

CITATION REPORT

List of articles citing

Boron-doped carbon nanotubes as metal-free electrocatalysts for the oxygen reduction reaction

DOI: 10.1002/anie.201101287

Angewandte Chemie - International Edition, 2011, 50, 7132-5.

Source: <https://exaly.com/paper-pdf/51518207/citation-report.pdf>

Version: 2024-04-23

This report has been generated based on the citations recorded by exaly.com for the above article. For the latest version of this publication list, visit the link given above.

The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

#	Paper	IF	Citations
1051	Three-Dimensional Nitrogen-Doped Carbon Nanotubes/Graphene Structure Used as a Metal-Free Electrocatalyst for the Oxygen Reduction Reaction. 2011 , 115, 24592-24597		160
1050	Nanoporous graphitic-C ₃ N ₄ @carbon metal-free electrocatalysts for highly efficient oxygen reduction. 2011 , 133, 20116-9		869
1049	Vertically Aligned BCN Nanotubes as Efficient Metal-Free Electrocatalysts for the Oxygen Reduction Reaction: A Synergetic Effect by Co-Doping with Boron and Nitrogen. 2011 , 123, 11960-11964		120
1048	Vertically aligned BCN nanotubes as efficient metal-free electrocatalysts for the oxygen reduction reaction: a synergetic effect by co-doping with boron and nitrogen. <i>Angewandte Chemie - International Edition</i> , 2011 , 50, 11756-60	16.4	650
1047	Scanning transmission X-ray microscopy and X-ray absorption near-edge structure studies of N-doped carbon nanotubes sealed with N ₂ gas. 2012 , 111, 124318		4
1046	Graphene-based materials for energy applications. 2012 , 37, 1265-1272		113
1045	Single-step synthetic approach for boron-doped carbons as a non-precious catalyst for oxygen reduction in alkaline medium. 2012 , 25, 101-104		63
1044	Graphyne As a Promising Metal-Free Electrocatalyst for Oxygen Reduction Reactions in Acidic Fuel Cells: A DFT Study. 2012 , 116, 20472-20479		97
1043	Carbon nanomaterials as metal-free catalysts in next generation fuel cells. 2012 , 1, 514-517		176
1042	Sulfur and Nitrogen Dual-Doped Mesoporous Graphene Electrocatalyst for Oxygen Reduction with Synergistically Enhanced Performance. 2012 , 124, 11664-11668		234
1041	Sulfur and nitrogen dual-doped mesoporous graphene electrocatalyst for oxygen reduction with synergistically enhanced performance. <i>Angewandte Chemie - International Edition</i> , 2012 , 51, 11496-500	16.4	1726
1040	Wet chemical synthesis of nitrogen-doped graphene towards oxygen reduction electrocatalysts without high-temperature pyrolysis. 2012 , 22, 6575		257
1039	Self-assembled hierarchical micro/nano-structured PEDOT as an efficient oxygen reduction catalyst over a wide pH range. 2012 , 22, 17153		24
1038	Polybenzimidazole mediated N-doping along the inner and outer surfaces of a carbon nanofiber and its oxygen reduction properties. 2012 , 22, 23668		13
1037	Adsorption and structural properties of ordered mesoporous carbons synthesized by soft-templating in the presence of boric acid and tetraethyl orthosilicate. 2012 , 2, 1877		14
1036	Oxygen-enriched carbon material for catalyzing oxygen reduction towards hybrid electrolyte Li-air battery. 2012 , 22, 21051		52
1035	Thermolytic synthesis of graphitic boron carbon nitride from an ionic liquid precursor: mechanism, structure analysis and electronic properties. 2012 , 22, 23996		62

1034	Phosphorus-doped ordered mesoporous carbons with different lengths as efficient metal-free electrocatalysts for oxygen reduction reaction in alkaline media. 2012 , 134, 16127-30	784
1033	Vertically Aligned Carbon Nanotube Arrays Co-doped with Phosphorus and Nitrogen as Efficient Metal-Free Electrocatalysts for Oxygen Reduction. 2012 , 3, 2863-70	269
1032	Binary and ternary doping of nitrogen, boron, and phosphorus into carbon for enhancing electrochemical oxygen reduction activity. 2012 , 6, 7084-91	701
1031	Activity Modulated Low Platinum Content Oxygen Reduction Electrocatalysts Prepared by Inducing Nano-Order Dislocations on Carbon Nanofiber through N ₂ -Doping. 2012 , 116, 14754-14763	20
1030	Corking carbon nanotube cups with gold nanoparticles. 2012 , 6, 6912-21	26
1029	Nitrogen-doped carbon nanocages as efficient metal-free electrocatalysts for oxygen reduction reaction. 2012 , 24, 5593-7, 5646	629
1028	Nanostructured metal-free electrochemical catalysts for highly efficient oxygen reduction. 2012 , 8, 3550-66	518
1027	Carbon Nanotube-Based Materials for Fuel Cell Applications. 2012 , 65, 1213	28
1026	Carbon catalyst codoped with boron and nitrogen for oxygen reduction reaction in acid media. 2012 , 85, 399-410	21
1025	Catalyst-free synthesis of iodine-doped graphene via a facile thermal annealing process and its use for electrocatalytic oxygen reduction in an alkaline medium. 2012 , 48, 1027-9	305
1024	Metal-free selenium doped carbon nanotube/graphene networks as a synergistically improved cathode catalyst for oxygen reduction reaction. 2012 , 4, 6455-60	189
1023	Structural Selectivity of CO Oxidation on Fe/N/C Catalysts. 2012 , 116, 17572-17579	49
1022	Porous Pt-Ni-P composite nanotube arrays: highly electroactive and durable catalysts for methanol electrooxidation. 2012 , 134, 5730-3	345
1021	Boron-doped carbon nanotube-supported Pt nanoparticles with improved CO tolerance for methanol electro-oxidation. 2012 , 14, 13910-3	54
1020	Sulfur-doped graphene as an efficient metal-free cathode catalyst for oxygen reduction. 2012 , 6, 205-11	1580
1019	Covalently bonded three-dimensional carbon nanotube solids via boron induced nanojunctions. 2012 , 2, 363	300
1018	Revisiting the Structure of Graphene Oxide for Preparing New-Style Graphene-Based Ultraviolet Absorbers. 2012 , 22, 2542-2549	37
1017	Facile Synthesis of Manganese-Oxide-Containing Mesoporous Nitrogen-Doped Carbon for Efficient Oxygen Reduction. 2012 , 22, 4584-4591	278

1016	Recent Progress in Non-Precious Catalysts for Metal-Air Batteries. 2012 , 2, 816-829	570
1015	BCN Graphene as Efficient Metal-Free Electrocatalyst for the Oxygen Reduction Reaction. 2012 , 124, 4285-4288	151
1014	BCN graphene as efficient metal-free electrocatalyst for the oxygen reduction reaction. <i>Angewandte Chemie - International Edition</i> , 2012 , 51, 4209-12	16.4 996
1013	Carbon nanocages as supercapacitor electrode materials. 2012 , 24, 347-52	441
1012	Boron-doped electrocatalysts derived from carbon dioxide. 2013 , 1, 8665	30
1011	Synthesis of phosphorus-doped graphene and its multifunctional applications for oxygen reduction reaction and lithium ion batteries. 2013 , 25, 4932-7	810
1010	Can boron and nitrogen co-doping improve oxygen reduction reaction activity of carbon nanotubes?. 2013 , 135, 1201-4	737
1009	Doping carbons beyond nitrogen: an overview of advanced heteroatom doped carbons with boron, sulphur and phosphorus for energy applications. 2013 , 6, 2839	1320
1008	Free-standing nitrogen-doped carbon nanofiber films as highly efficient electrocatalysts for oxygen reduction. 2013 , 5, 9528-31	104
1007	The influence of the residual growth catalyst in functionalized carbon nanotubes on supported Pt nanoparticles applied in selective olefin hydrogenation. 2013 , 307, 84-93	41
1006	Fluorine-Doped Carbon Blacks: Highly Efficient Metal-Free Electrocatalysts for Oxygen Reduction Reaction. 2013 , 3, 1726-1729	299
1005	A density functional theory study of oxygen reduction reaction on MeN_4 (Me = Fe, Co, or Ni) clusters between graphitic pores. 2013 , 1, 10790	206
1004	First-Principles Studies of the Activation of Oxygen Molecule and Its Role in Partial Oxidation of Methane on Boron-Doped Single-Walled Carbon Nanotubes. 2013 , 117, 17485-17492	16
1003	Porous B-doped graphene inspired by Fried-Ice for supercapacitors and metal-free catalysts. 2013 , 1, 13476	88
1002	Phosphorus-doped porous carbons as efficient electrocatalysts for oxygen reduction. 2013 , 1, 9889	193
1001	A class of high performance metal-free oxygen reduction electrocatalysts based on cheap carbon blacks. 2013 , 3, 2505	150
1000	Fabrication of iron phthalocyanine/graphene micro/nanocomposite by solvothermally assisted \square assembling method and its application for oxygen reduction reaction. 2013 , 106, 272-278	61
999	High-performance oxygen reduction electrocatalysts based on cheap carbon black, nitrogen, and trace iron. 2013 , 25, 6879-83	258

998	Sulfur and nitrogen co-doped carbon nanotubes for enhancing electrochemical oxygen reduction activity in acidic and alkaline media. 2013 , 1, 14853	173
997	Synergistically enhanced electrochemical (ORR) activity of graphene oxide using boronic acid as an interlayer spacer. 2013 , 49, 11068-70	23
996	Facile Preparation of Porous Carbon Nanosheets without Template and Their Excellent Electrocatalytic Property. 2013 , 5, 11597-602	36
995	Electrocatalytic Activity of BN Codoped Graphene Oxide Derived from Carbon Dioxide. 2013 , 117, 24167-24173	8
994	Modified multi-walled carbon nanotube/Ag nanoparticle composite catalyst for the oxygen reduction reaction in alkaline solution. 2013 , 111, 635-641	52
993	Three-dimensional macroporous NiCo(2)O(4) sheets as a non-noble catalyst for efficient oxygen reduction reactions. 2013 , 19, 14271-8	90
992	Size-Dependent Enhancement of Electrocatalytic Oxygen-Reduction and Hydrogen-Evolution Performance of MoS ₂ Particles. 2013 , 19, 11939-48	208
991	Microwave-assisted synthesis of nitrogen and boron co-doped graphene and its application for enhanced electrochemical detection of hydrogen peroxide. 2013 , 3, 22597	41
990	N-heterocycles tethered graphene as efficient metal-free catalysts for an oxygen reduction reaction in fuel cells. 2013 , 1, 10166	13
989	Highly active reduction of oxygen on a FeCo alloy catalyst encapsulated in pod-like carbon nanotubes with fewer walls. 2013 , 1, 14868	183
988	Tunable nitrogen-doped carbon aerogels as sustainable electrocatalysts in the oxygen reduction reaction. 2013 , 1, 4002	82
987	Toward understanding the active site for oxygen reduction reaction on phosphorus-encapsulated single-walled carbon nanotubes. 2013 , 3, 5577	22
986	Catalyst-free porous carbon cathode and ionic liquid for high efficiency, rechargeable Li/O ₂ battery. 2013 , 224, 115-119	64
985	Recent progress in nanostructured electrocatalysts for PEM fuel cells. 2013 , 1, 4631	157
984	B, N- and P, N-doped graphene as highly active catalysts for oxygen reduction reactions in acidic media. 2013 , 1, 3694	355
983	Insight into the origin of the positive effects of imidazolium salt on electrocatalytic activity: ionic carbon nanotubes as metal-free electrocatalysts for oxygen reduction reaction. 2013 , 8, 232-7	6
982	Isomorphous substituted bimetallic oxide cluster as a novel strategy for single-atom catalysis. 2013 , 1021, 262-267	2
981	Production of boron-doped porous carbon by the reaction of carbon dioxide with sodium borohydride at atmospheric pressure. 2013 , 53, 216-221	46

- 980 A mini review on carbon-based metal-free electrocatalysts for oxygen reduction reaction. **2013**, 34, 1986-1991 39
- 979 Sulfur-doped ordered mesoporous carbon with high electrocatalytic activity for oxygen reduction. **2013**, 108, 404-411 110
- 978 Sulfur-nitrogen co-doped three-dimensional carbon foams with hierarchical pore structures as efficient metal-free electrocatalysts for oxygen reduction reactions. **2013**, 5, 3283-8 278
- 977 Nitrogen-enriched carbon from melamine resins with superior oxygen reduction reaction activity. **2013**, 6, 807-12 71
- 976 Recent progress in doped carbon nanomaterials as effective cathode catalysts for fuel cell oxygen reduction reaction. **2013**, 236, 238-249 408
- 975 Applications of Mesoporous Molecular Sieves. **2013**, 465-511
- 974 Morphology dependent oxygen reduction activity of titanium carbide: bulk vs. nanowires. **2013**, 15, 8744-51 45
- 973 Structural and Electronic Properties of Carbon Nanotubes and Graphenes Functionalized with Cyclopentadienyl Transition Metal Complexes: A DFT Study. **2013**, 117, 8758-8766 18
- 972 High-performance blend membranes composed of an amphoteric copolymer containing supramolecular nanosieves for direct methanol fuel cells. **2013**, 3, 6759 5
- 971 Enhanced electrochemical oxygen reduction reaction by restacking of N-doped single graphene layers. **2013**, 3, 4246 30
- 970 Metal-Free Electrocatalysts for Oxygen Reduction. **2013**, 375-389 3
- 969 Promises and Challenges of Unconventional Electrocatalyst Supports. **2013**, 689-728 2
- 968 One-step scalable preparation of N-doped nanoporous carbon as a high-performance electrocatalyst for the oxygen reduction reaction. **2013**, 6, 293-301 137
- 967 Tuning nanoparticle catalysis for the oxygen reduction reaction. *Angewandte Chemie - International Edition*, **2013**, 52, 8526-44 16.4 808
- 966 CO₂ capture and gas separation on boron carbon nanotubes. **2013**, 575, 59-66 33
- 965 Preparation and characterization of imidazolium-functionalized poly (ether sulfone) as anion exchange membrane and ionomer for fuel cell application. **2013**, 38, 9285-9296 57
- 964 Biomass-derived activated carbon as high-performance non-precious electrocatalyst for oxygen reduction. **2013**, 3, 12039 68
- 963 The positive influence of boron-doped graphyne on surface enhanced Raman scattering with pyridine as the probe molecule and oxygen reduction reaction in fuel cells. **2013**, 3, 4074 34

962	A perspective on carbon materials for future energy application. 2013 , 22, 151-173	160
961	Phosphorus-doped graphene nanosheets as efficient metal-free oxygen reduction electrocatalysts. 2013 , 3, 9978	317
960	Sulfur and nitrogen co-doped, few-layered graphene oxide as a highly efficient electrocatalyst for the oxygen-reduction reaction. 2013 , 6, 493-9	223
959	Nanocarbons for the development of advanced catalysts. 2013 , 113, 5782-816	1005
958	Microscopic View on a Chemical Vapor Deposition Route to Boron-Doped Graphene Nanostructures. 2013 , 25, 1490-1495	112
957	Ordered mesoporous boron-doped carbons as metal-free electrocatalysts for the oxygen reduction reaction in alkaline solution. 2013 , 15, 2459-65	114
956	Three-dimensional B,N-doped graphene foam as a metal-free catalyst for oxygen reduction reaction. 2013 , 15, 12220-6	260
955	Nitrogen-, phosphorous- and boron-doped carbon nanotubes as catalysts for the aerobic oxidation of cyclohexane. 2013 , 57, 433-442	176
954	Facile, scalable synthesis of edge-halogenated graphene nanoplatelets as efficient metal-free electrocatalysts for oxygen reduction reaction. 2013 , 3, 1810	278
953	Low-temperature synthesis of nitrogen/sulfur co-doped three-dimensional graphene frameworks as efficient metal-free electrocatalyst for oxygen reduction reaction. 2013 , 62, 296-301	374
952	Vesicular nitrogen doped carbon material derived from Fe ₂ O ₃ templated polyaniline as improved non-platinum fuel cell cathode catalyst. 2013 , 99, 30-37	35
951	Sulfur-containing carbon by flame synthesis as efficient metal-free electrocatalyst for oxygen reduction reaction. 2013 , 30, 9-12	98
950	Sulfur- and nitrogen-doped, ferrocene-derived mesoporous carbons with efficient electrochemical reduction of oxygen. 2013 , 5, 12594-601	72
949	Direct nitrogen fixation at the edges of graphene nanoplatelets as efficient electrocatalysts for energy conversion. 2013 , 3, 2260	179
948	Functionalization of graphene for efficient energy conversion and storage. 2013 , 46, 31-42	668
947	High-performance polypyrrole functionalized PtPd electrocatalysts based on PtPd/PPy/PtPd three-layered nanotube arrays for the electrooxidation of small organic molecules. 2013 , 5, e69-e69	48
946	Optimierte Nanopartikel-Katalyse für die Sauerstoffreduktionsreaktion. 2013 , 125, 8686-8705	105
945	Turning indium oxide into a superior electrocatalyst: deterministic heteroatoms. 2013 , 3, 3109	27

944	Advanced carbon-based nanotubes/nanocages for energy conversion and storage: synthesis, performance and mechanism. 2013 ,		1
943	Non-Precious Metal Oxygen Reduction Electrocatalyst from Pyrolyzing Cobalt Tetraethylenepentamine Complex on Carbon. 2014 , 161, F925-F932		10
942	Nitrogen-doped carbon nanosheets with size-defined mesopores as highly efficient metal-free catalyst for the oxygen reduction reaction. <i>Angewandte Chemie - International Edition</i> , 2014 , 53, 1570-4	16.4	428
941	Seaweed-derived heteroatom-doped highly porous carbon as an electrocatalyst for the oxygen reduction reaction. 2014 , 7, 1755-63		123
940	Carbon nanotubes/heteroatom-doped carbon core-sheath nanostructures as highly active, metal-free oxygen reduction electrocatalysts for alkaline fuel cells. <i>Angewandte Chemie - International Edition</i> , 2014 , 53, 4102-6	16.4	148
939	Electrocatalytic activity of nitrogen plasma treated vertically aligned carbon nanotube carpets towards oxygen reduction reaction. 2014 , 49, 42-46		21
938	Electrochemical preparation of N-doped cobalt oxide nanoparticles with high electrocatalytic activity for the oxygen-reduction reaction. 2014 , 20, 3457-62		32
937	Highly nitrogen-doped mesoscopic carbons as efficient metal-free electrocatalysts for oxygen reduction reactions. 2014 , 2, 20030-20037		34
936	Sulfur-doped carbons prepared from eutectic mixtures containing hydroxymethylthiophene as metal-free oxygen reduction catalysts. 2014 , 7, 3347-55		15
935	Tuning nondoped carbon nanotubes to an efficient metal-free electrocatalyst for oxygen reduction reaction by localizing the orbital of the nanotubes with topological defects. 2014 , 6, 14262-9		33
934	Graphene-based nanocomposites for energy storage and conversion in lithium batteries, supercapacitors and fuel cells. 2014 , 2, 15-32		375
933	A simple and green pathway toward nitrogen and sulfur dual doped hierarchically porous carbons from ionic liquids for oxygen reduction. 2014 , 259, 138-144		57
932	Carbon Aerogels and Monoliths: Control of Porosity and Nanoarchitecture via Sol-Gel routes. 2014 , 26, 196-210		174
931	Mechanisms for enhanced performance of platinum-based electrocatalysts in proton exchange membrane fuel cells. 2014 , 7, 361-78		71
930	Carbon Nanotubes/Heteroatom-Doped Carbon Core-Sheath Nanostructures as Highly Active, Metal-Free Oxygen Reduction Electrocatalysts for Alkaline Fuel Cells. 2014 , 126, 4186-4190		63
929	Synthesis and electrocatalytic activity of phosphorus-doped carbon xerogel for oxygen reduction. 2014 , 127, 53-60		78
928	Highly efficient metal-free phosphorus-doped platelet ordered mesoporous carbon for electrocatalytic oxygen reduction. 2014 , 67, 736-743		127
927	Synergistically enhanced activity of graphene quantum dot/multi-walled carbon nanotube composites as metal-free catalysts for oxygen reduction reaction. 2014 , 6, 2603-7		95

