Piotr Zelenay

List of Publications by Citations

77 papers	18,072 citations	43 h-index	119 g-index
119 ext. papers	20,031 ext. citations	13 avg, IF	7.05 L-index

#	Paper	IF	Citations
77	High-performance electrocatalysts for oxygen reduction derived from polyaniline, iron, and cobalt. *Science*, **2011**, 332, 443-7	33.3	3271
76	Scientific aspects of polymer electrolyte fuel cell durability and degradation. *Chemical Reviews*, **2007**, 107, 3904-51	68.1	2627
75	A class of non-precious metal composite catalysts for fuel cells. *Nature*, **2006**, 443, 63-6	50.4	1807
74	Recent advances in non-precious metal catalysis for oxygen-reduction reaction in polymer electrolyte fuel cells. *Energy and Environmental Science*, **2011**, 4, 114-130	35.4	1311
73	Direct atomic-level insight into the active sites of a high-performance PGM-free ORR catalyst. *Science*, **2017**, 357, 479-484	33.3	920
72	Nanostructured nonprecious metal catalysts for oxygen reduction reaction. *Accounts of Chemical Research*, **2013**, 46, 1878-89	24.3	875
71	Active and stable carbon nanotube/nanoparticle composite electrocatalyst for oxygen reduction. *Nature Communications*, **2013**, 4, 1922	17.4	699
70	Recent advances in direct methanol fuel cells at Los Alamos National Laboratory. *Journal of Power Sources*, **2000**, 86, 111-116	8.9	614
69	Anion exchange membrane fuel cells: Current status and remaining challenges. *Journal of Power Sources*, **2018**, 375, 170-184	8.9	486
68	Synthesis–structure–performance correlation for polyaniline–Me–C non-precious metal cathode catalysts for oxygen reduction in fuel cells. *Journal of Materials Chemistry*, **2011**, 21, 11392		480
67	Nitrogen-doped graphene-rich catalysts derived from heteroatom polymers for oxygen reduction in nonaqueous lithium-O2 battery cathodes. *ACS Nano*, **2012**, 6, 9764-76	16.7	443
66	Experimental Observation of Redox-Induced Fe-N Switching Behavior as a Determinant Role for Oxygen Reduction Activity. *ACS Nano*, **2015**, 9, 12496-505	16.7	374
65	Multitechnique Characterization of a Polyaniline–Iron–Carbon Oxygen Reduction Catalyst. *Journal of Physical Chemistry C*, **2012**, 116, 16001-16013	3.8	336
64	High-performance fuel cell cathodes exclusively containing atomically dispersed iron active sites. *Energy and Environmental Science*, **2019**, 12, 2548-2558	35.4	280
63	PGM-Free Cathode Catalysts for PEM Fuel Cells: A Mini-Review on Stability Challenges. *Advanced Materials*, **2019**, 31, e1807615	24	267
62	Ruthenium Crossover in Direct Methanol Fuel Cell with Pt-Ru Black Anode. *Journal of the Electrochemical Society*, **2004**, 151, A2053	3.9	237
61	Progress in the Development of Fe-Based PGM-Free Electrocatalysts for the Oxygen Reduction Reaction. *Advanced Materials*, **2019**, 31, e1806545	24	207

60	Performance enhancement and degradation mechanism identification of a single-atom Co–N–C catalyst for proton exchange membrane fuel cells. *Nature Catalysis*, **2020**, 3, 1044-1054	36.5	186
59	Ozonated graphene oxide film as a proton-exchange membrane. *Angewandte Chemie - International Edition*, **2014**, 53, 3588-93	16.4	173
58	Structure of Fe–Nx–C Defects in Oxygen Reduction Reaction Catalysts from First-Principles Modeling. *Journal of Physical Chemistry C*, **2014**, 118, 14388-14393	3.8	145
57	Performance Durability of Polyaniline-derived Non-precious Cathode Catalysts. *ECS Transactions*, **2009**, 25, 1299-1311	1	132
56	Cyanamide-derived non-precious metal catalyst for oxygen reduction. *Electrochemistry Communications*, **2010**, 12, 1792-1795	5.1	123
55	Titanium dioxide-supported non-precious metal oxygen reduction electrocatalyst. *Chemical Communications*, **2010**, 46, 7489-91	5.8	119
54	Stability of iron species in heat-treated polyaniline–iron–carbon polymer electrolyte fuel cell cathode catalysts. *Electrochimica Acta*, **2013**, 110, 282-291	6.7	115
53	Durability challenges and perspective in the development of PGM-free electrocatalysts for the oxygen reduction reaction. *Current Opinion in Electrochemistry*, **2018**, 9, 224-232	7.2	104
52	Phosphate-Tolerant Oxygen Reduction Catalysts. *ACS Catalysis*, **2014**, 4, 3193-3200	13.1	100
51	Linking structure to function: The search for active sites in non-platinum group metal oxygen reduction reaction catalysts. *Nano Energy*, **2016**, 29, 54-64	17.1	92
50	Lattice Boltzmann Pore-Scale Investigation of Coupled Physical-electrochemical Processes in C/Pt and Non-Precious Metal Cathode Catalyst Layers in Proton Exchange Membrane Fuel Cells. *Electrochimica Acta*, **2015**, 158, 175-186	6.7	88
49	ElectroCat: DOE’s approach to PGM-free catalyst and electrode R&D. *Solid State Ionics*, **2018**, 319, 68-76	3.3	82
48	Electrochemical Impedance Spectroscopy for Direct Methanol Fuel Cell Diagnostics. *Journal of the Electrochemical Society*, **2006**, 153, A1902	3.9	76
47	Resolving Electrode Morphology’s Impact on Platinum Group Metal-Free Cathode Performance Using Nano-CT of 3D Hierarchical Pore and Ionomer Distribution. *ACS Applied Materials & Interfaces*, **2016**, 8, 32764-32777	9.5	75
46	Graphene-Riched Co9S8-N-C Non-Precious Metal Catalyst for Oxygen Reduction in Alkaline Media. *ECS Transactions*, **2011**, 41, 1709-1717	1	74
45	Theoretical Study of Possible Active Site Structures in Cobalt- Polypyrrole Catalysts for Oxygen Reduction Reaction. *Journal of Physical Chemistry C*, **2011**, 115, 16672-16680	3.8	65
44	Preparation of Nonprecious Metal Electrocatalysts for the Reduction of Oxygen Using a Low-Temperature Sacrificial Metal. *Journal of the American Chemical Society*, **2020**, 142, 5477-5481	16.4	62
43	A Combined Probe-Molecule, M▯sbauer, Nuclear Resonance Vibrational Spectroscopy, and Density Functional Theory Approach for Evaluation of Potential Iron Active Sites in an Oxygen Reduction Reaction Catalyst. *Journal of Physical Chemistry C*, **2017**, 121, 16283-16290	3.8	60

