arsenate incorporation into cobalt-oxide materials. Physical Chemistry Chemical Physics, 2019, 21, 12485-12493.	2.8	18
23	Uncovering The Role of Oxygen in Ni-Fe(OxHy) Electrocatalysts using In situ Soft X-ray Absorption Spectroscopy during the Oxygen Evolution Reaction. Scientific Reports, 2019, 9, 1532.	3.3	112
24	H/D Isotope Effects Reveal Factors Controlling Catalytic Activity in Co-Based Oxides for Water Oxidation. Journal of the American Chemical Society, 2019, 141, 2938-2948.	13.7	72
25	Unequal misses during the flash-induced advancement of photosystem II: effects of the S state and acceptor side cycles. Photosynthesis Research, 2019, 139, 93-106.	2.9	10
26	Nickel-iron catalysts for electrochemical water oxidation â€“ redox synergism investigated by <i>in situ</i> X-ray spectroscopy with millisecond time resolution. Sustainable Energy and Fuels, 2018, 2, 1986-1994.	4.9	64
27	A mononuclear cobalt complex for water oxidation: new controversies and puzzles. Dalton Transactions, 2018, 47, 16668-16673.	3.3	15
28	Unified structural motifs of the catalytically active state of Co(oxyhydr)oxides during the electrochemical oxygen evolution reaction. Nature Catalysis, 2018, 1, 711-719.	34.4	415
29	Geometric distortions in nickel (oxy)hydroxide electrocatalysts by redox inactive iron ions. Energy and Environmental Science, 2018, 11, 2476-2485.	30.8	83
30	KÎ± X-ray Emission Spectroscopy on the Photosynthetic Oxygen-Evolving Complex Supports Manganese Oxidation and Water Binding in the S₃ State. Inorganic Chemistry, 2018, 57, 10424-10430.	4.0	33
31	Water oxidation by a manganeseâ€“potassium cluster: Mn oxide as a kinetically dominant â€œtrueâ€•catalyst for water oxidation. Catalysis Science and Technology, 2018, 8, 4390-4398.	4.1	16
32	Behavior of Ruâ€“bda Waterâ€Oxidation Catalysts in Low Oxidation States. Chemistry - A European Journal, 2018, 24, 12838-12847.	3.3	27
33	Tracking Catalyst Redox States and Reaction Dynamics in Niâ€“Fe Oxyhydroxide Oxygen Evolution Reaction Electrocatalysts: The Role of Catalyst Support and Electrolyte pH. Journal of the American Chemical Society, 2017, 139, 2070-2082.	13.7	518
34	Temperature Dependence of the Catalytic Two- versus Four-Electron Reduction of Dioxygen by a Hexanuclear Cobalt Complex. Journal of the American Chemical Society, 2017, 139, 15033-15042.	13.7	42
35	Spectroscopic identification of active sites for the oxygen evolution reaction on iron-cobalt oxides. Nature Communications, 2017, 8, 2022.	12.8	147
36	Electrosynthesis of Biomimetic Manganeseâ€“Calcium Oxides for Water Oxidation Catalysisâ€"Atomic Structure and Functionality. ChemSusChem, 2016, 9, 379-387.	6.8	33

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37	Oxygen Evolution Reaction Dynamics, Faradaic Charge Efficiency, and the Active Metal Redox States of Niâ€“Fe Oxide Water Splitting Electrocatalysts. Journal of the American Chemical Society, 2016, 138, 5603-5614.	13.7	888
38	Merging Structural Information from X-ray Crystallography, Quantum Chemistry, and EXAFS Spectra: The Oxygen-Evolving Complex in PSII. Journal of Physical Chemistry B, 2016, 120, 10899-10922.	2.6	16
39	Room-Temperature Energy-Sampling KÎ² X-ray Emission Spectroscopy of the Mn₄Ca Complex of Photosynthesis Reveals Three Manganese-Centered Oxidation Steps and Suggests a Coordination Change Prior to O₂ Formation. Biochemistry, 2016, 55, 4197-4211.	2.5	66