926	Doped graphene for metal-free catalysis. 2014 , 43, 2841-57	608
925	Large scale production of biomass-derived N-doped porous carbon spheres for oxygen reduction and supercapacitors. 2014 , 2, 3317	179
924	Highly efficient electrocatalysts for oxygen reduction based on 2D covalent organic polymers complexed with non-precious metals. <i>Angewandte Chemie - International Edition</i> , 2014 , 53, 2433-7	16.4 363
923	Supercapacitor Electrodes Derived from Carbon Dioxide. 2014 , 2, 735-740	27
922	Nitrogen-Doped Carbon Nanosheets with Size-Defined Mesopores as Highly Efficient Metal-Free Catalyst for the Oxygen Reduction Reaction. 2014 , 126, 1596-1600	208
921	Highly graphitized nitrogen-doped porous carbon nanopolyhedra derived from ZIF-8 nanocrystals as efficient electrocatalysts for oxygen reduction reactions. 2014 , 6, 6590-602	594
920	Few-layer borocarbonitride nanosheets: platinum-free catalyst for the oxygen reduction reaction. 2014 , 9, 838-43	23
919	Nanocarbon Electrocatalysts for Oxygen Reduction in Alkaline Media for Advanced Energy Conversion and Storage. 2014 , 4, 1301415	307
918	In situ nitrogen-doped nanoporous carbon nanocables as an efficient metal-free catalyst for oxygen reduction reaction. 2014 , 2, 10154	67
917	One-step synthesis of dopamine-derived micro/mesoporous nitrogen-doped carbon materials for highly efficient oxygen-reduction catalysts. 2014 , 262, 414-420	30
916	Graphynes as Promising Cathode Material of Fuel Cell: Improvement of Oxygen Reduction Efficiency. 2014 , 118, 12035-12040	52
915	The effect of edge carbon of carbon nanotubes on the electrocatalytic performance of oxygen reduction reaction. 2014 , 40, 5-8	39
914	Surrounding media sensitive photoluminescence of boron-doped graphene quantum dots for highly fluorescent dyed crystals, chemical sensing and bioimaging. 2014 , 70, 149-156	194
913	Catalyst-free synthesis of crumpled boron and nitrogen co-doped graphite layers with tunable bond structure for oxygen reduction reaction. 2014 , 8, 3313-21	222
912	Amine-functionalized holey graphene as a highly active metal-free catalyst for the oxygen reduction reaction. 2014 , 2, 441-450	109
911	The role of holes in improving the performance of nitrogen-doped holey graphene as an active electrode material for supercapacitor and oxygen reduction reaction. 2014 , 251, 55-65	106
910	Nitrogen-doped hollow carbon hemispheres as efficient metal-free electrocatalysts for oxygen reduction reaction in alkaline medium. 2014 , 2, 605-609	77
909	Heterogeneous nanocarbon materials for oxygen reduction reaction. 2014 , 7, 576	792

908	Hierarchically porous graphene sheets and graphitic carbon nitride intercalated composites for enhanced oxygen reduction reaction. 2014 , 2, 3209-3215	49
907	Sulfur-doped porous carbons: Synthesis and applications. 2014 , 68, 1-32	423
906	Sulfur-doped graphene as a potential alternative metal-free electrocatalyst and Pt-catalyst supporting material for oxygen reduction reaction. 2014 , 16, 103-9	185
905	Oxygen electrocatalysts in metal-air batteries: from aqueous to nonaqueous electrolytes. 2014 , 43, 7746-86	1073
904	Nitrogen-doped graphene-supported Co/CoN _x nanohybrid as a highly efficient electrocatalyst for oxygen reduction reaction in an alkaline medium. 2014 , 4, 62272-62280	12
903	Low-temperature and one-pot synthesis of sulfurized graphene nanosheets via in situ doping and their superior electrocatalytic activity for oxygen reduction reaction. 2014 , 2, 20714-20722	48
902	Sulfur, trace nitrogen and iron codoped hierarchically porous carbon foams as synergistic catalysts for oxygen reduction reaction. 2014 , 6, 21454-60	53
901	Electrocatalytic activity for the oxygen reduction reaction of oxygen-containing nanocarbon synthesized by solution plasma. 2014 , 2, 10589	53
900	Graphene and its composites with nanoparticles for electrochemical energy applications. 2014 , 9, 668-683	204
899	Reduction of the oxygen reduction reaction overpotential of nitrogen-doped graphene by designing it to a microspherical hollow shape. 2014 , 2, 14071	35
898	Ultrathin MnO(2) nanoflakes as efficient catalysts for oxygen reduction reaction. 2014 , 50, 7885-8	103
897	Ideal N-doped carbon nanoarchitectures evolved from fibrils for highly efficient oxygen reduction. 2014 , 2, 19765-19770	21
896	One-step replication and enhanced catalytic activity for cathodic oxygen reduction of the mesostructured Co ₃ O ₄ /carbon composites. 2014 , 43, 4163-8	21
895	Boron-doped carbon-iron nanocomposites as efficient oxygen reduction electrocatalysts derived from carbon dioxide. 2014 , 50, 6349-52	36
894	From two-dimension to one-dimension: the curvature effect of silicon-doped graphene and carbon nanotubes for oxygen reduction reaction. 2014 , 16, 17479-86	42
893	Nitrogen/sulfur co-doped non-noble metal material as an efficient electrocatalyst for the oxygen reduction reaction in alkaline media. 2014 , 4, 19756-19765	15
892	Synthesis and oxygen reduction properties of three-dimensional sulfur-doped graphene networks. 2014 , 50, 6382-5	115
891	Adsorption properties of nitrogen dioxide on hybrid carbon and boron-nitride nanotubes. 2014 , 16, 22853-60	27

890	Electrocatalysis of oxygen reduction on carbon nanotubes with different surface functional groups in acid and alkaline solutions. 2014 , 39, 16964-16975	26
889	B-doped Carbon Coating Improves the Electrochemical Performance of Electrode Materials for Li-ion Batteries. 2014 , 24, 5511-5521	139
888	Substitutional doping of carbon nanotubes with heteroatoms and their chemical applications. 2014 , 7, 1240-50	58
887	Nitrogen-doped onion-like carbon: a novel and efficient metal-free catalyst for epoxidation reaction. 2014 , 2, 12475-12483	112
886	Hybrid electrolyte Li-air rechargeable batteries based on nitrogen- and phosphorus-doped graphene nanosheets. 2014 , 4, 13119-13122	16
885	Nitrogen self-doped porous carbon from surplus sludge as metal-free electrocatalysts for oxygen reduction reactions. 2014 , 6, 14911-8	50
884	Nitrogen-doped one-dimensional (1D) macroporous carbonaceous nanotube arrays and their application in electrocatalytic oxygen reduction reactions. 2014 , 6, 11057-61	46
883	Lysine-derived mesoporous carbon nanotubes as a proficient non-precious catalyst for oxygen reduction reaction. 2014 , 269, 54-60	15
882	A self-sponsored doping approach for controllable synthesis of S and N co-doped trimodal-porous structured graphitic carbon electrocatalysts. 2014 , 7, 3720-3726	180
881	Metal-free doped carbon materials as electrocatalysts for the oxygen reduction reaction. 2014 , 2, 4085-4110	608
880	Synthesis of dual-doped non-precious metal electrocatalysts and their electrocatalytic activity for oxygen reduction reaction. 2014 , 23, 498-506	6
879	Combination of carbon nitride and carbon nanotubes: synergistic catalysts for energy conversion. 2014 , 7, 2303-9	71
878	Recent advances of doped carbon as non-precious catalysts for oxygen reduction reaction. 2014 , 2, 15704-15716	16
877	Polyaniline nanosheet derived B/N co-doped carbon nanosheets as efficient metal-free catalysts for oxygen reduction reaction. 2014 , 2, 7742	118
876	Boron Doped Multi-walled Carbon Nanotubes as Catalysts for Oxygen Reduction Reaction and Oxygen Evolution Reaction in Alkaline Media. 2014 , 143, 291-296	102
875	A Theoretical Study of Molecular Oxygen Chemisorption on N, B, or O Doped Carbon Edge Sites. 2014 , 14, 709-719	4
874	MoO ₂ nanobelts@nitrogen self-doped MoS ₂ nanosheets as effective electrocatalysts for hydrogen evolution reaction. 2014 , 2, 11358	232
873	Noble-metal-free electrocatalysts with enhanced ORR performance by task-specific functionalization of carbon using ionic liquid precursor systems. 2014 , 136, 14486-97	202

872	Residual metallic impurities within carbon nanotubes play a dominant role in supposedly "metal-free" oxygen reduction reactions. 2014 , 50, 12662-4	52
871	Strategies on the Design of Nitrogen-Doped Graphene. 2014 , 5, 119-25	73
870	Carbon Composite Cathode Catalysts for Alkaline PEM Fuel Cells. 2014 , 319-356	2
869	Nitrogen-doped graphene nanoribbons as efficient metal-free electrocatalysts for oxygen reduction. 2014 , 6, 4214-22	138
868	Graphdiyne as a metal-free catalyst for low-temperature CO oxidation. 2014 , 16, 5640-8	89
867	Insight into the effect of boron doping on sulfur/carbon cathode in lithium-sulfur batteries. 2014 , 6, 8789-95	254
866	Phosphorus-doped carbon derived from cellulose phosphate as efficient catalyst for air-cathode in microbial fuel cells. 2014 , 261, 245-248	48
865	Intrinsic relationship between enhanced oxygen reduction reaction activity and nanoscale work function of doped carbons. 2014 , 136, 8875-8	273
864	Carbon black/sulfur-doped graphene composite prepared by pyrolysis of graphene oxide with sodium polysulfide for oxygen reduction reaction. 2014 , 142, 51-60	26
863	Abiotic Oxygen Reduction Reaction Catalysts Used in Microbial Fuel Cells. 2014 , 1, 1813-1821	96
862	One-pot synthesis of nitrogen and sulfur co-doped onion-like mesoporous carbon vesicle as an efficient metal-free catalyst for oxygen reduction reaction in alkaline solution. 2014 , 272, 267-276	59
861	Fabrication of 2D ordered mesoporous carbon nitride and its use as electrochemical sensing platform for H ₂ O ₂ , nitrobenzene, and NADH detection. 2014 , 53, 250-6	131
860	Graphene-supported nanoelectrocatalysts for fuel cells: synthesis, properties, and applications. 2014 , 114, 5117-60	790
859	Pyrolyzing cobalt diethylenetriamine chelate on carbon (CoDETA/C) as a family of non-precious metal oxygen reduction catalyst. 2014 , 39, 267-276	28
858	Heteroatom-doped carbon nanorods with improved electrocatalytic activity toward oxygen reduction in an acidic medium. 2014 , 69, 132-141	40
857	Heteroatom doped mesoporous carbon/graphene nanosheets as highly efficient electrocatalysts for oxygen reduction. 2014 , 421, 160-4	23
856	Simultaneous formation of nitrogen and sulfur-doped transition metal catalysts for oxygen reduction reaction through pyrolyzing carbon-supported copper phthalocyanine tetrasulfonic acid tetrasodium salt. 2014 , 266, 88-98	35
855	Influence of pre-treatment on the catalytic activity of carbon and its Co-based catalyst for oxygen reduction reaction. 2014 , 39, 3198-3210	11

854	Catalytic Mechanisms of Sulfur-Doped Graphene as Efficient Oxygen Reduction Reaction Catalysts for Fuel Cells. 2014 , 118, 3545-3553	316
853	Nitrogen and phosphorus dual-doped hierarchical porous carbon foams as efficient metal-free electrocatalysts for oxygen reduction reactions. 2014 , 20, 3106-12	169
852	Designing nitrogen-enriched echinus-like carbon capsules for highly efficient oxygen reduction reaction and lithium ion storage. 2014 , 6, 8002-9	74
851	Density functional theory study of the oxygen reduction reaction mechanism in a BN co-doped graphene electrocatalyst. 2014 , 2, 10273	76
850	One-Step Production of Sulfur and Nitrogen Co-doped Graphitic Carbon for Oxygen Reduction: Activation Effect of Oxidized Sulfur and Nitrogen. 2014 , 6, n/a-n/a	7
849	Electrochemical properties of boron-doped ordered mesoporous carbon as electrocatalyst and Pt catalyst support. 2014 , 428, 133-40	33
848	Highly Efficient Electrocatalysts for Oxygen Reduction Based on 2D Covalent Organic Polymers Complexed with Non-precious Metals. 2014 , 126, 2465-2469	47
847	From Cyano-aromatic Molecules to Nitrogen-doped Carbons by Solution Plasma for the Oxygen Reduction Reaction in Alkaline Medium. 2015 , 2, 4302-4308	5
846	Stochastic Events in Nanoelectrochemical Systems. 2015 , 256-307	
845	Nanocarbon-Based Hybrids as Cathode Electrocatalysts for Microbial Fuel Cells. 2015 , 215-232	
844	Nanocarbon-Based Nonprecious-Metal Electrocatalysts for Oxygen Reduction in Various Electrolytes. 2015 , 75-116	
843	High Performance Heteroatoms Quaternary-doped Carbon Catalysts Derived from Shewanella Bacteria for Oxygen Reduction. 2015 , 5, 17064	47
842	Heteroatom-Doped Carbon Nanotubes as Advanced Electrocatalysts for Oxygen Reduction Reaction. 2015 , 1-16	3
841	Multifunctional graphene-based nanostructures for efficient electrocatalytic reduction of oxygen. 2015 , 90, 2132-2151	20
840	Carbon-Based Nanostructures for Advanced Catalysis. 2015 , 7, 2806-2815	77
839	A Family of High-Efficiency Hydrogen-Generation Catalysts Based on Ammonium Species. 2015 , 127, 9460-9464	5
838	A Family of High-Efficiency Hydrogen-Generation Catalysts Based on Ammonium Species. <i>Angewandte Chemie - International Edition</i> , 2015 , 54, 9328-32	16.4 42
837	Structural Origin of the Activity in Mn ₃ O ₄ -Graphene Oxide Hybrid Electrocatalysts for the Oxygen Reduction Reaction. 2015 , 8, 3331-9	52

836	Design Principles for Heteroatom-Doped Carbon Nanomaterials as Highly Efficient Catalysts for Fuel Cells and Metal-Air Batteries. 2015 , 27, 6834-40	389
835	Nitrogen-Doped Ordered Mesoporous Carbon with Different Morphologies for the Oxygen Reduction Reaction: Effect of Iron Species and Synergy of Textural Properties. 2015 , 7, 2882-2890	29
834	Metal-Free Carbonaceous Materials as Promising Heterogeneous Catalysts. 2015 , 7, 2765-2787	98
833	Bifunctional Electrocatalytic Activity of Boron-Doped Graphene Derived from Boron Carbide. 2015 , 5, 1500658	112
832	From Bimetallic Metal-Organic Framework to Porous Carbon: High Surface Area and Multicomponent Active Dopants for Excellent Electrocatalysis. 2015 , 27, 5010-6	1016
831	On the Role of Metals in Nitrogen-Doped Carbon Electrocatalysts for Oxygen Reduction. <i>Angewandte Chemie - International Edition</i> , 2015 , 54, 10102-20	16.4 514
830	Formation, Energetics, and Electronic Properties of Graphene Monolayer and Bilayer Doped with Heteroatoms. 2015 , 2015, 1-14	19
829	A new class of electroactive Fe- and P-functionalized graphene for oxygen reduction. 2015 , 3, 11031-11039	74
828	Simple one-step synthesis of fluorine-doped carbon nanoparticles as potential alternative metal-free electrocatalysts for oxygen reduction reaction. 2015 , 3, 9972-9981	127
827	Dual-site polydopamine spheres/CoFe layered double hydroxides for electrocatalytic oxygen reduction reaction. 2015 , 170, 248-255	26
826	Si-doped carbon nanotubes as efficient metal-free electrocatalysts for O ₂ reduction in alkaline medium. 2015 , 158, 32-35	24
825	Boron and phosphorous-doped graphene as a metal-free electrocatalyst for the oxygen reduction reaction in alkaline medium. 2015 , 5, 53637-53643	41
824	Naturally derived porous carbon with selective metal- and/or nitrogen-doping for efficient CO ₂ capture and oxygen reduction. 2015 , 3, 5212-5222	51
823	Synthesis of Graphene Oxide Frameworks and their Application in Electrocatalytic Preparation of Hydrogen Peroxide. 2015 , 1090, 43-49	3
822	Layered SiC sheets: A promising metal-free catalyst for NO reduction. 2015 , 60, 132-41	14
821	Sulfur-doped graphene as a catalyst support: Influences of carbon black and ruthenium nanoparticles on the hydrogen evolution reaction performance. 2015 , 93, 762-773	56
820	Nitrogen and Phosphorus Dual-Doped Graphene/Carbon Nanosheets as Bifunctional Electrocatalysts for Oxygen Reduction and Evolution. 2015 , 5, 4133-4142	539
819	Advances in electrocatalysts for oxygen evolution reaction of water electrolysis-from metal oxides to carbon nanotubes. 2015 , 25, 545-553	177

8 ₁₈	Controllable boron doping of carbon nanotubes with tunable dopant functionalities: an effective strategy toward carbon materials with enhanced electrical properties. 2015 , 5, 97579-97588	21
8 ₁₇	Cheap carbon black-based high-performance electrocatalysts for oxygen reduction reaction. 2015 , 51, 1972-5	44
8 ₁₆	Nitrogen- and Phosphorus-Doped Biocarbon with Enhanced Electrocatalytic Activity for Oxygen Reduction. 2015 , 5, 920-927	124
8 ₁₅	Porous carbon with high capacitance and graphitization through controlled addition and removal of sulfur-containing compounds. 2015 , 12, 567-577	62
8 ₁₄	B and N isolate-doped graphitic carbon nanosheets from nitrogen-containing ion-exchanged resins for enhanced oxygen reduction. 2014 , 4, 5184	60
8 ₁₃	Honeysuckles-derived porous nitrogen, sulfur, dual-doped carbon as high-performance metal-free oxygen electroreduction catalyst. 2015 , 12, 785-793	144
8 ₁₂	Alloyed CoMo Nitride as High-Performance Electrocatalyst for Oxygen Reduction in Acidic Medium. 2015 , 5, 1857-1862	149
8 ₁₁	Electrochemical synthesis of sulfur-doped graphene sheets for highly efficient oxygen reduction. 2015 , 58, 417-424	16
8 ₁₀	Nitrogen-doped carbon dots decorated on graphene: a novel all-carbon hybrid electrocatalyst for enhanced oxygen reduction reaction. 2015 , 51, 3419-22	135
8 ₀₉	Boron- and Nitrogen-Substituted Graphene Nanoribbons as Efficient Catalysts for Oxygen Reduction Reaction. 2015 , 27, 1181-1186	202
8 ₀₈	Recent Advances in Heteroatom-Doped Metal-Free Electrocatalysts for Highly Efficient Oxygen Reduction Reaction. 2015 , 6, 132-147	104
8 ₀₇	Bioinspired synthesis of nitrogen/sulfur co-doped graphene as an efficient electrocatalyst for oxygen reduction reaction. 2015 , 279, 252-258	106
8 ₀₆	Advanced non-precious electrocatalyst of the mixed valence CoO _x nanocrystals supported on N-doped carbon nanocages for oxygen reduction. 2015 , 58, 180-186	17
8 ₀₅	Nitrogen-doped carbon shell structure derived from natural leaves as a potential catalyst for oxygen reduction reaction. 2015 , 13, 518-526	118
8 ₀₄	Fe-P: a new class of electroactive catalyst for oxygen reduction reaction. 2015 , 137, 3165-8	225
8 ₀₃	Nitrogen-doped hierarchically porous carbon spheres as efficient metal-free electrocatalysts for an oxygen reduction reaction. 2015 , 283, 389-396	73
8 ₀₂	Effect of boron-nitrogen bonding on oxygen reduction reaction activity of BN Co-doped activated porous carbons. 2015 , 5, 24661-24669	29
8 ₀₁	Oxidized/reduced graphene nanoribbons facilitate charge transfer to the Fe(CN) ₆ ^{3-/4-} redox couple and towards oxygen reduction. 2015 , 7, 6193-207	25