42	Highly methanol-tolerant non-precious metal cathode catalysts for direct methanol fuel cell. *Electrochimica Acta*, **2010**, 55, 7615-7621	6.7	59
41	Adsorption of acetic acid on platinum, gold and rhodium electrodes. *Electrochimica Acta*, **1981**, 26, 1111-1119	6.7	56
40	Radiochemical Assay of Adsorption at Single Crystal/Solution Interfaces. *Journal of the Electrochemical Society*, **1992**, 139, 2552-2558	3.9	49
39	Nitrogen-Doped Graphene Oxide Electrocatalysts for the Oxygen Reduction Reaction. *ACS Applied Nano Materials*, **2019**, 2, 1675-1682	5.6	47
38	Elucidation of Fe-N-C electrocatalyst active site functionality via in-situ X-ray absorption and operando determination of oxygen reduction reaction kinetics in a PEFC. *Applied Catalysis B: Environmental*, **2019**, 257, 117929	21.8	45
37	Pore-scale study of multiphase reactive transport in fibrous electrodes of vanadium redox flow batteries. *Electrochimica Acta*, **2017**, 248, 425-439	6.7	44
36	Radioactive labeling study of bisulfate adsorption on copper adatoms deposited on the gold electrode in neutral media. *Surface Science*, **1991**, 256, 253-263	1.8	44
35	Acid Stability and Demetalation of PGM-Free ORR Electrocatalyst Structures from Density Functional Theory: A Model for Single-Atom Catalyst Dissolution. *ACS Catalysis*, **2020**, 10, 14527-14539	13.1	43
34	(Invited)Kinetic Models for the Degradation Mechanisms of PGM-Free ORR Catalysts. *ECS Transactions*, **2018**, 85, 1239-1250	1	35
33	Highly Graphitic Mesoporous Fe,N-Doped Carbon Materials for Oxygen Reduction Electrochemical Catalysts. *ACS Applied Materials & Interfaces*, **2018**, 10, 25337-25349	9.5	33
32	Synthesis and Evaluation of Heat-treated, Cyanamide-derived Non-precious Catalysts for Oxygen Reduction. *ECS Transactions*, **2009**, 25, 485-492	1	31
31	Critical role of intercalated water for electrocatalytically active nitrogen-doped graphitic systems. *Science Advances*, **2016**, 2, e1501178	14.3	30
30	High-activity PtRuPd/C catalyst for direct dimethyl ether fuel cells. *Angewandte Chemie - International Edition*, **2015**, 54, 7524-8	16.4	29
29	Elucidation of role of graphene in catalytic designs for electroreduction of oxygen. *Current Opinion in Electrochemistry*, **2018**, 9, 257-264	7.2	28
28	Experimental and Theoretical Trends of PGM-Free Electrocatalysts for the Oxygen Reduction Reaction with Different Transition Metals. *Journal of the Electrochemical Society*, **2019**, 166, F3136-F3142	3.9	26
27	Electrocatalysis in Alkaline Media and Alkaline Membrane-Based Energy Technologies.. *Chemical Reviews*, **2022**,	68.1	25
26	Direct Measurement ofiR-Free Individual-Electrode Overpotentials in Polymer Electrolyte Fuel Cells. *Journal of Physical Chemistry C*, **2007**, 111, 6512-6523	3.8	24
25	Porphyrin Aerogel Catalysts for Oxygen Reduction Reaction in Anion-Exchange Membrane Fuel Cells. *Advanced Functional Materials*, **2021**, 31, 2100963	15.6	24