40	A cobalt(<scp>ii</scp>) iminoiodane complex and its scandium adduct: mechanistic promiscuity in hydrogen atom abstraction reactions. Dalton Transactions, 2016, 45, 14538-14543.	3.3	10
41	Water oxidation catalysis â€“ role of redox and structural dynamics in biological photosynthesis and inorganic manganese oxides. Energy and Environmental Science, 2016, 9, 2433-2443.	30.8	99
42	Uncovering the prominent role of metal ions in octahedral versus tetrahedral sites of cobaltâ€“zinc oxide catalysts for efficient oxidation of water. Journal of Materials Chemistry A, 2016, 4, 10014-10022.	10.3	171
43	Structure and Mechanism Leading to Formation of the Cysteine Sulfinate Product Complex of a Biomimetic Cysteine Dioxygenase Model. Chemistry - A European Journal, 2015, 21, 7470-7479.	3.3	20
44	Water oxidation by amorphous cobalt-based oxides: in situ tracking of redox transitions and mode of catalysis. Energy and Environmental Science, 2015, 8, 661-674.	30.8	279
45	Heterogeneous Water Oxidation: Surface Activity versus Amorphization Activation in Cobalt Phosphate Catalysts. Angewandte Chemie - International Edition, 2015, 54, 2472-2476.	13.8	152
46	Heterogeneous Water Oxidation: Surface Activity versus Amorphization Activation in Cobalt Phosphate Catalysts. Angewandte Chemie, 2015, 127, 2502-2506.	2.0	46
47	Behavior of the Ru-bda Water Oxidation Catalyst Covalently Anchored on Glassy Carbon Electrodes. ACS Catalysis, 2015, 5, 3422-3429.	11.2	78
48	Iron-Doped Nickel Oxide Nanocrystals as Highly Efficient Electrocatalysts for Alkaline Water Splitting. ACS Nano, 2015, 9, 5180-5188.	14.6	446
49	Reversible amorphization and the catalytically active state of crystalline Co3O4 during oxygen evolution. Nature Communications, 2015, 6, 8625.	12.8	694
50	Structural differences of oxidized ironâ€“sulfur and nickelâ€“iron cofactors in O 2 -tolerant and O 2 -sensitive hydrogenases studied by X-ray absorption spectroscopy. Biochimica Et Biophysica Acta - Bioenergetics, 2015, 1847, 162-170.	1.0	14
51	Hydride Binding to the Active Site of [FeFe]-Hydrogenase. Inorganic Chemistry, 2014, 53, 12164-12177.	4.0	58
52	Electronic and molecular structures of the active-site H-cluster in [FeFe]-hydrogenase determined by site-selective X-ray spectroscopy and quantum chemical calculations. Chemical Science, 2014, 5, 1187-1203.	7.4	60
53	Water Oxidation by Amorphous Cobaltâ€Based Oxides: Volume Activity and Proton Transfer to Electrolyte Bases. ChemSusChem, 2014, 7, 1301-1310.	6.8	183
54	Bridging-hydride influence on the electronic structure of an [FeFe] hydrogenase active-site model complex revealed by XAES-DFT. Dalton Transactions, 2013, 42, 7539.	3.3	28

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55	Rapid X-ray Photoreduction of Dimetal-Oxygen Cofactors in Ribonucleotide Reductase. Journal of Biological Chemistry, 2013, 288, 9648-9661.	3.4	30
56	Coordination Changes of Carboxyl Ligands at the QAFeQB Triad in Photosynthetic Reaction Centers Studied by Density-Functional Theory. Advanced Topics in Science and Technology in China, 2013, , 95-101.	0.1	1
57	Water Oxidation in Photosystem II: Energetics and Kinetics of Intermediates Formation in the S2â†'S3 and S3â†'S0 Transitions Monitored by Delayed Chlorophyll Fluorescence. Advanced Topics in Science and Technology in China, 2013, , 234-238.	0.1	2