800	CHAPTER 6:Doped Nanostructured Carbon Materials as Catalysts. 2015 , 268-311	2
799	Effects of boron oxidation state on electrocatalytic activity of carbons synthesized from CO ₂ . 2015 , 3, 5843-5849	20
798	Functionalization of multiwall carbon nanotubes with nitrogen containing polyelectrolyte by a simple method. 2015 , 85, 155-159	6
797	Recycling the biowaste to produce nitrogen and sulfur self-doped porous carbon as an efficient catalyst for oxygen reduction reaction. 2015 , 16, 408-418	105
796	One-step synthesis of boron nitride carbon nanosheets containing zinc oxide for catalysis of the oxygen reduction reaction and degradation of organic dyes. 2015 , 5, 69394-69399	13
795	Hydrogel-derived non-precious electrocatalysts for efficient oxygen reduction. 2015 , 5, 11739	21
794	Synthesis of B-doped hollow carbon spheres as efficient non-metal catalyst for oxygen reduction reaction. 2015 , 5, 52126-52131	28
793	Ni-promoted synthesis of graphitic carbon nanotubes from in situ produced graphitic carbon for dehydrogenation of ethylbenzene. 2015 , 51, 12859-62	43
792	Graphene-based electrode materials for microbial fuel cells. 2015 , 58, 496-509	56
791	Oxygen Reduction in Alkaline Media: From Mechanisms to Recent Advances of Catalysts. 2015 , 5, 4643-4667	748
790	Hydrophilic Hierarchical Nitrogen-Doped Carbon Nanocages for Ultrahigh Supercapacitive Performance. 2015 , 27, 3541-5	573
789	Two-dimensional iron-phthalocyanine (Fe-Pc) monolayer as a promising single-atom-catalyst for oxygen reduction reaction: a computational study. 2015 , 7, 11633-41	128
788	Heterometal-Embedded Organic Conjugate Frameworks from Alternating Monomeric Iron and Cobalt Metalloporphyrins and Their Application in Design of Porous Carbon Catalysts. 2015 , 27, 3431-6	199
787	N-doped porous carbon nanosheets with embedded iron carbide nanoparticles for oxygen reduction reaction in acidic media. 2015 , 40, 4531-4539	50
786	The enhanced electrocatalytic activity of graphene co-doped with chlorine and fluorine atoms. 2015 , 177, 36-42	9
785	One-pot synthesis of B-doped three-dimensional reduced graphene oxide via supercritical fluid for oxygen reduction reaction. 2015 , 17, 3552-3560	92
784	Hierarchical porous nitrogen-doped carbon nanosheets derived from silk for ultrahigh-capacity battery anodes and supercapacitors. 2015 , 9, 2556-64	1164
783	Review on application of PEDOTs and PEDOT:PSS in energy conversion and storage devices. 2015 , 26, 4438-4462	347

782	Synergistic enhancement of nitrogen and sulfur co-doped graphene with carbon nanosphere insertion for the electrocatalytic oxygen reduction reaction. 2015 , 3, 7727-7731	52
781	N-doped carbon nanomaterials are durable catalysts for oxygen reduction reaction in acidic fuel cells. 2015 , 1, e1400129	457
780	One-step synthesis of cobalt and nitrogen co-doped carbon nanotubes and their catalytic activity for the oxygen reduction reaction. 2015 , 3, 12718-12722	44
779	Ternary doping of phosphorus, nitrogen, and sulfur into porous carbon for enhancing electrocatalytic oxygen reduction. 2015 , 92, 327-338	125
778	Why Do Boron and Nitrogen Doped π - and σ -Graphyne Exhibit Different Oxygen Reduction Mechanism? A First-Principles Study. 2015 , 119, 11493-11498	67
777	Free-standing boron and oxygen co-doped carbon nanofiber films for large volumetric capacitance and high rate capability supercapacitors. 2015 , 15, 235-243	94
776	The influence of formaldehyde/phenol molar ratio on microstructure of B-OMCs. 2015 , 5, 20734-20740	10
775	Metal-free catalysts for oxygen reduction reaction. 2015 , 115, 4823-92	1763
774	Nature of the N-B Interaction in Nitrogen-Doped Carbon Nanotube Catalysts. 2015 , 5, 2740-2753	273
773	Efficient oxygen reduction catalysts formed of cobalt phosphide nanoparticle decorated heteroatom-doped mesoporous carbon nanotubes. 2015 , 51, 7891-4	80
772	Effect of Boron-Doping on the Graphene Aerogel Used as Cathode for the Lithium-Sulfur Battery. 2015 , 7, 25202-10	128
771	Über die Rolle von Metallen in Elektrokatalysatoren auf Basis von stickstoffdotiertem Kohlenstoff für die Sauerstoffreduktion. 2015 , 127, 10240-10259	69
770	Heteroatom-Doped Graphitic Carbon Catalysts for Efficient Electrocatalysis of Oxygen Reduction Reaction. 2015 , 5, 7244-7253	422
769	Influence of enolate/epoxy configuration, doping and vacancy on the catalytic activity of graphene. 2015 , 5, 93215-93225	14
768	The Effects of a Low-Level Boron, Phosphorus, and Nitrogen Doping on the Oxygen Reduction Activity of Ordered Mesoporous Carbons. 2015 , 6, 498-511	30
767	Significant Contribution of Intrinsic Carbon Defects to Oxygen Reduction Activity. 2015 , 5, 6707-6712	400
766	Tunable ternary (P, S, N)-doped graphene as an efficient electrocatalyst for oxygen reduction reaction in an alkaline medium. 2015 , 5, 86746-86753	34
765	Electrocatalytic oxygen reduction activity of boron-doped carbon nanoparticles synthesized via solution plasma process. 2015 , 59, 81-85	47

764	Sulfur-doped carbon spheres as efficient metal-free electrocatalysts for oxygen reduction reaction. 2015 , 178, 806-812	55
763	Cross-linked polymer-derived B/N co-doped carbon materials with selective capture of CO ₂ . 2015 , 3, 23352-23359	27
762	Carbon-based electrocatalysts for advanced energy conversion and storage. 2015 , 1, e1500564	434
761	Hydrothermal Synthesis of Boron and Nitrogen Codoped Hollow Graphene Microspheres with Enhanced Electrocatalytic Activity for Oxygen Reduction Reaction. 2015 , 7, 19398-407	67
760	Intumescent flame retardant-derived P,N co-doped porous carbon as an efficient electrocatalyst for the oxygen reduction reaction. 2015 , 51, 14801-4	34
759	Three-Dimensional MnCo ₂ O _{4.5} Mesoporous Networks as an Electrocatalyst for Oxygen Reduction Reaction. 2015 , 162, A2302-A2307	16
758	Metal-free, carbon-based catalysts for oxygen reduction reactions. 2015 , 9, 280-294	15
757	Iodine/nitrogen co-doped graphene as metal free catalyst for oxygen reduction reaction. 2015 , 95, 930-939	87
756	Shewanella-mediated biosynthesis of manganese oxide micro-/nanocubes as efficient electrocatalysts for the oxygen reduction reaction. 2015 , 8, 158-63	16
755	Heating Treated Carbon Nanotubes As Highly Active Electrocatalysts for Oxygen Reduction Reaction. 2015 , 154, 177-183	26
754	Transforming chitosan into N-doped graphitic carbon electrocatalysts. 2015 , 51, 1334-7	105
753	Bismuth oxide nanoparticles as a nanoscale guide to form a silver/polydopamine hybrid electrocatalyst with enhanced activity and stability for the oxygen reduction reaction. 2015 , 5, 4286-4291	6
752	Boosting activation of oxygen molecules on C60 fullerene by boron doping. 2015 , 16, 390-5	17
751	Synthesis of phosphorus-doped carbon hollow spheres as efficient metal-free electrocatalysts for oxygen reduction. 2015 , 82, 562-571	194
750	Yolk-shell structured iron carbide/N-doped carbon composite as highly efficient and stable oxygen reduction reaction electrocatalyst. 2015 , 82, 572-578	48
749	Bacterial cellulose derived nitrogen-doped carbon nanofiber aerogel: An efficient metal-free oxygen reduction electrocatalyst for zinc-air battery. 2015 , 11, 366-376	333
748	Heteroatom-doped highly porous carbon from human urine. 2014 , 4, 5221	100
747	New approach of nitrogen and sulfur-doped graphene synthesis using dipyrrolemethane and their electrocatalytic activity for oxygen reduction in alkaline media. 2015 , 275, 73-79	88

746	Fe-containing polyimide-based high-performance ORR catalysts in acidic medium: a kinetic approach to study the durability of catalysts. 2015 , 5, 475-483	69
745	Effects of nitrogen-, boron-, and phosphorus-doping or codoping on metal-free graphene catalysis. 2015 , 249, 184-191	123
744	Single and Multiple Doping in Graphene Quantum Dots: Unraveling the Origin of Selectivity in the Oxygen Reduction Reaction. 2015 , 5, 129-144	142
743	Layered SiC sheets: a potential catalyst for oxygen reduction reaction. 2014 , 4, 3821	92
742	Organic Solar Cells with Boron- or Nitrogen-Doped Carbon Nanotubes in the P3HT : PCBM Photoactive Layer. 2016 , 2016, 1-11	4
741	Sulfur-Enriched Conjugated Polymer Nanosheet Derived Sulfur and Nitrogen co-Doped Porous Carbon Nanosheets as Electrocatalysts for Oxygen Reduction Reaction and Zinc Air Battery. 2016 , 26, 5893-5902	189
740	Carbon Nanodot Surface Modifications Initiate Highly Efficient, Stable Catalysts for Both Oxygen Evolution and Reduction Reactions. 2016 , 6, 1502039	73
739	Sulfur and Nitrogen Codoped Carbon Tubes as Bifunctional Metal-Free Electrocatalysts for Oxygen Reduction and Hydrogen Evolution in Acidic Media. 2016 , 22, 10326-9	49
738	Phosphorous/Nitrogen-Codoped Carbon Materials Derived from Metal-Organic Frameworks as Efficient Electrocatalysts for Oxygen Reduction Reactions. 2016 , 2016, 2100-2105	57
737	Biomass-derived porous heteroatom-doped carbon spheres as a high-performance catalyst for the oxygen reduction reaction. 2016 , 41, 14101-14110	44
736	A sulfur doped carbon nanotube as a potential catalyst for the oxygen reduction reaction. 2016 , 6, 63084-63090	8
735	Topological Defects in Metal-Free Nanocarbon for Oxygen Electrocatalysis. 2016 , 28, 6845-51	522
734	Platinfreie Nanomaterialien für die Sauerstoffreduktion. 2016 , 128, 2698-2726	78
733	Earth-Abundant Nanomaterials for Oxygen Reduction. <i>Angewandte Chemie - International Edition</i> , 2016 , 55, 2650-76	16.4 760
732	Self-templated synthesis of novel carbon nanoarchitectures for efficient electrocatalysis. 2016 , 6, 28049	6
731	Boron doped graphene wrapped silver nanowires as an efficient electrocatalyst for molecular oxygen reduction. 2016 , 6, 37731	17
730	Interaction Induced High Catalytic Activities of CoO Nanoparticles Grown on Nitrogen-Doped Hollow Graphene Microspheres for Oxygen Reduction and Evolution Reactions. 2016 , 6, 27081	69
729	Facile synthesis of nitrogen and sulfur dual-doped graphitized carbon microspheres and their high performance in the oxygen reduction reaction. 2016 , 6, 38880-38886	3

728	A solution-based procedure for synthesis of nitrogen doped graphene as an efficient electrocatalyst for oxygen reduction reactions in acidic and alkaline electrolytes. 2016 , 192, 26-34	85
727	Electrocatalytic oxygen reduction on nitrogen-doped carbon nanoparticles derived from cyano-aromatic molecules via a solution plasma approach. 2016 , 98, 411-420	60
726	Synthesis and characterization of a novel binuclear iron phthalocyanine/reduced graphene oxide nanocomposite for non-precious electrocatalyst for oxygen reduction. 2016 , 59, 746-751	10
725	Nonporous MOF-derived dopant-free mesoporous carbon as an efficient metal-free electrocatalyst for the oxygen reduction reaction. 2016 , 4, 9370-9374	68
724	Doping graphene with boron: a review of synthesis methods, physicochemical characterization, and emerging applications. 2016 , 4, 5002-5025	296
723	Hierarchical Sandwich-Like Structure of Ultrafine N-Rich Porous Carbon Nanospheres Grown on Graphene Sheets as Superior Lithium-Ion Battery Anodes. 2016 , 8, 10324-33	87
722	Progress in the Development of Oxygen Reduction Reaction Catalysts for Low-Temperature Fuel Cells. 2016 , 7, 509-32	41
721	Creation of Ge-Nx-Cy Configures in Carbon Nanotubes: Origin of Enhanced Electrocatalytic Performance for Oxygen Reduction Reaction. 2016 , 8, 10383-91	18
720	Germanium and phosphorus co-doped carbon nanotubes with high electrocatalytic activity for oxygen reduction reaction. 2016 , 6, 33205-33211	14
719	Doping sp ² carbon to boost the activity for oxygen reduction in an acidic medium: a theoretical exploration. 2016 , 6, 48498-48503	11
718	Facile synthesis of nitrogen-doped carbon nanosheets as metal-free catalyst with excellent oxygen reduction performance in alkaline and acidic media. 2016 , 20, 1469-1479	18
717	Chemical Nature of Catalytic Active Sites for the Oxygen Reduction Reaction on Nitrogen-Doped Carbon-Supported Non-Noble Metal Catalysts. 2016 , 120, 9884-9896	80
716	Efficient Pt-free electrocatalyst for oxygen reduction reaction: Highly ordered mesoporous N and S co-doped carbon with saccharin as single-source molecular precursor. 2016 , 194, 202-208	84
715	Reproducibly creating hierarchical 3D carbon to study the effect of Si surface functionalization on the oxygen reduction reaction. 2016 , 8, 11617-24	1
714	Constructing B and N separately co-doped carbon nanocapsules-wrapped Fe/FeC for oxygen reduction reaction with high current density. 2016 , 18, 26572-26578	11
713	Construction of a cobalt-embedded nitrogen-doped carbon material with the desired porosity derived from the confined growth of MOFs within graphene aerogels as a superior catalyst towards HER and ORR. 2016 , 4, 15536-15545	65
712	Building a Three-Dimensional Nano-Bio Interface for Aptasensing: An Analytical Methodology Based on Steric Hindrance Initiated Signal Amplification Effect. 2016 , 88, 9622-9629	44
711	Pt nanoparticle and Fe,N-codoped 3D graphene as synergistic electrocatalyst for oxygen reduction reaction. 2016 , 335, 31-37	26

710	Nitrogen-doped mesoporous hollow carbon nanoflowers as high performance anode materials of lithium ion batteries. 2016 , 6, 93519-93524	9
709	High-Performance Non-Noble Electrocatalysts for Oxygen Reduction Using Fluidic Acrylonitrile Telomer as Precursor. 2016 , 211, 814-821	1
708	Insights into the Catalytic Activity of Barium Carbonate for Oxygen Reduction Reaction. 2016 , 120, 22895-22902	1
707	Defect-induced Catalysis toward the Oxygen Reduction Reaction in Single-walled Carbon Nanotube: Nitrogen doped and Non-nitrogen doped. 2016 , 215, 66-71	11
706	3D graphene-based hybrid materials: synthesis and applications in energy storage and conversion. 2016 , 8, 15414-47	105
705	Heteroatom-Doped Nanostructured Carbon Materials. 2016 , 219-235	
704	From chicken feather to nitrogen and sulfur co-doped large surface bio-carbon flocs: an efficient electrocatalyst for oxygen reduction reaction. 2016 , 213, 273-282	46
703	Yolk-shell N/P/B ternary-doped biocarbon derived from yeast cells for enhanced oxygen reduction reaction. 2016 , 107, 907-916	51
702	High-rate and ultralong cycle-life LiFePO ₄ nanocrystals coated by boron-doped carbon as positive electrode for lithium-ion batteries. 2016 , 390, 481-488	27
701	Self-assembly-template engineering nitrogen-doped carbon aerogels for high-rate supercapacitors. 2016 , 28, 206-215	136
700	Active Site Structures in Nitrogen-Doped Carbon-Supported Cobalt Catalysts for the Oxygen Reduction Reaction. 2016 , 8, 32875-32886	95
699	A catalyst-free synthesis of B, N co-doped graphene nanostructures with tunable dimensions as highly efficient metal free dual electrocatalysts. 2016 , 4, 16469-16475	109
698	Pomegranate-like N,P-Doped Mo ₂ C@C Nanospheres as Highly Active Electrocatalysts for Alkaline Hydrogen Evolution. 2016 , 10, 8851-60	451
697	Stimulation of electrocatalytic oxygen reduction activity on nitrogen doped graphene through noncovalent molecular functionalisation. 2016 , 52, 10385-8	13
696	Potential Application of Novel Boron-Doped Graphene Nanoribbon as Oxygen Reduction Reaction Catalyst. 2016 , 120, 17427-17434	101
695	Experimental and theoretical studies on the effect of functional groups on carbon nanotubes to its oxygen reduction reaction activity. 2016 , 506, 476-484	20
694	Oxygen Reduction Kinetics on Pt Monolayer Shell Highly Affected by the Structure of Bimetallic AuNi Cores. 2016 , 28, 5274-5281	38
693	Identifying the Catalytic Active Sites in Heteroatom-Doped Graphene for the Oxygen Reduction Reaction. 2016 , 16, 568-576	10