24	A simple synthesis of nitrogen-doped carbon micro- and nanotubes. *Chemical Communications*, **2015**, 51, 13546-9	5.8	22
23	Role of two carbon phases in oxygen reduction reaction on the Co-PPy-C catalyst. *International Journal of Hydrogen Energy*, **2014**, 39, 15887-15893	6.7	22
22	Direct Dimethyl Ether Fuel Cell with Much Improved Performance. *Electrocatalysis*, **2014**, 5, 310-317	2.7	22
21	Status and challenges for the application of platinum group metal-free catalysts in proton-exchange membrane fuel cells. *Current Opinion in Electrochemistry*, **2021**, 25, 100627	7.2	22
20	Recent progress in the durability of Fe-N-C oxygen reduction electrocatalysts for polymer electrolyte fuel cells. *Journal of Electroanalytical Chemistry*, **2020**, 875, 114696	4.1	20
19	Detection Technologies for Reactive Oxygen Species: Fluorescence and Electrochemical Methods and Their Applications. *Biosensors*, **2021**, 11,	5.9	18
18	The effect of diluting ruthenium by iron in RuxSey catalyst for oxygen reduction. *Electrochimica Acta*, **2010**, 55, 7575-7580	6.7	17
17	Ternary PtRuPd/C Catalyst for High-Performance, Low-Temperature Direct Dimethyl Ether Fuel Cells. *ChemElectroChem*, **2016**, 3, 1564-1569	4.3	16
16	Ceftibuten: Development of a Commercial Process Based on Cephalosporin C. Part IV. Pilot-Plant Scale Electrochemical Reduction of 3-Acetoxymethyl-7(R)-glutaroylaminoceph-3-em-4-carboxylic Acid 1(S)-Oxide. *Organic Process Research and Development*, **2002**, 6, 178-183	3.9	15
15	PGM-Free ORR Catalysts Designed by Templating PANI-Type Polymers Containing Functional Groups with High Affinity to Iron. *Journal of the Electrochemical Society*, **2019**, 166, F3240-F3245	3.9	14
14	Fe-N-C Catalysts: Progress in the Development of Fe-Based PGM-Free Electrocatalysts for the Oxygen Reduction Reaction (Adv. Mater. 31/2019). *Advanced Materials*, **2019**, 31, 1970224	24	12
13	High-Activity PtRuPd/C Catalyst for Direct Dimethyl Ether Fuel Cells. *Angewandte Chemie*, **2015**, 127, 7634-7638	3.6	12
12	Coupling High-Throughput Experiments and Regression Algorithms to Optimize PGM-Free ORR Electrocatalyst Synthesis. *ACS Applied Energy Materials*, **2020**, 3, 9083-9088	6.1	11
11	2,2?-Dipyridylamine as Heterogeneous Organic Molecular Electrocatalyst for Two-Electron Oxygen Reduction Reaction in Acid Media. *ACS Applied Energy Materials*, **2019**, 2, 7272-7278	6.1	10
10	Ozonated Graphene Oxide Film as a Proton-Exchange Membrane. *Angewandte Chemie*, **2014**, 126, 3662-3667	3.6	9
9	ElectroCat (Electrocatalysis Consortium) **2020**,		9
8	Quantifying the electrochemical active site density of precious metal-free catalysts in situ in fuel cells. *Nature Catalysis*, **2022**, 5, 163-170	36.5	9
7	Radiometric and voltammetric study of benzoic acid adsorption on a polycrystalline silver electrode. *Electrochimica Acta*, **1998**, 43, 1963-1968	6.7	8

6	A class of non-precious metal composite catalysts for fuel cells **2010**, 247-250		7
5	Understanding water management in platinum group metal-free electrodes using neutron imaging. *Journal of Power Sources*, **2020**, 472, 228442-228442	8.9	6
4	Communication—On the Lack of Correlation between the Voltammetric Redox Couple and ORR Activity of Fe-N-C Catalysts. *Journal of the Electrochemical Society*, **2020**, 167, 134510	3.9	2
3	Comment on “Non-PGM electrocatalysts for PEM fuel cells: effect of fluorination on the activity and stability of a highly active NC_Ar + NH3 catalyst” by Gaixia Zhang, Xiaohua Yang, Marc Dubois, Michael Herraiz, Régis Chenitz, Michel Lefèvre, Mohamed Cherif, François Vidal, Vassili P. Glibin, Shuhui Sun and Jean-Pol Dodelet, Energy Environ. Sci., 2019, 12, 3015–3037, 10.1039/C9EE00867E.	35.4	2
2	Resolving Active Sites in Atomically Dispersed Electrocatalysts for Energy Conversion Applications. *Microscopy and Microanalysis*, **2019**, 25, 2066-2067	0.5	1
1	Elucidating fuel cell catalyst degradation mechanisms by identical-location transmission electron microscopy. *Microscopy and Microanalysis*, **2021**, 27, 974-976	0.5	1