58	Site-Selective X-ray Spectroscopy on an Asymmetric Model Complex of the [FeFe] Hydrogenase Active Site. Inorganic Chemistry, 2012, 51, 4546-4559.	4.0	28
59	Electronic Structure of an [FeFe] Hydrogenase Model Complex in Solution Revealed by X-ray Absorption Spectroscopy Using Narrow-Band Emission Detection. Journal of the American Chemical Society, 2012, 134, 14142-14157.	13.7	36
60	Electrosynthesis, functional, and structural characterization of a water-oxidizing manganese oxide. Energy and Environmental Science, 2012, 5, 7081.	30.8	407
61	Water Oxidation by Electrodeposited Cobalt Oxidesâ€"Role of Anions and Redoxâ€Inert Cations in Structure and Function of the Amorphous Catalyst. ChemSusChem, 2012, 5, 542-549.	6.8	149
62	High-valent [MnFe] and [FeFe] cofactors in ribonucleotide reductases. Biochimica Et Biophysica Acta - Bioenergetics, 2012, 1817, 430-444.	1.0	14
63	Drought-induced modifications of photosynthetic electron transport in intact leaves: Analysis and use of neural networks as a tool for a rapid non-invasive estimation. Biochimica Et Biophysica Acta - Bioenergetics, 2012, 1817, 1490-1498.	1.0	168
64	Nickel-oxido structure of a water-oxidizing catalyst film. Chemical Communications, 2011, 47, 11912.	4.1	105
65	O2 Reactions at the Six-iron Active Site (H-cluster) in [FeFe]-Hydrogenase. Journal of Biological Chemistry, 2011, 286, 40614-40623.	3.4	80
66	Carboxylate Shifts Steer Interquinone Electron Transfer in Photosynthesis. Journal of Biological Chemistry, 2011, 286, 5368-5374.	3.4	32
67	Towards a comprehensive X-ray approach for studying the photosynthetic manganese complexâ€"XANES, KÎ±/KÎ²/KÎ²-satellite emission lines, RIXS, and comparative computational approaches for selected model complexes. Journal of Physics: Conference Series, 2009, 190, 012142.	0.4	14
68	Delayed Chlorophyll Fluorescence as a Monitor for Physiological State of Photosynthetic Apparatus. Biotechnology and Biotechnological Equipment, 2009, 23, 452-457.	1.3	17
69	Delayed fluorescence in photosynthesis. Photosynthesis Research, 2009, 101, 217-232.	2.9	133
70	Cobaltâˆ'Oxo Core of a Water-Oxidizing Catalyst Film. Journal of the American Chemical Society, 2009, 131, 6936-6937.	13.7	262
71	Characterisation of a water-oxidizing Co-film by XAFS. Journal of Physics: Conference Series, 2009, 190, 012167.	0.4	19
72	Kinetic Model of Electron-Transport Reactions in Thylakoid Membranes Determining Chlorophyll Fluorescence Transients. Biotechnology and Biotechnological Equipment, 2009, 23, 621-626.	1.3	0

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73	Using Artificial Neural Networks for Plant Taxonomic Determination Based on Chlorophyll Fluorescence Induction Curves. Biotechnology and Biotechnological Equipment, 2009, 23, 941-945.	1.3	10
74	Preservation of photosynthetic electron transport from senescence-induced inactivation in primary leaves after decapitation and defoliation of bean plants. Journal of Plant Physiology, 2008, 165, 1954-1963.	3.5	40
75	Modulated Sink-Source Interactions Preserve PSII Electron Transport from Senescence-Induced Inactivation in a Model System with Expanded Life Span Induced by Decapitation of Bean Plants. , 2008, , 675-679.		3
76	Kinetics of delayed chlorophyll a fluorescence registered in milliseconds time range. Photosynthesis Research, 2005, 84, 209-215.	2.9	61
77	A chemical evolutionâ€like method to synthesize a waterâ€oxidizing catalyst. ChemElectroChem, 0, , .	3.4	2