692	Non-Pt Nanostructured Catalysts for Oxygen Reduction Reaction: Synthesis, Catalytic Activity and its Key Factors. 2016 , 6, 1600458	125
691	Nitrogen Modified Carbon Nano-Materials as Stable Catalysts for Phosgene Synthesis. 2016 , 6, 5843-5855	28
690	Computational electrochemistry of doped graphene as electrocatalytic material in fuel cells. 2016 , 116, 1623-1640	18
689	Honey-Based P, N and Si Tri-Doped Graphitic Carbon Electrocatalysts for Oxygen Reduction Reaction in Alkaline Conditions. 2016 , 1, 3527-3534	3
688	Microwave Exfoliation of Graphite Oxides in HS Plasma for the Synthesis of Sulfur-Doped Graphenes as Oxygen Reduction Catalysts. 2016 , 8, 31849-31855	26
687	The effect of doped heteroatoms (nitrogen, boron, phosphorus) on inhibition thermal oxidation of reduced graphene oxide. 2016 , 6, 105021-105029	50
686	Elemental superdoping of graphene and carbon nanotubes. 2016 , 7, 10921	190
685	Electrochemically synthesized sulfur-doped graphene as a superior metal-free cathodic catalyst for oxygen reduction reaction in microbial fuel cells. 2016 , 6, 103446-103454	28
684	Carbon-based metal-free catalysts. 2016 , 1,	777
683	Tuning the Electrochemical Reactivity of Boron- and Nitrogen-Substituted Graphene. 2016 , 28, 6239-46	80
682	Ionic-Liquid-Derived Boron-Doped Cobalt-Coordinating Nitrogen-Doped Carbon Materials for Enhanced Catalytic Activity. 2016 , 8, 1782-1787	12
681	Alcohol-Tolerant Platinum Electrocatalyst for Oxygen Reduction by Encapsulating Platinum Nanoparticles inside Nitrogen-Doped Carbon Nanocages. 2016 , 8, 16664-9	22
680	Molecular hydrogen storage in fullerenes Δ dispersion-corrected density functional theory study. 2016 , 41, 13116-13130	22
679	Activated carbon becomes active for oxygen reduction and hydrogen evolution reactions. 2016 , 52, 8156-9	114
678	In-plane graphene/boron-nitride heterostructures as an efficient metal-free electrocatalyst for the oxygen reduction reaction. 2016 , 8, 14084-91	36
677	Influence of nitrogen precursors on the structure, composition, and oxygen reduction reaction performance of dual heteroatom doped carbon nanohorns. 2016 , 6, 63730-63735	9
676	Controlled growth cerium oxide nanoparticles on reduced graphene oxide for oxygen catalytic reduction. 2016 , 191, 669-676	34
675	Synergistic effect between strongly coupled CoAl layered double hydroxides and graphene for the electrocatalytic reduction of oxygen. 2016 , 192, 196-204	22

674	Defect-driven oxygen reduction reaction (ORR) of carbon without any element doping. 2016 , 3, 417-421	117
673	Highly efficient nonprecious metal catalysts towards oxygen reduction reaction based on three-dimensional porous carbon nanostructures. 2016 , 45, 517-31	665
672	Towards high-efficiency nanoelectrocatalysts for oxygen reduction through engineering advanced carbon nanomaterials. 2016 , 45, 1273-307	510
671	Doping effect of boron and phosphorus on nitrogen-based mesoporous carbons as electrocatalysts for oxygen reduction reaction in acid media. 2016 , 20, 645-655	13
670	Comprehensive electronic structure characterization of pristine and nitrogen/phosphorus doped carbon nanocages. 2016 , 103, 480-487	19
669	Mesoporous boron-doped onion-like carbon as long-life oxygen electrode for sodium-oxygen batteries. 2016 , 4, 6610-6619	39
668	Nitrogen and sulfur co-doped graphene aerogels as an efficient metal-free catalyst for oxygen reduction reaction in an alkaline solution. 2016 , 6, 22781-22790	37
667	Heteroatom doped graphdiyne as efficient metal-free electrocatalyst for oxygen reduction reaction in alkaline medium. 2016 , 4, 4738-4744	109
666	Mechanism for Forming B,C,N,O Rings from NH ₃ BH ₃ and CO ₂ via Reaction Discovery Computations. 2016 , 120, 1135-44	14
665	Reactivity of boron- and nitrogen-doped carbon nanotubes functionalized by (Pt, Eu) atoms toward O ₂ and CO: A density functional study. 2016 , 27, 1650075	2
664	A Polysulfide-Trapping Interface for Electrochemically Stable Sulfur Cathode Development. 2016 , 8, 4709-17	58
663	Octa(aminophenyl)silsesquioxane derived nitrogen-doped well-defined nanoporous carbon materials: Synthesis and application for supercapacitors. 2016 , 194, 143-150	19
662	Nitrogen-Doped Carbon Nanoparticle-Carbon Nanofiber Composite as an Efficient Metal-Free Cathode Catalyst for Oxygen Reduction Reaction. 2016 , 8, 6962-71	129
661	One-pot synthesis of boron-doped ordered mesoporous carbons as efficient electrocatalysts for the oxygen reduction reaction. 2016 , 6, 24728-24737	21
660	Hydrogel-derived heteroatom-doped porous carbon networks for supercapacitor and electrocatalytic oxygen reduction. 2016 , 103, 9-15	122
659	An efficient preparation of N-doped mesoporous carbon derived from milk powder for supercapacitors and fuel cells. 2016 , 196, 527-534	42
658	Structural effects of a carbon matrix in non-precious metal O ₂ -reduction electrocatalysts. 2016 , 45, 2396-409	151
657	Synthesis and Electrochemical Performance of Nano-sized Li ₄ Ti ₅ O ₁₂ Coated with Boron-Doped Carbon. 2016 , 196, 300-308	28

656	Novel As-doped, As and N-codoped carbon nanotubes as highly active and durable electrocatalysts for O ₂ reduction in alkaline medium. 2016 , 306, 535-540	17
655	Dissociation of O ₂ and its reactivity on O/S doped graphene. 2016 , 6, 7015-7021	16
654	Preparation of nitrogen- and phosphorous co-doped carbon microspheres and their superior performance as anode in sodium-ion batteries. 2016 , 99, 556-563	189
653	Macroscopic-scale synthesis of nitrogen-doped carbon nanofiber aerogels by template-directed hydrothermal carbonization of nitrogen-containing carbohydrates. 2016 , 19, 117-127	99
652	Nitrogen-doped carbons prepared from eutectic mixtures as metal-free oxygen reduction catalysts. 2016 , 4, 478-488	32
651	Remarkable electrochemical properties of electrochemically reduced graphene oxide towards oxygen reduction reaction are caused by residual metal-based impurities. 2016 , 62, 17-20	27
650	Catalytic Effects of B/N-co-Doped Porous Carbon Incorporated with Ketjenblack Nanoparticles for All-Vanadium Redox Flow Batteries. 2016 , 163, A5144-A5149	45
649	Boron-doped carbon nanoparticles: Size-independent color tunability from red to blue and bioimaging applications. 2016 , 96, 166-173	51
648	N- and S-doped mesoporous carbon as metal-free cathode catalysts for direct biorenewable alcohol fuel cells. 2016 , 4, 83-95	77
647	Efficient Synthesis of Nitrogen- and Sulfur-co-Doped Ketjenblack with a Single-Source Precursor for Enhancing Oxygen Reduction Reaction Activity. 2017 , 23, 3674-3682	19
646	Unraveling Oxygen Evolution Reaction on Carbon-Based Electrocatalysts: Effect of Oxygen Doping on Adsorption of Oxygenated Intermediates. 2017 , 2, 294-300	100
645	Heteroatom Nitrogen- and Boron-Doping as a Facile Strategy to Improve Photocatalytic Activity of Standalone Reduced Graphene Oxide in Hydrogen Evolution. 2017 , 9, 4558-4569	101
644	From Carbon-Based Nanotubes to Nanocages for Advanced Energy Conversion and Storage. 2017 , 50, 435-444	162
643	Combining theory and experiment in electrocatalysis: Insights into materials design. 2017 , 355,	5239
642	Metal-Organic Frameworks Derived Cobalt Phosphide Architecture Encapsulated into B/N Co-Doped Graphene Nanotubes for All pH Value Electrochemical Hydrogen Evolution. 2017 , 7, 1601671	230
641	Enhancement of nitrogen and sulfur co-doping on the electrocatalytic properties of carbon nanotubes for VO ₂ ⁺ /VO ₂ ⁺ redox reaction. 2017 , 7, 13184-13190	42
640	Iron-Nitrogen co-doped hierarchically mesoporous carbon spheres as highly efficient electrocatalysts for the oxygen reduction reaction. 2017 , 7, 8879-8885	11
639	3D graphene preparation via covalent amide functionalization for efficient metal-free electrocatalysis in oxygen reduction. 2017 , 7, 43279	39

638	Nitrogen-Doped Co O Mesoporous Nanowire Arrays as an Additive-Free Air-Cathode for Flexible Solid-State Zinc-Air Batteries. 2017 , 29, 1602868	353
637	Synthesis and characterization of boron-doped ordered mesoporous carbon by evaporation induced self-assembly under HCl conditions. 2017 , 7, 8250-8257	11
636	Hollow-structured conjugated porous polymer derived Iron/Nitrogen-codoped hierarchical porous carbons as highly efficient electrocatalysts. 2017 , 497, 108-116	23
635	Bottom-Up Fabrication of Sulfur-Doped Graphene Films Derived from Sulfur-Annulated Nanographene for Ultrahigh Volumetric Capacitance Micro-Supercapacitors. 2017 , 139, 4506-4512	248
634	Progress of air-breathing cathode in microbial fuel cells. 2017 , 356, 245-255	91
633	N-Doped Graphene from MetalOrganic Frameworks for Catalytic Oxidation of p-Hydroxylbenzoic Acid: N-Functionality and Mechanism. 2017 , 5, 2693-2701	152
632	Facile Integration of Hierarchical Pores and N,P-Codoping in Carbon Networks Enables Efficient Oxygen Reduction Reaction. 2017 , 238, 375-383	30
631	Chitosan, EDTA and Cobalt Salts Derived Metal-N-C Sub-Micrometer Spheres for High-Performance Oxygen Reduction. 2017 , 164, H389-H395	2
630	Synergistic Effect of a Boron-Doped Carbon-Nanotube-Supported Cu Catalyst for Selective Hydrogenation of Dimethyl Oxalate to Ethanol. 2017 , 23, 8252-8261	29
629	Iron phosphide nanocrystals decorated in situ on heteroatom-doped mesoporous carbon nanosheets used for an efficient oxygen reduction reaction in both alkaline and acidic media. 2017 , 7, 22263-22269	16
628	Electrospun core-shell nanofibers derived FeS/N doped carbon material for oxygen reduction reaction. 2017 , 416, 118-123	34
627	Effect of oxygen adsorbability on the control of Li ₂ O ₂ growth in Li-O ₂ batteries: Implications for cathode catalyst design. 2017 , 36, 68-75	69
626	Heteroatom-doped Nanostructured Carbon Materials asORR Electrocatalysts for Low-temperature Fuel Cells. 2017 , 401-421	2
625	Synergistic effect of nitrogen and sulfur co-doped graphene as efficient metal-free counter electrode for dye-sensitized solar cells: A first-principle study. 2017 , 136, 44-51	25
624	Atomically thin SiC nanoparticles obtained via ultrasonic treatment to realize enhanced catalytic activity for the oxygen reduction reaction in both alkaline and acidic media. 2017 , 7, 22875-22881	15
623	Synthesis of B-doped graphene quantum dots as a metal-free electrocatalyst for the oxygen reduction reaction. 2017 , 5, 10537-10543	136
622	Cobalt or Nickel Doped SiC Nanocages as Efficient Electrocatalyst for Oxygen Reduction Reaction: A Computational Prediction. 2017 , 164, F616-F619	36
621	Cu nanoparticles supported on graphitic carbon nitride as an efficient electrocatalyst for oxygen reduction reaction. 2017 , 38, 1006-1010	10

620	Carbon-based catalysts for metal-free electrocatalysis. 2017 , 4, 18-25		70
619	Doping carbon nanotubes with N, S, and B for electrocatalytic oxygen reduction: a systematic investigation on single, double, and triple doped modes. 2017 , 7, 4007-4016		31
618	A Bifunctional Hybrid Electrocatalyst for Oxygen Reduction and Evolution: Cobalt Oxide Nanoparticles Strongly Coupled to B,N-Decorated Graphene. <i>Angewandte Chemie - International Edition</i> , 2017 , 56, 7121-7125	16.4	306
617	Oxygen Reduction Reaction in Conducting Polymer PEDOT: Density Functional Theory Study. 2017 , 121, 12270-12277		45
616	A Bifunctional Hybrid Electrocatalyst for Oxygen Reduction and Evolution: Cobalt Oxide Nanoparticles Strongly Coupled to B,N-Decorated Graphene. 2017 , 129, 7227-7231		55
615	Lettuce-Like, Hierarchically Porous and Nitrogen-Doped Carbon Catalyst: As a Superb non-Precious-Metal Oxygen Reduction Reaction Electrocatalyst in both Alkaline and Acidic Media. 2017 , 2, 4176-4186		
614	Direct synthesis of interconnected N, S-codoped porous exfoliated carbon nanosheets as advanced electrocatalysts for oxygen reduction reaction. 2017 , 122, 114-121		32
613	Design Strategies toward Advanced MOF-Derived Electrocatalysts for Energy-Conversion Reactions. 2017 , 7, 1700518		406
612	In-situ boron and nitrogen doping in flue gas derived carbon materials for enhanced oxygen reduction reaction. 2017 , 20, 73-80		18
611	A Composite of Pyrrole-Doped Carbon Black Modified with Co ₃ O ₄ for Efficient Electrochemical Oxygen Reduction Reaction. 2017 , 4, 2260-2268		10
610	Improved oxygen reduction activity of carbon nanotubes and graphene through adenine functionalization. 2017 , 7, 26722-26728		8
609	N, S co-doped carbon spheres with highly dispersed CoO as non-precious metal catalyst for oxygen reduction reaction. 2017 , 360, 106-113		32
608	Fabrication of efficient TiO ₂ -RGO heterojunction composites for hydrogen generation via water-splitting: Comparison between RGO, Au and Pt reduction sites. 2017 , 423, 185-196		62
607	Boron-doped carbon nanotubes with uniform boron doping and tunable dopant functionalities as an efficient electrocatalyst for dopamine oxidation reaction. 2017 , 248, 288-297		25
606	3D interconnected hierarchically porous N-doped carbon with NH ₃ activation for efficient oxygen reduction reaction. 2017 , 210, 57-66		114
605	Transformation of the greenhouse gas CO ₂ by molten electrolysis into a wide controlled selection of carbon nanotubes. 2017 , 18, 335-344		46
604	Functional group-dependent anchoring effect of titanium carbide-based MXenes for lithium-sulfur batteries: A computational study. 2017 , 412, 591-598		98
603	Chrysanthemum-derived N and S co-doped porous carbon for efficient oxygen reduction reaction and aluminum-air battery. 2017 , 239, 1-9		33

602	Boron Doping of Multiwalled Carbon Nanotubes Significantly Enhances Hole Extraction in Carbon-Based Perovskite Solar Cells. 2017 , 17, 2496-2505	138
601	Recent Advances in Ultrathin Two-Dimensional Nanomaterials. 2017 , 117, 6225-6331	2919
600	Metal-Free Motifs for Solar Fuel Applications. 2017 , 68, 305-331	12
599	Study on the structure and electrocatalytic activity of graphene-based nanocomposite materials containing (SCN) _n . 2017 , 118, 156-167	8
598	Computational study of nanostructured materials. 2017 , 1, 1-6	
597	Doped fullerene as a metal-free electrocatalyst for oxygen reduction reaction: A first-principles study. 2017 , 114, 393-401	54
596	Ultrafine Co-doped ZnO nanoparticles on reduced graphene oxide as an efficient electrocatalyst for oxygen reduction reaction. 2017 , 224, 561-570	31
595	Polyiodide-Doped Graphene. 2017 , 121, 609-615	19
594	Highly active and stable single iron site confined in graphene nanosheets for oxygen reduction reaction. 2017 , 32, 353-358	194
593	Synthesis of Biomass-Derived Mesoporous Carbon with Super Adsorption Performance by an Aqueous Cooperative Assemble Route. 2017 , 5, 2312-2319	11
592	Heteroatom-Doped Carbon Nanotube and Graphene-Based Electrocatalysts for Oxygen Reduction Reaction. 2017 , 13, 1702002	138
591	A study of defect-rich carbon spheres as a metal-free electrocatalyst for an efficient oxygen reduction reaction. 2017 , 5, 24314-24320	28
590	Nitrogen-doped micropore-dominant carbon derived from waste pine cone as a promising metal-free electrocatalyst for aqueous zinc/air batteries. 2017 , 365, 76-82	24
589	Recent advances in understanding of the mechanism and control of LiO formation in aprotic Li-O batteries. 2017 , 46, 6046-6072	235
588	Electronic structure tuning and band gap opening of nitrogen and boron doped holey graphene flake: The role of single/dual doping. 2017 , 202, 258-265	35
587	Enhanced electrocatalysis performance of amorphous electrolytic carbon from CO ₂ for oxygen reduction by surface modification in molten salt. 2017 , 253, 248-256	8
586	Selectively doping pyridinic and pyrrolic nitrogen into a 3D porous carbon matrix through template-induced edge engineering: enhanced catalytic activity towards the oxygen reduction reaction. 2017 , 5, 21709-21714	43
585	Identification of the active sites in sulfur-doped graphene for oxygen reduction reaction: The keyrole of dissociated O ₂ adsorption. 2017 , 267, 33-38	8

584	Metallfreie Bor-haltige Heterogenkatalysatoren. 2017 , 129, 15712-15724	17
583	Metal-Free Boron-Containing Heterogeneous Catalysts. <i>Angewandte Chemie - International Edition</i> , 2017 , 56, 15506-15518	16.4 86
582	Carbon nano-onions: Unique carbon nanostructures with fascinating properties and their potential applications. 2017 , 468, 49-66	106
581	Recent advances in air electrodes for Zn-air batteries: electrocatalysis and structural design. 2017 , 4, 945-976	174
580	Phosphorus-Doped and Lattice-Defective Carbon as Metal-like Catalyst for the Selective Hydrogenation of Nitroarenes. 2017 , 9, 4287-4294	38
579	Anchovy-derived nitrogen and sulfur co-doped porous carbon materials for high-performance supercapacitors and dye-sensitized solar cells. 2017 , 7, 35565-35574	22
578	Revealing the importance of nitrogen doping site in enhancing the oxygen reduction reaction on E-graphyne. 2017 , 123, 415-420	23
577	How Nitrogen-Doped Graphene Quantum Dots Catalyze Electroreduction of CO ₂ to Hydrocarbons and Oxygenates. 2017 , 7, 6245-6250	91
576	Substrate-Assisted in Situ Confinement Pyrolysis of Zeolitic Imidazolate Frameworks to Nitrogen-Doped Hierarchical Porous Carbon Nanoframes with Superior Lithium Storage. 2017 , 9, 42845-42855	12
575	Generalized Synthesis of a Family of Highly Heteroatom-Doped Ordered Mesoporous Carbons. 2017 , 29, 10178-10186	46
574	Advances, challenges and promises of carbon dots. 2017 , 4, 1963-1986	88
573	Determination of the acidic properties of carboxylated carbocatalysts in an acid-catalyzed ring-opening reaction using kinetic profiling. 2017 , 10, 2954-2965	5
572	Biomass-derived heteroatoms-doped mesoporous carbon for efficient oxygen reduction in microbial fuel cells. 2017 , 98, 350-356	75
571	Constructing highly stretchable and superstable electrode with N-doped double-walled carbon nanotubes/poly(m-phenylene isophthalamide) for oxygen reduction reaction. 2017 , 327, 1077-1084	12
570	Porous nitrogen-doped graphene for high energy density supercapacitors in an ionic liquid electrolyte. 2017 , 21, 759-766	9
569	Thermally Stable Boron-Doped Multiwalled Carbon Nanotubes as a Pt-free Counter Electrode for Dye-Sensitized Solar Cells. 2017 , 5, 537-546	30
568	Biomass lysine-derived nitrogen-doped carbon hollow cubes via a NaCl crystal template: an efficient bifunctional electrocatalyst for oxygen reduction and evolution reactions. 2017 , 9, 1059-1067	95
567	Amide-functionalized graphene with 1,4-diaminobutane as efficient metal-free and porous electrocatalyst for oxygen reduction. 2017 , 111, 577-586	33

566	Mesoporous Carbon Materials with Functional Compositions. 2017 , 23, 1986-1998	44
565	Facile synthesis of high performance non-noble-metal electrocatalyst FeNiB/C for oxygen reduction reaction in acidic solutions. 2017 , 28, 949-957	3
564	Colloidal nanocrystals for electrochemical reduction reactions. 2017 , 485, 308-327	14
563	Oxygen-Molecule Adsorption and Dissociation on BCN Graphene: A First-Principles Study. 2017 , 18, 101-110	10
562	Electrically Rechargeable Zinc-Air Batteries: Progress, Challenges, and Perspectives. 2017 , 29, 1604685	806
561	Direct synthesis of Pt-free catalyst on gas diffusion layer of fuel cell and usage of high boiling point fuels for efficient utilization of waste heat. 2017 , 205, 1050-1058	14
560	Metal-Free Carbon-Based Materials: Promising Electrocatalysts for Oxygen Reduction Reaction in Microbial Fuel Cells. 2016 , 18,	49
559	Highly Effective Dual Transition Metal Macrocycle Based Electrocatalyst with Macro-/Mesoporous Structures for Oxygen Reduction Reaction. 2017 , 7, 201	13
558	Synthesis and Assembly Chemistry of Inorganic Polymers. 2017 , 279-306	2
557	Carbon nanotube-induced phase and stability engineering: a strained cobalt-doped WSe ₂ /MWNT heterostructure for enhanced hydrogen evolution reaction. 2018 , 6, 4793-4800	37
556	Nanocarbon-Based Electrocatalysts for Rechargeable Aqueous Li/Zn-Air Batteries. 2018 , 5, 1745-1763	20
555	General aspects in the use of graphenes in catalysis. 2018 , 5, 363-378	33
554	Modification of Salt-Templated Carbon Surface Chemistry for Efficient Oxidation of Glucose with Supported Gold Catalysts. 2018 , 10, 2458-2465	9
553	Metal-Free Oxygen Evolution and Oxygen Reduction Reaction Bifunctional Electrocatalyst in Alkaline Media: From Mechanisms to Structure-Catalytic Activity Relationship. 2018 , 6, 4973-4980	46
552	A Review of Carbon-Composited Materials as Air-Electrode Bifunctional Electrocatalysts for Metal-Air Batteries. 2018 , 1, 1-34	126
551	The role of inserted polymers in polymeric insulation materials: insights from QM/MD simulations. 2018 , 24, 73	1
550	Nitrogen, Fluorine, and Boron Ternary Doped Carbon Fibers as Cathode Electrocatalysts for Zinc-Air Batteries. 2018 , 14, e1800737	126
549	Defect electrocatalytic mechanism: concept, topological structure and perspective. 2018 , 2, 1250-1268	90

548	Single-Step Hydrothermal Synthesis of N, S-Dual-Doped Graphene Networks as Metal-Free Efficient Electrocatalysts for Oxygen Reduction Reaction. 2018 , 3, 3241-3250	9
547	Catalysts in metal-air batteries. 2018 , 8, 372-386	6
546	Oxygen reduction reaction on Pt-Pd catalysts supported on carbon xerogels: Effect of the synthesis method. 2018 , 43, 16881-16896	12
545	SiC ₂ siligraphene as a promising anchoring material for lithium-sulfur batteries: a computational study. 2018 , 440, 889-896	26
544	Recent developments in electrocatalysts and future prospects for oxygen reduction reaction in polymer electrolyte membrane fuel cells. 2018 , 27, 1124-1139	68
543	Nitrogen-doped graphene-supported molybdenum dioxide electrocatalysts for oxygen reduction reaction. 2018 , 53, 6124-6134	7
542	Porous boron doped diamonds as metal-free catalysts for the oxygen reduction reaction in alkaline solution. 2018 , 439, 329-335	19
541	One pot solvothermal synthesis of ZnPc nanotube and its composite with RGO: A high performance ORR catalyst in alkaline medium. 2018 , 449, 144-151	30
540	Carbon Nanosheets Containing Discrete Co-N-B-C Active Sites for Efficient Oxygen Electrocatalysis and Rechargeable Zn-Air Batteries. 2018 , 12, 1894-1901	294
539	B,N-Codoped graphene as catalyst for the oxygen reduction reaction: Insights from periodic and cluster DFT calculations. 2018 , 39, 637-647	32
538	Structural and Electronic Descriptors of Catalytic Activity of Graphene-Based Materials: First-Principles Theoretical Analysis. 2018 , 14, 1703609	37
537	Graphene-Directed Formation of a Nitrogen-Doped Porous Carbon Sheet with High Catalytic Performance for the Oxygen Reduction Reaction. 2018 , 122, 13508-13514	15
536	Mechanisms of the oxygen reduction reaction on B- and/or N-doped carbon nanomaterials with curvature and edge effects. 2018 , 10, 1129-1134	58
535	Recent Progress in MOF-Derived, Heteroatom-Doped Porous Carbons as Highly Efficient Electrocatalysts for Oxygen Reduction Reaction in Fuel Cells. 2018 , 28, 1704537	414
534	N, P Co-doped Hierarchical Porous Graphene as a Metal-Free Bifunctional Air Cathode for Zn/Air Batteries. 2018 , 5, 1811-1816	15
533	Transforming Two-Dimensional Boron Carbide into Boron and Chlorine Dual-Doped Carbon Nanotubes by Chlorination for Efficient Oxygen Reduction. 2018 , 3, 184-190	57
532	N, P-dual doped carbon with trace Co and rich edge sites as highly efficient electrocatalyst for oxygen reduction reaction. 2018 , 61, 679-685	48
531	Size effect of oxygen reduction reaction on nitrogen-doped graphene quantum dots. 2018 , 8, 531-536	23

530	Boron and nitrogen co-doped CNT/Li ₄ Ti ₅ O ₁₂ composite for the improved high-rate electrochemical performance of lithium-ion batteries. 2018 , 740, 784-789	23
529	Identification of electrocatalytic oxygen reduction (ORR) activity of boron in graphene oxide; incorporated as a charge-adsorbate and/or substitutional p-type dopant. 2018 , 207, 380-388	7
528	Uric acid-derived Fe ₃ C-containing mesoporous Fe/N/C composite with high activity for oxygen reduction reaction in alkaline medium. 2018 , 378, 491-498	22
527	Ternary doped porous carbon nanofibers with excellent ORR and OER performance for zinc-air batteries. 2018 , 6, 10918-10925	150
526	Enhanced electrocatalytic reduction of oxygen at CO ₂ -derived Fe/NB-doped porous carbon. 2018 , 26, 28-35	11
525	Activity Origins in Nanocarbons for the Electrocatalytic Hydrogen Evolution Reaction. 2018 , 14, e1800235	42
524	Probing the correlation between Pt-support interaction and oxygen reduction reaction activity in mesoporous carbon materials modified with Pt-N active sites. 2018 , 277, 287-300	31
523	B, N Codoped and Defect-Rich Nanocarbon Material as a Metal-Free Bifunctional Electrocatalyst for Oxygen Reduction and Evolution Reactions. 2018 , 5, 1800036	126
522	Carbon-Based Metal-Free Electrocatalysis for Energy Conversion, Energy Storage, and Environmental Protection. 2018 , 1, 84-112	109
521	Dual confinement of polysulfides in boron-doped porous carbon sphere/graphene hybrid for advanced Li-S batteries. 2018 , 11, 4562-4573	36
520	Highly dispersed Co nanoparticles inlaid in S, N-doped hierarchical carbon nanoprisms derived from Co-MOFs as efficient electrocatalysts for oxygen reduction reaction. 2018 , 318, 126-131	22
519	Identifying the Active Site of N-Doped Graphene for Oxygen Reduction by Selective Chemical Modification. 2018 , 3, 986-991	68
518	Improved electrochemical performance of ordered mesoporous carbon by incorporating macropores for Li-O ₂ battery cathode. 2018 , 133, 118-126	13
517	Green-Synthesized Nitrogen-Doped Carbon-Based Aerogels as Environmentally Friendly Catalysts for Oxygen Reduction in Microbial Fuel Cells. 2018 , 6, 1052-1059	5
516	Nitrogen-doped and nanostructured carbons with high surface area for enhanced oxygen reduction reaction. 2018 , 126, 111-118	48
515	A nitrogen-doped porous carbon derived from copper phthalocyanines on/in ZIF-8 as an efficient photocatalyst for the degradation of dyes and the C-H activation of formamides. 2018 , 351, 208-224	17
514	Advances in carbon nanotube n-type doping: Methods, analysis and applications. 2018 , 126, 257-270	75
513	N/S/B-doped graphitized carbon encased Fe species as a highly active and durable catalyst towards oxygen reduction reaction. 2018 , 514, 108-116	21

512	Conductive Porous Network of Metal-Organic Frameworks Derived Cobalt-Nitrogen-doped Carbon with the Assistance of Carbon Nanohorns as Electrocatalysts for Zinc-Air Batteries. 2018 , 10, 1336-1343	12
511	NiCo Alloy Nanoparticles Decorated on N-Doped Carbon Nanofibers as Highly Active and Durable Oxygen Electrocatalyst. 2018 , 28, 1705094	280
510	Oxygen reduction reaction of (C-PCTNB@CNTs): A nitrogen and phosphorus dual-doped carbon electro-catalyst derived from polyphosphazenes. 2018 , 373, 61-69	30
509	Oxygen Reduction Catalysts on Nanoparticle Electrodes. 2018 , 796-811	2
508	Catalysis by hybrid sp ³ /sp ² nanodiamonds and their role in the design of advanced nanocarbon materials. 2018 , 47, 8438-8473	80
507	High electrochemical performance of nanocrystallized carbon-coated LiFePO ₄ modified by tris(pentafluorophenyl) borane as a cathode material for lithium-ion batteries.. 2018 , 8, 28978-28986	3
506	A Novel Method of Synthesizing Boron-doped Carbon Catalysts. 2018 , 18, 681-687	4
505	Reduced graphene oxide intercalated ZnS nanoparticles as an efficient and durable electrocatalyst for the oxygen reduction reaction. 2018 , 42, 19285-19293	10
504	A nitrogen and boron co-doped metal-free carbon electrocatalyst for an efficient oxygen reduction reaction. 2018 , 5, 2985-2991	23
503	Palladium nanoparticles loaded on nitrogen and boron dual-doped single-wall carbon nanohorns with high electrocatalytic activity in the oxygen reduction reaction.. 2018 , 8, 33688-33694	7
502	Theoretical Basis of Electrocatalysis. 2018 ,	2
501	A Convenient Electrochemical Method for Preparing Carbon Nanotubes Filled with Amorphous Boron. 2018 , 165, E879-E882	6
500	Constructing Successive Active Sites for Metal-free Electrocatalyst with Boosted Electrocatalytic Activities Toward Hydrogen Evolution and Oxygen Reduction Reactions. 2018 , 10, 5194-5200	22
499	Composite Carbon Nanotube Microsphere Coatings for Use as Electrode Supports. 2018 , 28, 1803713	9
498	Nitrogen and Sulfur Dual Self-Doped Graphitic Carbon with Highly Catalytic Activity for Oxygen Reduction Reaction. 2018 ,	4
497	Advanced Nanocarbon Materials for Future Energy Applications. 2018 , 305-325	1
496	Adsorción y oxidación de monóxido de carbono en una lamina de Grafino: Estudio teórico. 2018 , 23,	1
495	Boron/Nitrogen-Codoped Carbon Nano-Onion Electrocatalysts for the Oxygen Reduction Reaction. 2018 , 1, 5763-5773	33

494	Defects on carbons for electrocatalytic oxygen reduction. 2018 , 47, 7628-7658	282
493	Mesoporous S doped Fe-N-C materials as highly active oxygen reduction reaction catalyst. 2018 , 54, 12073-12076	36
492	CoB and Co Nanoparticles Immobilized on the N-B-Doped Carbon Derived from Nano-BC for Efficient Catalysis of Oxygen Evolution, Hydrogen Evolution, and Oxygen Reduction Reactions. 2018 , 10, 37067-37078	28
491	Nitrogen and sulfur co-doped porous carbon sheets for energy storage and pH-universal oxygen reduction reaction. 2018 , 54, 192-199	59
490	Nanoarchitected Graphene-Organic Frameworks (GOFs): Synthetic Strategies, Properties, and Applications. 2018 , 13, 3561-3574	50
489	Bread-derived 3D macroporous carbon foams as high performance free-standing anode in microbial fuel cells. 2018 , 122, 217-223	53
488	Design Principles for Heteroatom-Doped Carbon Materials as Metal-Free Catalysts. 2018 , 1-33	1
487	Design of Carbon-Based Metal-Free Electrocatalysts. 2018 , 35-58	
486	Defective Carbons for Electrocatalytic Oxygen Reduction. 2018 , 59-75	0
485	Carbon-Based, Metal-Free Catalysts for Chemical Productions. 2018 , 659-673	
484	Carbon-Based, Metal-Free Catalysts for Electrocatalysis of ORR. 2018 , 335-368	2
483	Modulating Metal-Free and Non-Enzymatic Electrocatalytic Activity of sp ² Carbons Towards H ₂ O ₂ Reduction by a Facile and Low-Temperature Electrochemical Approach. 2018 , 5, 3668-3678	
482	Fe ^N -functionalized carbon electrocatalyst derived from a zeolitic imidazolate framework for oxygen reduction: Fe and NH ₃ treatment effects. 2018 , 8, 5368-5381	32
481	One-Step Chemical Vapor Deposition Synthesis of 3D N-doped Carbon Nanotube/N-doped Graphene Hybrid Material on Nickel Foam. 2018 , 8,	22
480	Boron acid catalyzed synthesis porous graphene sponge for high-performance electrochemical capacitive storage. 2018 , 89, 114-121	20
479	Synthesis of Carbon-Nitrogen-Phosphorous Materials with an Unprecedented High Amount of Phosphorous toward an Efficient Fire-Retardant Material. <i>Angewandte Chemie - International Edition</i> , 2018 , 57, 9764-9769	16.4 21
478	Synthesis of Carbon-Nitrogen-Phosphorous Materials with an Unprecedented High Amount of Phosphorous toward an Efficient Fire-Retardant Material. 2018 , 130, 9912-9917	1
477	Heteroatom (B, N and P) doped porous graphene foams for efficient oxygen reduction reaction electrocatalysis. 2018 , 43, 12661-12670	41

476	Thermal Evolution of the Structure and Activity of Non-Doped Graphene as Metal-Free Oxygen Reduction Electrocatalysts. 2018 , 165, F526-F532	2
475	Fundamentals and scopes of doped carbon nanotubes towards energy and biosensing applications. 2018 , 9, 154-186	135
474	Hierarchical oxygen reduction reaction electrocatalysts based on FeSn _{0.5} species embedded in carbon nitride-graphene based supports. 2018 , 280, 149-162	18
473	In Situ Growth of NiFe Alloy Nanoparticles Embedded into N-Doped Bamboo-like Carbon Nanotubes as a Bifunctional Electrocatalyst for Zn-Air Batteries. 2018 , 10, 26178-26187	66
472	Graphynes: indispensable nanoporous architectures in carbon flatland.. 2018 , 8, 22998-23018	16
471	Negatively charged boron nitride nanosheets as a potential metal-free electrocatalyst for the oxygen reduction reaction: a computational study. 2018 , 42, 12838-12844	9
470	Novel Nanomaterials as Electrocatalysts for Fuel Cells. 2018 , 169-204	2
469	Application of Nanomaterials Prepared by Thermolysis of Metal Chelates. 2018 , 459-541	
468	Iron Phosphide Incorporated into Iron-Treated Heteroatoms-Doped Porous Bio-Carbon as Efficient Electrocatalyst for the Oxygen Reduction Reaction. 2018 , 5, 1944-1953	21
467	Preparation and Study of Multi-Heteroatom Carbon Nanotube as Excellent Electrocatalyst for Oxygen Reduction Reaction Using Polydopamine Derivative. 2018 , 2018, 1-6	2
466	Computational exploration of borophane-supported single transition metal atoms as potential oxygen reduction and evolution electrocatalysts. 2018 , 20, 21095-21104	39
465	Three-Dimensional Heteroatom-Doped Nanocarbon for Metal-Free Oxygen Reduction Electrocatalysis: A Review. 2018 , 8, 301	22
464	Ultradispersed Nickel Phosphide on Phosphorus-Doped Carbon with Tailored d-Band Center for Efficient and Chemoselective Hydrogenation of Nitroarenes. 2018 , 8, 8420-8429	96
463	Microporous N,P-Codoped Graphitic Nanosheets as an Efficient Electrocatalyst for Oxygen Reduction in Whole pH Range for Energy Conversion and Biosensing Dissolved Oxygen. 2018 , 24, 18487-18493 ²³	
462	P-Doped Three-Dimensional Porous Carbon Networks as Efficient Metal-Free Electrocatalysts for ORR. 2018 , 7, M123-M127	5
461	Enhanced lithium-storage performance of Li ₄ Ti ₅ O ₁₂ coated with boron-doped carbon layer for rechargeable Li-ion batteries. 2018 , 324, 191-195	7
460	Direct synthesis of nitrogen and phosphorus co-doped hierarchical porous carbon networks with biological materials as efficient electrocatalysts for oxygen reduction reaction. 2018 , 43, 10341-10350	19
459	FeCo-Doped Hollow Bamboo-Like C-N Composites as Cathodic Catalysts for Zinc-Air Battery in Neutral Media. 2018 , 165, A2502-A2509	41

458	Boron-Doped C ₃ N Monolayer as a Promising Metal-Free Oxygen Reduction Reaction Catalyst: A Theoretical Insight. 2018 , 122, 20312-20322	48
457	Highly Dispersed Co-B/N Codoped Carbon Nanospheres on Graphene for Synergistic Effects as Bifunctional Oxygen Electrocatalysts. 2018 , 10, 30460-30469	25
456	Tuning Cobalt and Nitrogen Co-Doped Carbon to Maximize Catalytic Sites on a Superabsorbent Resin for Efficient Oxygen Reduction. 2018 , 11, 3631-3639	16
455	Activating Transition Metal Dichalcogenides by Substitutional Nitrogen-Doping for Potential ORR Electrocatalysts. 2018 , 5, 4029-4035	17
454	Vertically Aligned N-Doped Diamond/Graphite Hybrid Nanosheets Epitaxially Grown on B-Doped Diamond Films as Electrocatalysts for Oxygen Reduction Reaction in an Alkaline Medium. 2018 , 10, 29866-29875	10
453	Tailoring the Structure of Carbon Nanomaterials toward High-End Energy Applications. 2018 , 30, e1802104	65
452	The progress of metal-free catalysts for the oxygen reduction reaction based on theoretical simulations. 2018 , 6, 13489-13508	59
451	(Co, Ni)Sn _{0.5} Nanoparticles Supported on Hierarchical Carbon Nitride-Graphene-Based Electrocatalysts for the Oxygen Reduction Reaction. 2018 , 5, 2029-2040	6
450	Recent progress in hierarchically structured O ₂ -cathodes for Li-O ₂ batteries. 2018 , 352, 972-995	39
449	Understanding the Effect of Germanium as an Efficient Auxiliary Pre-Dopant in Carbon Nanotubes on Enhancing Oxygen Reduction Reaction. 2018 , 6, 2387-2393	2
448	2D graphdiyne materials: challenges and opportunities in energy field. 2018 , 61, 765-786	89
447	CO oxidation over BC ₃ nanosheet: a theoretical study. 2019 , 117, 125-135	1
446	Facile synthesis of Co-N-rGO composites as an excellent electrocatalyst for oxygen reduction reaction. 2019 , 194, 45-53	19
445	Confinement Catalysis with 2D Materials for Energy Conversion. 2019 , 31, e1901996	119
444	Hydrated FePO nanoparticles supported on P-doped RGO show enhanced ORR activity compared to their dehydrated form in an alkaline medium.. 2019 , 9, 24654-24658	1
443	Catalytic Ozonation of Ketoprofen with In Situ N-Doped Carbon: A Novel Synergetic Mechanism of Hydroxyl Radical Oxidation and an Intra-Electron-Transfer Nonradical Reaction. 2019 , 53, 10342-10351	45
442	Fe, N co-doped carbonaceous hollow spheres with self-grown carbon nanotubes as a high performance binary electrocatalyst. 2019 , 154, 466-477	28
441	Synergy of sp ² -N and sp ³ -N codoping endows graphdiyne with comparable oxygen reduction reaction performance to Pt. 2019 , 11, 16599-16605	15

440	Iron phosphide anchored nanoporous carbon as an efficient electrode for supercapacitors and the oxygen reduction reaction.. 2019 , 9, 25240-25247	9
439	Doped porous carbon nanostructure materials as non-precious metal catalysts for oxygen reduction reaction in alkaline and acid media. 2019 , 80, 171-181	10
438	Enhancement mechanism of sulfur dopants on the catalytic activity of N and P co-doped three-dimensional hierarchically porous carbon as a metal-free oxygen reduction electrocatalyst. 2019 , 9, 5906-5914	13
437	Bio-Derived Co P Nanoparticles Supported on Nitrogen-Doped Carbon as Promising Oxygen Reduction Reaction Electrocatalyst for Anion Exchange Membrane Fuel Cells. 2019 , 15, e1902090	22
436	Promotion of the performance of nitrogen-doped graphene by secondary heteroatoms doping in energy transformation and storage. 2019 , 25, 3499-3522	2
435	Oxygen Reduction Reaction Mechanisms on Heteroatom-Doped Single-Walled Carbon Nanotube Catalysts: Insights from a Theoretical Study. 2019 , 166, F670-F678	11
434	One-pot hydrothermal synthesis of heteroatom co-doped with fluorine on reduced graphene oxide for enhanced ORR activity and stability in alkaline media. 2019 , 236, 121804	8
433	Carbon-Based Nanocages: A New Platform for Advanced Energy Storage and Conversion. 2020 , 32, e1904177	45
432	Fe/Fe ₃ C Nanoparticles Confined in Graphitic Layers/Carbon Nanotubes as Efficient Oxygen Reduction Reaction Catalysts. 2019 , 4, 10863-10867	2
431	A Review of Recent Advances of Dielectric Barrier Discharge Plasma in Catalysis. 2019 , 9,	29
430	Atomic Fe hetero-layered coordination between g-C ₃ N ₄ and graphene nanomeshes enhances the ORR electrocatalytic performance of zinc-air batteries. 2019 , 7, 1451-1458	48
429	Electrochemical Fixation of Nitrogen and Its Coupling with Biomass Valorization with a Strongly Adsorbing and Defect Optimized Boron-Carbon-Nitrogen Catalyst. 2019 , 2, 8359-8365	23
428	N-Doped Mesoporous Carbons: From Synthesis to Applications as Metal-Free Reduction Catalysts and Energy Storage Materials. 2019 , 7, 761	14
427	Template-free synthesis of biomass-derived hierarchically mesoporous carbon with ultra-small FeNi nanoparticles for oxygen evolution reaction. 2019 , 44, 27806-27815	7
426	Atomic- and Molecular-Level Design of Functional Metal-Organic Frameworks (MOFs) and Derivatives for Energy and Environmental Applications. 2019 , 6, 1901129	77
425	Ten years of carbon-based metal-free electrocatalysts. 2019 , 1, 19-31	76
424	Recent Progress in Precious Metal-Free Carbon-Based Materials towards the Oxygen Reduction Reaction: Activity, Stability, and Anti-Poisoning. 2019 , 26, 3973	19
423	Three-dimensional Polypyrrole Derived N-doped Carbon Nanotube Aerogel as a High-performance Metal-free Catalyst for Oxygen Reduction Reaction. 2019 , 11, 5495-5504	10

4 ²²	Graphite N-C-P dominated three-dimensional nitrogen and phosphorus co-doped holey graphene foams as high-efficiency electrocatalysts for Zn-air batteries. 2019 , 11, 17010-17017	29
4 ²¹	Silver Nanoparticles Encapsulated in an N-Doped Porous Carbon Matrix as High-Active Catalysts toward Oxygen Reduction Reaction via Electron Transfer to Outer Graphene Shells. 2019 , 7, 16511-16519	11
4 ²⁰	Enhanced Electrocatalytic Stability of Platinum Nanoparticles Supported on Sulfur-Doped Carbon using in-situ Solution Plasma. 2019 , 9, 12704	14
4 ¹⁹	Design strategies toward catalytic materials and cathode structures for emerging Li ₂ O ₂ batteries. 2019 , 7, 21605-21633	54
4 ¹⁸	Nitrogen-doped hollow porous carbon nanotubes for high-sulfur loading LiS batteries. 2019 , 324, 134849	17
4 ¹⁷	Recent Progresses in Oxygen Reduction Reaction Electrocatalysts for Electrochemical Energy Applications. 2019 , 2, 518-538	103
4 ¹⁶	Nanotechnology: Emerging Opportunities for Fuel Cell Applications. 2019 , 135-174	
4 ¹⁵	Carbon-Based Metal-Free Catalysts for Energy Storage and Environmental Remediation. 2019 , 31, e1806128	118
4 ¹⁴	N, F-Codoped Microporous Carbon Nanofibers as Efficient Metal-Free Electrocatalysts for ORR. 2019 , 11, 9	45
4 ¹³	Metal-free graphdiyne doped with sp-hybridized boron and nitrogen atoms at acetylenic sites for high-efficiency electroreduction of CO ₂ to CH ₄ and C ₂ H ₄ . 2019 , 7, 4026-4035	55
4 ¹²	Copper nanoparticles anchored onto boron-doped graphene nanosheets for use as a high performance asymmetric solid-state supercapacitor.. 2019 , 9, 3443-3461	13
4 ¹¹	Flame synthesis of nitrogen, boron co-doped carbon as efficient electrocatalyst for oxygen reduction reaction. 2019 , 44, 4771-4779	15
4 ¹⁰	Long-Life Rechargeable Zn Air Battery Based on Binary Metal Carbide Armored by Nitrogen-Doped Carbon. 2019 , 2, 1747-1755	33
4 ⁰⁹	Unraveling the relationship between the morphologies of metal-organic frameworks and the properties of their derived carbon materials. 2019 , 48, 7211-7217	15
4 ⁰⁸	A comprehensive study on electronic structure and optical properties of carbon nanotubes with doped B, Al, Ga, Si, Ge, N, P and As and different diameters. 2019 , 802, 25-35	18
4 ⁰⁷	Origins of boron catalysis in peroxymonosulfate activation and advanced oxidation. 2019 , 7, 23904-23913	33
4 ⁰⁶	Applications of carbon nanotubes and graphene for third-generation solar cells and fuel cells. 2019 , 1, 77-90	18
4 ⁰⁵	Designed self-assembly of iron encapsulated doped porous carbon as durable electrocatalyst for oxygen reduction reaction in alkaline medium. 2019 , 152, 616-630	3

404	Investigation of ORR Performances on Graphene/Phthalocyanine Nanocomposite in Neutral Medium. 2019 , 25, 1416-1421	7
403	Identification of Active Sites for Oxygen Reduction Reaction on Nitrogen- and Sulfur-Codoped Carbon Catalysts. 2019 , 123, 16065-16074	15
402	Role of Sulfur Vacancies and Undercoordinated Mo Regions in MoS Nanosheets toward the Evolution of Hydrogen. 2019 , 13, 6824-6834	229
401	Secondary-Atom-Assisted Synthesis of Single Iron Atoms Anchored on N-Doped Carbon Nanowires for Oxygen Reduction Reaction. 2019 , 9, 5929-5934	98
400	Performance of boron-doped graphene aerogel modified gas diffusion electrode for in-situ metal-free electrochemical advanced oxidation of Bisphenol A. 2019 , 255, 117784	32
399	Glucose-derived carbon materials with tailored properties as electrocatalysts for the oxygen reduction reaction. 2019 , 10, 1089-1102	21
398	N,P co-coordinated Fe species embedded in carbon hollow spheres for oxygen electrocatalysis. 2019 , 7, 14732-14742	50
397	Graphdiyne and its Assembly Architectures: Synthesis, Functionalization, and Applications. 2019 , 31, e1803101	133
396	Selenium-Coupled Reduced Graphene Oxide as Single-Atom Site Catalyst for Direct Four-Electron Oxygen Reduction Reaction. 2019 , 2, 3624-3632	11
395	Boron as a superior activator for Pt anode catalyst in direct alcohol fuel cell. 2019 , 431, 125-134	26
394	Fabrication of nanoporous gold-islands via hydrogen bubble template: An efficient electrocatalyst for oxygen reduction and hydrogen evolution reactions. 2019 , 44, 15001-15008	14
393	Applications of MSe (M = Fe, Co, Ni) and Their Composites in Electrochemical Energy Storage and Conversion. 2019 , 11, 40	59
392	Facile Synthesis of Cobalt and Nitrogen Coordinated Carbon Nanotube as a High-Performance Electrocatalyst for Oxygen Reduction Reaction in Both Acidic and Alkaline Media. 2019 , 7, 10951-10961	12
391	Metal-free electrocatalysts for oxygen reduction reaction based on trioxotriangulene. 2019 , 2,	29
390	Identifying high-efficiency oxygen evolution electrocatalysts from CoNiCu based selenides through combinatorial electrodeposition. 2019 , 7, 9877-9889	49
389	Oxygen reduction reaction performance of Fe-N/C catalysts from ligand-iron coordinative supramolecular precursors. 2019 , 30, 305402	7
388	High hydrogen evolution performance of Al doped CoP3 nanowires arrays with high stability in acid solution superior to Pt/C. 2019 , 44, 8062-8069	18
387	Carbon Nanotube-Supported MoSe Holey Flake:MoC Ball Hybrids for Bifunctional pH-Universal Water Splitting. 2019 , 13, 3162-3176	89

386	Carbon Nanodot Composites: Fabrication, Properties, and Environmental and Energy Applications. 2019 , 223-273	1
385	Role of Graphene Edges in the Electron Transfer Kinetics: Insight from Theory and Molecular Modeling. 2019 , 123, 6627-6634	14
384	Zeolitic imidazolate framework-8 (ZIF-8) as robust catalyst for oxygen reduction reaction in microbial fuel cells. 2019 , 423, 9-17	56
383	Work function-tailored graphene via transition metal encapsulation as a highly active and durable catalyst for the oxygen reduction reaction. 2019 , 12, 2200-2211	75
382	Recent Progress in Defective Carbon-Based Oxygen Electrode Materials for Rechargeable Zinc-Air Batteries. 2019 , 2, 509-523	26
381	Redistribution of π and σ electrons in boron-doped graphene from DFT investigation. 2019 , 481, 344-352	18
380	Stepwise Fabrication of Co-Embedded Porous Multichannel Carbon Nanofibers for High-Efficiency Oxygen Reduction. 2019 , 11, 33	10
379	Converting chicken manure into highly active N/B co-doped metal-free biocarbon electrocatalysts: effect of chemical treatment on their catalytic activity for the ORR. 2019 , 3, 1307-1316	7
378	Surface Compositions of Pt/Bd/Pd(111) Alloys in the Presence of O and OH during Oxygen Reduction Reaction: A First-Principles Study. 2019 , 88, 044802	0
377	Low-temperature plasma technology for electrocatalysis. 2019 , 30, 826-838	28
376	Nitrogen-doped porous carbon embedded with cobalt nanoparticles for excellent oxygen reduction reaction. 2019 , 546, 344-350	11
375	Efficient Oxygen Electrocatalyst for Zn-Air Batteries: Carbon Dots and CoS Nanoparticles in a N,S-Codoped Carbon Matrix. 2019 , 11, 14085-14094	66
374	Recent developments in biomass-derived carbon as a potential sustainable material for super-capacitor-based energy storage and environmental applications. 2019 , 140, 54-85	61
373	Tailoring the electrocatalytic oxygen reduction reaction pathway by tuning the electronic states of single-walled carbon nanotubes. 2019 , 147, 35-42	8
372	One-Step Construction of Ni/Co-Doped C/N Nanotube Composites as Excellent Cathode Catalysts for Neutral Zinc-Air Battery. 2019 , 14, 1950028	8
371	Chemical Approaches to Carbon-Based Metal-Free Catalysts. 2019 , 31, e1804863	53
370	Synergistic effect of heteroatom-doped activated carbon for ultrafast charge storage kinetics. 2019 , 478, 499-504	29
369	Covalent organic frameworks converted N, B co-doped carbon spheres with excellent lithium ion storage performance at high current density. 2019 , 542, 213-221	35

368	Nanomaterials With Different Dimensions for Electrocatalysis. 2019 , 435-464	5
367	Well-Defined Boron/Nitrogen-Doped Polycyclic Aromatic Hydrocarbons Are Active Electrocatalysts for the Oxygen Reduction Reaction. 2019 , 31, 1891-1898	31
366	Defect chemistry in 2D materials for electrocatalysis. 2019 , 12, 215-238	62
365	A review of recent progress on electrocatalysts toward efficient glycerol electrooxidation. 2019 ,	12
364	Carbon materials for traffic power battery. 2019 , 2, 100033	28
363	Carbon-Based Nanomaterials as Sustainable Noble-Metal-Free Electrocatalysts. 2019 , 7, 759	15
362	Detrimental Effects and Prevention of Acidic Electrolytes on Oxygen Reduction Reaction Catalytic Performance of Heteroatom-Doped Graphene Catalysts. 2019 , 6,	4
361	Oxygen reduction reaction mechanism on P, N co-doped graphene: a density functional theory study. 2019 , 43, 19308-19317	19
360	Sustainable Carbonaceous Materials Derived from Biomass as Metal-Free Electrocatalysts. 2019 , 31, e1805718	66
359	B, N Co-Doped Three-Dimensional Carbon Aerogels with Excellent Electrochemical Performance for the Oxygen Reduction Reaction. 2019 , 25, 2877-2883	22
358	Fe and S co-doped N-enriched hierarchical porous carbon polyhedron as efficient non-noble-metal electrocatalyst toward oxygen reduction reaction in both alkaline and acidic medium. 2019 , 298, 570-579	29
357	Rational Design of 2O Nanospheres Anchored B, N Co-doped Mesoporous Carbon: A Sustainable Electrocatalyst To Assay Eminent Neurotransmitters Acetylcholine and Dopamine. 2019 , 7, 5669-5680	34
356	Ultrasound-Assisted Nitrogen and Boron Codoping of Graphene Oxide for Efficient Oxygen Reduction Reaction. 2019 , 7, 3434-3442	27
355	The synthesis of sulfur-doped graphite nanostructures by direct electrochemical conversion of CO ₂ in CaCl ₂ NaCl CaO Li ₂ SO ₄ . 2019 , 144, 805-814	7
354	Doping of Carbon Materials for Metal-Free Electrocatalysis. 2019 , 31, e1804672	223
353	Copper-assisted thermal conversion of microporous covalent melamine-boroxine frameworks to hollow B, N-codoped carbon capsules as bifunctional metal-free electrode materials. 2019 , 298, 210-218	26
352	Sp ² -carbon dominant carbonaceous materials for energy conversion and storage. 2019 , 137, 1-37	18
351	Palladium supported on phosphorus/nitrogen dual-doped carbon nanoparticles as cathode for hydrogen evolution in PEM water electrolyser. 2019 , 25, 2615-2625	9

350	Heteroatom-Doped Carbon Materials for Hydrazine Oxidation. 2019 , 31, e1804394	47
349	The Absence and Importance of Operando Techniques for Metal-Free Catalysts. 2019 , 31, e1805609	18
348	Carbon-Based Metal-Free ORR Electrocatalysts for Fuel Cells: Past, Present, and Future. 2019 , 31, e1804799	412
347	Nitrogen-containing activated carbon of improved electrochemical performance derived from cotton stalks using indirect chemical activation. 2019 , 540, 285-294	14
346	Boron-doped carbon microspheres as the catalyst for rechargeable Al-air batteries. 2019 , 27, 299-304	5
345	Carbon-Based Metal-Free Catalysts for Electrocatalytic Reduction of Nitrogen for Synthesis of Ammonia at Ambient Conditions. 2019 , 31, e1805367	160
344	Promoting Electrocatalysis upon Aerogels. 2019 , 31, e1804881	75
343	A novel, efficient electrochemical sensor for the detection of isoniazid based on the B/N doped mesoporous carbon modified electrode. 2019 , 283, 613-620	25
342	Hierarchical design and development of nanostructured trifunctional catalysts for electrochemical oxygen and hydrogen reactions. 2019 , 56, 724-732	31
341	The Vital Balance of Graphitization and Defect Engineering for Efficient Bifunctional Oxygen Electrocatalyst Based on N-doping Carbon/CNT Frameworks. 2019 , 11, 861-867	20
340	Oxygen Reduction Reaction. 2019 , 27, 203-252	8
339	Hierarchical sulfur and nitrogen co-doped carbon nanocages as efficient bifunctional oxygen electrocatalysts for rechargeable Zn-air battery. 2019 , 34, 64-71	50
338	Atomic Modulation and Structure Design of Carbons for Bifunctional Electrocatalysis in Metal-Air Batteries. 2019 , 31, e1803800	141
337	Graphitic carbon nitrides (g-C ₃ N ₄) with comparative discussion to carbon materials. 2019 , 141, 580-607	153
336	Fe/Co/Ni mixed oxide nanoparticles supported on oxidized multi-walled carbon nanotubes as electrocatalysts for the oxygen reduction and the oxygen evolution reactions in alkaline media. 2020 , 357, 259-268	30
335	High surface area N/O co-doped carbon materials: Selective electrocatalysts for O ₂ reduction to H ₂ O ₂ . 2020 , 356, 132-140	15
334	Boosting defective carbon by anchoring well-defined atomically dispersed metal-N ₄ sites for ORR, OER, and Zn-air batteries. 2020 , 260, 118198	116
333	Metal-organic framework derived carbon materials for electrocatalytic oxygen reactions: Recent progress and future perspectives. 2020 , 156, 77-92	102

332	Nickel nanorods over nickel foam as standalone anode for direct alkaline methanol and ethanol fuel cell. 2020 , 45, 5948-5959	31
331	Boosting oxygen reduction catalysis with tailorable active-N-dominated doped defective CNTs. 2020 , 499, 143844	11
330	Charge Transfer Modulated Activity of Carbon-Based Electrocatalysts. 2020 , 10, 1901227	93
329	Role of radical and non-radical pathway in activating persulfate for degradation of p-nitrophenol by sulfur-doped ordered mesoporous carbon. 2020 , 384, 123304	131
328	Effect of porous structure on doping and the catalytic performance of carbon xerogels towards the oxygen reduction reaction. 2020 , 293, 109811	8
327	Nanocarbon Catalysts: Recent Understanding Regarding the Active Sites. 2020 , 7, 1902126	54
326	Construction of 3D carbon network with N,B,F-tridoping for efficient oxygen reduction reaction electrocatalysis and high performance zinc air battery. 2020 , 507, 145154	7
325	Nitrogen and phosphorus modification to enhance the catalytic activity of biomass-derived carbon toward the oxygen reduction reaction. 2020 , 4, 2707-2717	18
324	Hollow bimetal ZIFs derived Cu/Co/N co-coordinated ORR electrocatalyst for microbial fuel cells. 2020 , 45, 4481-4489	26
323	Fast prediction of oxygen reduction reaction activity on carbon nanotubes with a localized geometric descriptor. 2020 , 22, 890-895	11
322	A review of non-precious metal single atom confined nanomaterials in different structural dimensions (1DBD) as highly active oxygen redox reaction electrocatalysts. 2020 , 8, 2222-2245	39
321	Investigating the electrocatalytic oxidation of glycerol on simultaneous nitrogen- and fluorine-doped on activated carbon black composite. 2020 , 101, 107626	6
320	Synthesis of amorphous and graphitized porous nitrogen-doped carbon spheres as oxygen reduction reaction catalysts. 2020 , 11, 1-15	7
319	Electrocatalysis at Nanocarbons: Model Systems and Applications in Energy Conversion. 2020 , 201-249	3
318	In Situ Anchoring of Zeolite Imidazole Framework-Derived Co, N-Doped Porous Carbon on Multiwalled Carbon Nanotubes toward Efficient Electrocatalytic Oxygen Reduction. 2020 , 8, 478-485	24
317	Se-doped carbon as highly stable cathode material for high energy nonaqueous Li-O ₂ batteries. 2020 , 214, 115413	8
316	3D Carbon Materials for Efficient Oxygen and Hydrogen Electrocatalysis. 2020 , 10, 1902494	56
315	Heteroatom doped 3D graphene aerogel supported catalysts for formic acid and methanol oxidation. 2020 , 45, 650-666	22

3 ¹⁴	Mn-doped perovskite-type oxide LaFeO ₃ as highly active and durable bifunctional electrocatalysts for oxygen electrode reactions. 2020 , 14, 459-468	3
3 ¹³	Noble-metal-free electrospun nanomaterials as electrocatalysts for oxygen reduction reaction. 2020 , 15, 100280	45
3 ¹²	Molybdenum and boron synergistically boosting efficient electrochemical nitrogen fixation. 2020 , 78, 105391	11
3 ¹¹	Heteroatom-doped carbon catalysts for zinc-air batteries: progress, mechanism, and opportunities. 2020 , 13, 4536-4563	83
3 ¹⁰	Catalytic Hydrogenation of Methyl Acetate to Ethanol over Boron Doped Carbon Aerogels Supported Cu Catalyst. 2020 , 5, 11517-11521	1
3 ⁰⁹	Metal-free carbon materials for persulfate-based advanced oxidation process: Microstructure, property and tailoring. 2020 , 111, 100654	117
3 ⁰⁸	Improved contact properties of single-walled carbon nanotube on p-AlGa _N layers after microwave post-treatment. 2020 , 252, 123471	1
3 ⁰⁷	Electronic structure engineering on two-dimensional (2D) electrocatalytic materials for oxygen reduction, oxygen evolution, and hydrogen evolution reactions. 2020 , 77, 105080	60
3 ⁰⁶	Synergistic Catalytic Effect of Hollow Carbon Nanosphere and Silver Nanoparticles for Oxygen Reduction Reaction. 2020 , 5, 8099-8105	4
3 ⁰⁵	Tuning of ORR activity through the stabilization of the adsorbates by hydrogen bonding with substituent groups. 2020 , 22, 27811-27817	4
3 ⁰⁴	Highly ordered macroporous dual-element-doped carbon from metal-organic frameworks for catalyzing oxygen reduction. 2020 , 11, 9584-9592	14
3 ⁰³	Manipulation of structural and electronic properties of B-doped carbon nanospheres based on DFT modelling. 2020 , 532, 147267	5
3 ⁰²	Prussian blue analogue Cu ₃ [Fe(CN) ₆] ₂ derived N-doped Cu/Fe ₃ C clusters as an excellent non-noble metal ORR catalyst for microbial fuel cells. 2020 , 877, 114556	5
3 ⁰¹	Synergistic effect on BCN nanomaterials for the oxygen reduction reaction: kinetic and mechanistic analysis to explore the active sites. 2020 , 10, 6659-6668	0
3 ⁰⁰	Enhanced sodium storage kinetics of nitrogen rich cellulose-derived hierarchical porous carbon via subsequent boron doping. 2020 , 531, 147302	13
2 ⁹⁹	NiCo alloy nanoparticles encapsulated in N-doped 3D porous carbon as efficient electrocatalysts for oxygen reduction reaction. 2020 , 45, 22797-22807	8
2 ⁹⁸	Megamerger of MOFs and g-C ₃ N ₄ for energy and environment applications: upgrading the framework stability and performance. 2020 , 8, 17883-17906	19
2 ⁹⁷	Dual-metal NiCo nanoparticles in B-doped carbon layers as efficient and durable electrocatalyst for oxygen evolution reaction. 2020 , 532, 147381	13

296	Polymer-Derived Heteroatom-Doped Porous Carbon Materials. 2020 , 120, 9363-9419	196
295	In-situ synthesis of heteroatom co-doped mesoporous dominated carbons as efficient electrocatalysts for oxygen reduction reaction. 2020 , 364, 137335	3
294	Rational design of the carbon doping of hexagonal boron nitride for oxygen activation and oxidative desulfurization. 2020 , 22, 24310-24319	2
293	Transparent Graphene/BN-Graphene Stacked Nanofilms for Electrocatalytic Oxygen Evolution. 2020 , 3, 10418-10426	5
292	Nitrogen Doped Carbon Nanomaterial as Electrocatalyst for Oxygen Reduction Reaction in Acidic Media: To use in Electro-Fenton. 2020 , 5, 10034-10040	4
291	Graphene-Based Nanoparticles as Potential Treatment Options for Parkinson's Disease: A Molecular Dynamics Study. 2020 , 15, 6887-6903	19
290	Metal (Mn, Fe, Co, Ni, Cu, and Zn) Phthalocyanine-Immobilized Mesoporous Carbon Nitride Materials as Durable Electrode Modifiers for the Oxygen Reduction Reaction. 2020 , 36, 12202-12212	14
289	Improved Electrocatalytic Activity and Durability of Pt Nanoparticles Supported on Boron-Doped Carbon Black. 2020 , 10, 862	5
288	Biomass-derived nitrogen and sulfur co-doped carbon microtubes for the oxygen reduction reaction. 2020 , 4, 3251-3257	10
287	Nanocarbon-Based Catalytic Ozonation for Aqueous Oxidation: Engineering Defects for Active Sites and Tunable Reaction Pathways. 2020 , 10, 13383-13414	36
286	Atomically Dispersed CoN ₄ /B, N-C Nanotubes Boost Oxygen Reduction in Rechargeable Zn Air Batteries. 2020 , 3, 4539-4548	27
285	Cotton pad-derived large-area 3D N-doped graphene-like full carbon cathode with an O-rich functional group for flexible all solid Zn Air batteries. 2020 , 8, 11202-11209	24
284	Rational Catalyst Design for N ₂ Reduction under Ambient Conditions: Strategies toward Enhanced Conversion Efficiency. 2020 , 10, 6870-6899	126
283	Glass fiber separator coated by boron doped anatase TiO ₂ for high-rate Li B battery. 2020 , 129, 110917	9
282	Heteroatom-doped C ₃ N as a promising metal-free catalyst for a high-efficiency carbon dioxide reduction reaction. 2020 , 44, 11824-11828	5
281	Pyrolysis of Iron-Containing Polyanilines under Micropore Generation Control: Electrocatalytic Performance in the Oxygen Reduction Reaction. 2020 , 85, 1964-1967	1
280	A comparative study of undoped, boron-doped, and boron/fluorine dual-doped carbon nanoparticles obtained via solution plasma as catalysts for the oxygen reduction reaction. 2020 , 4, 4570-4580	12
279	Boron and pyridinic nitrogen-doped graphene as potential catalysts for rechargeable non-aqueous sodium-air batteries.. 2020 , 10, 21387-21398	10

278	Recent Advances and Challenges in 2D Metal-Free Electrocatalysts for N Fixation. 2020 , 8, 437	4
277	Ultrafine platinum particles anchored on porous boron nitride enabling excellent stability and activity for oxygen reduction reaction. 2020 , 399, 125827	23
276	Progress in Computational and Machine-Learning Methods for Heterogeneous Small-Molecule Activation. 2020 , 32, e1907865	23
275	Impact of Active Site Density on Oxygen Reduction Reactions Using Monodispersed Fe-N-C Single-Atom Catalysts. 2020 , 12, 15271-15278	28
274	Fabrication of high B-doped ordered mesoporous carbon with 4-hydroxyphenylborate phenolic resin for supercapacitor electrode materials.. 2020 , 10, 11210-11218	12
273	Defect Engineering for Fuel-Cell Electrocatalysts. 2020 , 32, e1907879	170
272	Direct imaging of heteroatom dopants in catalytic carbon nano-onions. 2020 , 12, 6144-6152	6
271	N-self-doped porous carbon derived from animal-heart as an electrocatalyst for efficient reduction of oxygen. 2020 , 579, 832-841	3
270	Insights on boosting oxygen evolution reaction performance via boron incorporation into nitrogen-doped carbon electrocatalysts. 2020 , 528, 146979	11
269	Metal-free carbocatalysis for electrochemical oxygen reduction reaction: Activity origin and mechanism. 2020 , 48, 308-321	40
268	Sodium-ion capacitors with superior energy-power performance by using carbon-based materials in both electrodes. 2020 , 30, 13-19	9
267	Comparative Catalytic Activity of Graphene Imperfections in Oxygen Reduction Reaction. 2020 , 124, 6038-6053	4
266	A Biomimetic-Mineralization-Inspired Hybrid Mesocrystal with Boosted Lithium Storage Properties. 2020 , 5, 2240-2246	0
265	Covalent triazine framework/carbon nanotube hybrids enabling selective reduction of CO ₂ to CO at low overpotential. 2020 , 22, 3095-3103	8
264	Bifunctional Catalysts for Reversible Oxygen Evolution Reaction and Oxygen Reduction Reaction. 2020 , 26, 3906	35
263	Two-dimensional materials for energy conversion and storage. 2020 , 111, 100637	73
262	Bimetallic CoNi Alloy Nanoparticles Embedded in Pomegranate-like Nitrogen-Doped Carbon Spheres for Electrocatalytic Oxygen Reduction and Evolution. 2020 , 3, 1354-1362	22
261	Gallic acid-assisted synthesis of nitrogen-doped carbon microspheres as efficient bifunctional materials for oxygen reduction and volumetric lithium storage. 2020 , 4, 881-890	3

260	Hierarchical N-Doped Porous Carbons for Zn-Air Batteries and Supercapacitors. 2020 , 12, 20	43
259	Local Aromaticity: An Important Indicator of the Surface Active Sites of Heterocyclic Nanostructures. 2020 , 124, 2583-2590	3
258	Applications of metal-organic framework-derived materials in fuel cells and metal-air batteries. 2020 , 409, 213214	97
257	Solvent-Free Chemical Approach to Synthesize Co Nanoparticles Supported on N-doped Porous Carbon for Efficient Electrocatalytic Oxygen Reduction. 2020 , 12, 2580-2588	7
256	Heteroatom- and metalloid-doped carbon catalysts for oxygen reduction reaction: a mini-review. 2020 , 26, 1563-1589	22
255	Metal-free heteroatom-doped carbon-based catalysts for ORR: A critical assessment about the role of heteroatoms. 2020 , 165, 434-454	109
254	B, N-codoped CuN/B/C Composite as an Efficient Electrocatalyst for Oxygen-Reduction Reaction in Alkaline Media. 2020 , 5, 3647-3654	3
253	Biopolymer-Inspired N-Doped Nanocarbon Using Carbonized Polydopamine: A High-Performance Electrocatalyst for Hydrogen-Evolution Reaction. 2020 , 12,	4
252	Mesostructured carbon-based nanocages: an advanced platform for energy chemistry. 2020 , 63, 665-681	22
251	Outer Tube-Selectively Boron-Doped Double-Walled Carbon Nanotubes for Thermoelectric Applications. 2020 , 3, 3347-3354	4
250	A recent trend: application of graphene in catalysis. 2021 , 31, 177-199	13
249	Harvesting Electricity from CO ₂ Emission: Opportunities, Challenges and Future Prospects. 2021 , 8, 1061-1081	3
248	Non-N-Doped Carbons as Metal-Free Electrocatalysts. 2021 , 5, 2000134	11
247	Confinement in two-dimensional materials: Major advances and challenges in the emerging renewable energy conversion and other applications. 2021 , 61, 100294	11
246	Coordination Engineering of Single-Atom Catalysts for the Oxygen Reduction Reaction: A Review. 2021 , 11, 2002473	74
245	Synthesis of Iodine-Functionalized Graphene Electrocatalyst Using Deep Eutectic Solvents for Oxygen Reduction Reaction and Supercapacitors. 2021 , 9, 2000750	1
244	Emerging carbon nanostructures in electrochemical processes. 2021 , 353-388	3
243	Combined DFT and experiment: Stabilizing the electrochemical interfaces via boron Lewis acids. 2021 , 59, 100-107	2

242	Large-scale defect-engineering tailored tri-doped graphene as a metal-free bifunctional catalyst for superior electrocatalytic oxygen reaction in rechargeable Zn-air battery. 2021 , 285, 119811	38
241	Rhodium-Catalyzed One-Pot Access to N-Polycyclic Aromatic Hydrocarbons from Aryl Ketones through Triple C-H Bond Activations. 2021 , 86, 1108-1117	2
240	Polyethyleneimine-functionalized mesoporous carbon nanosheets as metal-free catalysts for the selective oxidation of H ₂ S at room temperature. 2021 , 283, 119650	7
239	Hollow Carbons Coated with Graphitic Carbon Nitride for Oxygen Reduction Reaction. 2021 , 11, 85-92	
238	Nitrogen and Boron Co-Doped Carbon Nanotubes Embedded with Nickel Nanoparticles as Highly Efficient Electromagnetic Wave Absorbing Materials. 2021 , 38, 015201	4
237	B, N Co-doped Nanocarbon Derived In Situ from Nanoboron Carbide as Electrocatalyst for Oxygen Reduction Reaction. 2021 , 7, 200-206	1
236	Nanostructured tubular carbon materials doped with cobalt as electrocatalyst for efficient oxygen reduction reaction. 2021 , 56, 8143-8158	2
235	Boron containing metal-organic framework for highly selective photocatalytic production of HO by promoting two-electron O reduction. 2021 , 8, 2842-2850	3
234	Transition-metal single atoms embedded into defective BC as efficient electrocatalysts for oxygen evolution and reduction reactions. 2021 , 13, 1331-1339	11
233	Hierarchical Carbon Nanocages as Efficient Catalysts for Oxidative Coupling of Benzylamine to N-Benzylidene Benzylamine. 2021 , 79, 539	1
232	Pyrolysis-free polymer-based oxygen electrocatalysts. 2021 , 14, 2789-2808	14
231	Untangling the respective effects of heteroatom-doped carbon materials in batteries, supercapacitors and the ORR to design high performance materials. 2021 , 14, 2036-2089	86
230	Recent advances in surface/interface engineering of noble-metal free catalysts for energy conversion reactions. 2021 , 5, 3576-3592	4
229	Defect induced nitrogen reduction reaction of carbon nanomaterials. 2021 , 5, 3765-3790	2
228	N- and O-doped hollow carbons constructed by self- and extrinsic activation for the oxygen reduction reaction and flexible zinc-air Batteries. 2021 , 13, 16296-16306	2
227	Uniform nickel-cobalt nanoparticles embedded in nitrogen-doped carbon nanofibers for highly active and durable oxygen reduction electrocatalysts. 2021 , 45, 8210-8216	
226	Pyrolysis-free covalent organic framework-based materials for efficient oxygen electrocatalysis. 2021 , 9, 20985-21004	7
225	Recent advances in metal-free heteroatom-doped carbon heterogenous catalysts.. 2021 , 11, 23725-23778	3

224	Recent progress on the synthesis and oxygen reduction applications of Fe-based single-atom and double-atom catalysts. 2021 , 9, 19489-19507	23
223	Bifunctional OER-ORR electrodes for metal-air batteries. 2021 , 139-186	0
222	Co/N-Doped hierarchical porous carbon as an efficient oxygen electrocatalyst for rechargeable Zn-air battery.. 2021 , 11, 15753-15761	2
221	Catalyst Materials for Oxygen Reduction Reaction. 2021 , 85-182	
220	Biomass-derived functional carbon nanomaterials for the development of futuristic energy devices. 2021 , 317-341	0
219	Nitrogen-Doped Microporous Carbons Synthesized from Indole-Based Copolymer Spheres for Supercapacitors and Metal-Free Electrocatalysis. 2021 , 35, 2785-2794	2
218	Nanostructured multifunctional electrocatalysts for efficient energy conversion systems: Recent perspectives. 2021 , 10, 137-157	10
217	Heteroatom-doped carbon-based oxygen reduction electrocatalysts with tailored four-electron and two-electron selectivity. 2021 , 57, 7350-7361	6
216	Modified Graphene Sheets as Promising Cathode Catalysts for LiO ₂ Batteries: A First-Principles Study. 2021 , 125, 4363-4370	6
215	Honeycomb-like Self-Supported CoNi Catalysts with an Ultrastable Structure: Highly Efficient Electrocatalysts toward Oxygen Reduction Reaction in Alkaline and Acidic Solutions. 2021 , 4, 2522-2530	4
214	Recent Advances on the Development of Functional Materials in Microbial Fuel Cells: From Fundamentals to Challenges and Outlooks.	6
213	MoO ₂ nanoparticles confined in N,P-codoped graphene aerogels with excellent pseudocapacitance performance. 2021 , 99, 303-310	1
212	Porous Carbon Nanosheets Derived from ZIF-8 Treated with KCl as Highly Efficient Electrocatalysts for the Oxygen Reduction Reaction. 2021 , 9, 2100035	5
211	Two-Dimensional Boron and Nitrogen Dual-Doped Graphitic Carbon as an Efficient Metal-Free Cathodic Electrocatalyst for Lithium-Air Batteries. 2021 , 8, 949-956	1
210	Nanostructured Carbon Electrocatalysts for Energy Conversions. 2021 , 17, e2007136	1
209	Boron-functionalized carbon felt electrode for enhancing the electrochemical performance of vanadium redox flow batteries. 2021 , 546, 148941	3
208	Synthesis of MoS ₂ nanoparticles embedded, N, S co-doped mesoporous carbon via molten salt method as hydrogen evolution electrocatalyst under alkaline and neutral conditions. 2021 , 46, 13936-13945	3
207	Review Current Progress of Non-Precious Metal for ORR Based Electrocatalysts Used for Fuel Cells. 2021 , 168, 044521	3

206	Regulating the interfacial behavior of carbon nanotubes for fast lithium storage. 2021 , 388, 138591	3
205	Graphene family for hydrogen peroxide production in electrochemical system. 2021 , 769, 144491	5
204	Trace Metal Loading of B-N-Co-doped Graphitic Carbon for Active and Stable Bifunctional Oxygen Reduction and Oxygen Evolution Electrocatalysts. 2021 , 8, 1685-1693	0
203	Functionalized Carbon Nanotubes (CNTs) for Water and Wastewater Treatment: Preparation to Application. 2021 , 13, 5717	19
202	Interfacial Covalent Bonds Regulated Electron-Deficient 2D Black Phosphorus for Electrocatalytic Oxygen Reactions. 2021 , 33, e2008752	18
201	Facile synthesis and electrocatalytic performance for oxygen reduction of boron-doped carbon catalysts on graphene sheets. 2021 , 21, 328	4
200	Chemical Vapor Deposition for N/S-Doped Single Fe Site Catalysts for the Oxygen Reduction in Direct Methanol Fuel Cells. 2021 , 11, 7450-7459	37
199	Pore Modification and Phosphorus Doping Effect on Phosphoric Acid-Activated Fe-N-C for Alkaline Oxygen Reduction Reaction. 2021 , 11,	1
198	A highly durable CoO/N-doped graphitized-nano-diamond electrocatalyst for oxygen reduction reaction. 2021 , 32,	2
197	Advances in Zeolite Imidazolate Frameworks (ZIFs) Derived Bifunctional Oxygen Electrocatalysts and Their Application in Zinc-Air Batteries. 2021 , 11, 2100514	24
196	FeS ₂ loading on chlorinated carbon nanotubes surface triggered by sulfur addition and their use as electrocatalyst for ORR. 2021 , 116, 108429	0
195	Defective carbon-based materials: controllable synthesis and electrochemical applications. 2021 , 100059	3
194	Nitrogen and Oxygen Functionalization of Multi-Walled Carbon Nanotubes for Tuning the Bifunctional Oxygen Reduction/Oxygen Evolution Performance of Supported FeCo Oxide Nanoparticles. 2021 , 8, 2803-2816	2
193	Boron-doped helical carbon nanotubes: lightweight and efficient microwave absorbers. 2021 , 32, 26161	0
192	N, P, and S tri-doped holey carbon as an efficient electrocatalyst for oxygen reduction in whole pH range for fuel cell and zinc-air batteries. 2021 , 179, 365-376	11
191	Memristive Behavior in One-Dimensional Hexagonal Boron Nitride/Carbon Nanotube Heterostructure Assemblies. 2021 , 3, 3555-3566	3
190	Engineering Carbon Materials for Electrochemical Oxygen Reduction Reactions. 2021 , 11, 2100695	13
189	Application of graphene in low-temperature fuel cell technology: An overview. 2021 , 45, 18318	1

188	Recent Advances in Electrode Design for Rechargeable Zinc-Air Batteries. 2021 , 1, 2100044	17
187	Microalgae biomass-derived nitrogen-enriching carbon materials as an efficient pH-universal oxygen reduction electrocatalyst for Zn-air battery. 2021 , 782, 146844	3
186	Recent Advances in Enhancing Oxygen Reduction Reaction Performance for Non-Noble-Metal Electrocatalysts Derived from Electrospinning. 2021 , 9, 2100301	0
185	Doping engineering on carbons as electrocatalysts for oxygen reduction reaction. 2021 , 1, 807-807	1
184	Metal-organic frameworks-derived heteroatom-doped carbon electrocatalysts for oxygen reduction reaction. 2021 , 86, 106073	23
183	Recent Progress in the Development of Advanced Functionalized Electrodes for Oxygen Evolution Reaction: An Overview. 2021 , 14,	0
182	A Review on Experimental Identification of Active Sites in Model Bifunctional Electrocatalytic Systems for Oxygen Reduction and Evolution Reactions. 2021 , 8, 3433-3456	4
181	A density functional theory study of molecular H ₂ S adsorption on (4,0) SWCNT doped with Ge, Ga and B. 2021 , 711, 121876	1
180	Regulation of functional groups on graphene quantum dots directs selective CO to CH conversion. 2021 , 12, 5265	16
179	Boron-doped helical carbon nanotubes as active supercapacitor cathode materials: preparation and electrochemical properties. 2021 , 32, 25269	0
178	Competitive role of nitrogen functionalities of N doped GO and sensitizing effect of BiO QDs on TiO for water remediation. 2021 , 108, 107-119	8
177	Hybrid materials based on pyrrhotite, troilite, and few-layered graphitic nanostructures: Synthesis, characterization, and cyclic voltammetry studies. 2021 , 563, 150327	0
176	High-Performance Heteroatoms (B, S) Single- and Dual-Doped Co/C Catalysts for Oxygen Reduction Reaction.	1
175	Highly active iron-nitrogen-boron-carbon bifunctional electrocatalytic platform for hydrogen peroxide sensing and oxygen reduction. 2021 , 201, 111563	5
174	Fluorination-assisted preparation of self-supporting single-atom Fe-N-doped single-wall carbon nanotube film as bifunctional oxygen electrode for rechargeable Zn-Air batteries. 2021 , 294, 120239	21
173	Biomass-derived N,S co-doped 3D multichannel carbon supported Au@Pd@Pt catalysts for oxygen reduction. 2021 , 202, 111684	3
172	Progress and challenges in using sustainable carbon anodes in rechargeable metal-ion batteries. 2021 , 87, 100929	8
171	Enhancing the reactivity of carbon-nanotube for carbon monoxide detection by mono- and co-doping of boron and nitrogen heteroatoms: A DFT and TD-DFT study. 2021 , 158, 110230	2

170	Identifying active sites of boron, nitrogen co-doped carbon materials for the oxygen reduction reaction to hydrogen peroxide. 2021 , 602, 799-809	3
169	Facile synthesis of porous Fe-doped g-C ₃ N ₄ with highly dispersed Fe sites as robust catalysts for dinitro butyl phenol degradation by peroxymonosulfate activation. 2021 , 630, 127598	0
168	Impacts of boron doping on the atomic structure, stability, and photocatalytic activity of Cu ₃ P nanocrystals. 2021 , 298, 120515	3
167	Insights into the role of hydroxyl group on carboxyl-modified MWCNTs in accelerating atenolol removal by Fe(III)/H ₂ O ₂ system. 2021 , 425, 130581	4
166	Boron doped carbon nanotubes: Synthesis, characterization and emerging applications A review. 2022 , 427, 131616	14
165	Boron modulating electronic structure of FeN ₄ C to initiate high-efficiency oxygen reduction reaction and high-performance zinc-air battery. 2022 , 66, 514-524	11
164	Construction and Application of 3D Graphene Materials Based on Templated Polymerization. 2021 , 57-88	
163	Phosphorus and oxygen doped carbon-based on Spirulina microalgae as efficient metal-free catalysts to obtain H ₂ from methanolysis of NaBH ₄ . 2021 , 46, 3753-3762	12
162	Tailorable boron-doped carbon nanotubes as high-efficiency counter electrodes for quantum dot sensitized solar cells. 2021 , 11, 2745-2752	2
161	Heteroatoms in graphdiyne for catalytic and energy-related applications. 2021 , 9, 19298-19316	4
160	Strategies for boosting carbon electrocatalysts for the oxygen reduction reaction in non-aqueous metal-air battery systems. 2021 , 9, 6671-6693	15
159	Catalysis-induced performance enhancement of an electrochemical microcystin-LR aptasensor based on cobalt-based oxide on a B, N co-doped graphene hydrogel. 2021 , 146, 2574-2580	4
158	Self-confined CoPt/Mo ₂ C nanoparticles encapsulated in carbon cages for boosted hydrogen evolution catalysis. 2021 , 2, 600-607	2
157	B, N Co-Doped ordered mesoporous carbon with enhanced electrocatalytic activity for the oxygen reduction reaction. 2020 , 824, 153908	19
156	Hollow N-doped bimetal carbon spheres with superior ORR catalytic performance for microbial fuel cells. 2020 , 575, 177-182	16
155	Unraveling Catalytic Mechanisms for CO Oxidation on Boron-Doped Fullerene: A Computational Study. 2020 , 5, 28870-28876	1
154	Nanosized palladium on phosphorus-incorporated porous carbon frameworks for enhanced selective phenylacetylene hydrogenation. 2017 , 7, 4934-4939	10
153	Recent advancement in the electrocatalytic synthesis of ammonia. 2020 , 12, 8065-8094	19

152	Fabrication of Mn-N-C Catalyst for Oxygen Reduction Reactions Using Mn-Embedded Carbon Nanofiber. 2020 , 13, 2561	3
151	Catalytic Effects of Heteroatom-doped Graphene Nanosheets on the Performance of Li-O ₂ Batteries. 2014 , 5, 49-52	7
150	Density functional study on the adsorption characteristics of O, O ₂ , OH, and OOH of B-, P-doped, and B, P codoped graphenes. 2016 , 65, 018201	4
149	Electron-theoretical study on the influences of torsional deformation on electrical and optical properties of O atom absorbed graphene. 2017 , 66, 246301	2
148	Recent progress in the synthesis and applications of vertically aligned carbon nanotube materials. 2021 , 10, 1592-1623	2
147	Emerging two-dimensional nanomaterials for electrochemical nitrogen reduction. 2021 , 50, 12744-12787	10
146	Fe, B, and N Codoped Carbon Nanoribbons Derived from Heteroatom Polymers as High-Performance Oxygen Reduction Reaction Electrocatalysts for Zinc-Air Batteries. 2021 , 37, 13018-13026	3
145	Hydrogen storage in boron-doped carbon nanotubes: Effect of dopant concentration. 2021 ,	2
144	Single-Atom Catalysts: Advances and Challenges in Metal-Support Interactions for Enhanced Electrocatalysis. 1	15
143	Hydrothermal Synthesis of Nitrogen, Boron Co-Doped Graphene with Enhanced Electro-Catalytic Activity for Cymoxanil Detection. 2021 , 21,	2
142	Carbon-based Nanostructures for Energy Conversion and Storage: Synthesis, Performance and Mechanism. 2015 ,	
141	Optimized Li storage performance of B, N doped graphyne as Li-ion battery anode materials. 2019 , 68, 213601	2
140	Bor doplu CVD grafen üetimi ve yak&Etili performans&	
139	Chemical composition and structure of carbon surfaces and their influence on the activities of carbon catalysts for the oxygen reduction reaction. 2019 , 2019, 195-203	
138	N and S Co-doped Ordered Mesoporous Carbon: An Efficient Electrocatalyst for Oxygen Reduction Reaction in Microbial Fuel Cells. 2020 , 16, 625-638	0
137	Tuning metal catalysts via nitrogen-doped nanocarbons for energy chemistry: From metal nanoparticles to single metal sites. 2021 , 3, 100066	3
136	Boron-Doped Edges as Active Sites for Water Adsorption in Activated Carbons. 2021 , 37, 13179-13186	2
135	Alkaline Fuel Cells, Theory and Applications. 2021 ,	

134	Numerical Investigation on the Influence of Doping on Tensile Properties of Carbon Nanotubes. 2020 , 255-276	
133	Nanocellulose and nanohydrogel for energy, environmental, and biomedical applications. 2020 , 33-64	2
132	Boron-Nitrogen-Co-Doping Nanocarbons to Create Rich Electroactive Defects toward Simultaneous Sensing Hydroquinone and Catechol. 2021 , 139427	4
131	Graphynes: Electronic Properties, Synthesis, and Applications in Catalysis. 14122-14147	3
130	Carbon Nanotubes-Based Electrocatalysts: Structural Regulation, Support Effect, and Synchrotron-Based Characterization. 2106684	1
129	Single-Atom-like B-N Sites in Ordered Macroporous Carbon for Efficient Oxygen Reduction Reaction. 2021 , 13, 53892-53903	1
128	Red onions waste-derived biocarbons with remarkably high catalytic activity for the oxygen reduction reaction and high capacitance. 1	
127	Understanding the role of nitrogen and sulfur doping in promoting kinetics of oxygen reduction reaction and sodium ion battery performance of hollow spherical graphene. 2022 , 187, 230-240	6
126	Time resolved measurements of pH in aqueous magnesium air batteries during discharge and its impact for future applications.	0
125	Study of the Secondary Heteroatoms Doping on Nitrogen-Doped Carbon and Their Oxygen Reduction Reaction Performance Evaluation. 2021 , 6, 11887-11899	1
124	Synthesis and overview of carbon-based materials for high performance energy storage application: A review. 2021 ,	3
123	Activity origin of boron doped carbon cluster for thermal catalytic oxidation: Coupling effects of dopants and edges.. 2022 , 613, 47-56	0
122	Defect-rich boron doped carbon nanotubes as an electrocatalyst for hybrid Li ^{air} batteries. 2022 , 12, 332-338	0
121	Polar bonds induced strong Pd-support electronic interaction drives remarkably enhanced oxygen reduction activity and stability. 2022 , 305, 121020	0
120	Metal-free C ₂ N doped with sp ² hybridized B atom as high efficiency photocatalyst for nitrobenzene reduction reaction: A density functional theory study. 2022 , 518, 112080	0
119	Recent progress of carbon-based electrocatalytic materials in Lithium-based batteries. 2022 , e00384	
118	Elimination of Fuel Crossover in a Single-Flow Microfluidic Fuel Cell with a Selective Catalytic Cathode. 2022 , 61, 1955-1964	0
117	Exploration of carbon additives to the synthesis of CuMoS structures and their electrocatalytic activity in oxygen reduction reaction. 2022 , 47, 5326-5336	1

116	Proposal of a Facile Method to Fabricate a Multi-Dope Multiwall Carbon Nanotube as a Metal-Free Electrocatalyst for the Oxygen Reduction Reaction. 2022 , 14, 965	1
115	Heteroatom-doped nanomaterials/core-shell nanostructure based electrocatalysts for the oxygen reduction reaction. 2022 , 10, 987-1021	5
114	Heteroatom-Doped Metal-Free Carbon Nanomaterials as Potential Electrocatalysts.. 2022 , 27,	1
113	Preparation of Heteroatom-Doped Carbon Materials and Applications in Selective Hydrogenation. 2022 , 7,	0
112	Intermediate-temperature liquid-solid metal battery by adopting Li ₄ Ti ₅ O ₁₂ -based material as cathode. 2022 , 409, 139990	
111	Jagged carbon nanotubes from polyaniline: Strain-driven high-performance for Zn-air battery. 2022 , 434, 134617	3
110	Boosting activity toward oxygen reduction reaction of a mesoporous FeCuNC catalyst via heteroatom doping-induced electronic state modulation.	1
109	Mass transfer analysis of boron-doped carbon nanotube cathodes for dual-electrolyte lithium-air batteries.. 2022 ,	
108	A Novel Dendrite-Free Lithium Metal Anode via Oxygen and Boron Codoped Honeycomb Carbon Skeleton.. 2022 , e2104876	3
107	Electrocatalysis in Alkaline Media and Alkaline Membrane-Based Energy Technologies.. 2022 ,	25
106	Recent Advances in Boron- and Nitrogen-Doped Carbon-Based Materials and Their Various Applications. 2101964	5
105	Balance of N-Doping Engineering and Carbon Chemistry to Expose Edge Graphitic N Sites for Enhanced Oxygen Reduction Electrocatalysis.. 2021 , 13, 61129-61138	2
104	Doping of Carbon Nanostructures for Energy Application. 2022 , 83-109	
103	Heteroatom Doping in Nanocarbon and Its Applications. 2022 , 61-81	0
102	Template free-synthesis of cobalt-iron chalcogenides [CoFeL, L = S, Se] and their robust bifunctional electrocatalysis for the water splitting reaction and Cr(vi) reduction.. 2022 , 12, 7762-7772	1
101	Dual active sites in a triazine-based covalent organic polymeric framework promoting oxygen reduction reaction.. 2022 ,	2
100	The Effect of an External Magnetic Field on the Electrocatalytic Activity of Heat-Treated Cyanometallate Complexes towards the Oxygen Reduction Reaction in an Alkaline Medium.. 2022 , 15,	2
99	Recent progress of mesoporous carbons applied in electrochemical catalysis. 2022 , 37, 152-179	2

98	Theoretical Investigation of the Active Sites in N-Doped Graphene Bilayer for the Oxygen Reduction Reaction in Alkaline Media in PEMFCs. 2022 , 126, 5863-5872	1
97	Boron: A key functional component for designing high-performance heterogeneous catalysts. 2022 ,	0
96	Successful Manufacturing Protocols of N-Rich Carbon Electrodes Ensuring High ORR Activity: A Review. 2022 , 10, 643	1
95	Electrosynthesis of H ₂ O ₂ through a two-electron oxygen reduction reaction by carbon based catalysts: From mechanism, catalyst design to electrode fabrication. 2022 , 100170	2
94	Regulation of dual-ion batteries via the defects design in carbon electrode based on the different storage behaviors of PF ₆ ⁻ and Li ⁺ . 2022 , 527, 231169	0
93	Metal-free catalyst for efficient pH-universal oxygen reduction electrocatalysis in microbial fuel cell. 2022 , 911, 116233	0
92	Improving the air quality with Functionalized Carbon Nanotubes: Sensing and remediation applications in the real world.. 2022 , 134468	4
91	Dual-metal-organic frameworks as ultrahigh-performance bifunctional electrocatalysts for oxygen reduction and oxygen evolution. 2022 , 644, 128882	0
90	N-Doped Activated Carbons from Polypyrrole Effect of Steam Activation Conditions. 2022 , 94, 94-100	
89	Boron Carbon Oxynitride as a Novel Metal-Free Photocatalyst. 2021 , 16, 176	1
88	Heteroatom Bridging Strategy in Carbon-Based Catalysts for Enhanced Oxidative Desulfurization Performance.. 2021 ,	4
87	Two-Dimensional Biphenylene: A Graphene Allotrope with Superior Activity toward Electrochemical Oxygen Reduction Reaction.. 2021 , 12, 12230-12234	1
86	Defect engineering of carbons for energy conversion and storage applications.	2
85	Table_1.DOCX. 2019 ,	
84	Iron-gelatin aerogel derivative as high-performance oxygen reduction reaction electrocatalysts in microbial fuel cells. 2022 ,	0
83	Interfacial engineering of carbon-based materials for efficient electrocatalysis: Recent advances and future. 2022 , 100074	3
82	Carbon-based metal-free oxygen reduction reaction electrocatalysts: past, present and future. 2022 , 37, 338-354	0
81	Structural Study of Sulfur-Added Carbon Nanohorns. 2022 , 15, 3412	

- 80 A Methodical Review on Carbon-Based Nanomaterials in Energy-Related Applications. **2022**, 2022, 1-21 3
- 79 Simultaneous determination of adulterants in dietary food supplements using multivariate data analysis after preconcentration with novel nanosorbents and chromatographic measurement.. **2022**,
- 78 Recent advances in the tuning of the organic framework materials - the selections of ligands, reaction conditions, and post-synthesis approaches. **2022**, 1
- 77 Carbon charge population and oxygen molecular transport regulated by program-doping for highly efficient 4e-ORR. **2022**, 444, 136560 0
- 76 Applications of metal-organic framework-derived N, P, S doped materials in electrochemical energy conversion and storage. **2022**, 466, 214602 5
- 75 Metal-free catalysts for fuel cell applications. **2022**, 67-109
- 74 Biochar electrocatalysts for clean energy applications. **2022**, 333-343
- 73 Electrocatalysis with metal-free carbon-based catalysts. **2022**, 213-244
- 72 Heteroatoms-Doped Carbon Nanotubes for Energy Applications. **2022**, 1-39
- 71 Heterogeneous carbon metal-free catalysts. **2022**, 195-212
- 70 Nanocarbon-based metal-free catalysts. **2022**, 1-19
- 69 Enhancing the Long Cycle Performance of LiO₂ Batteries at High Temperatures Using Metal-Organic Framework-Based Electrolytes. 2
- 68 Metal-organic coordination networks on a titanium carbide MXene: DFT based grand canonical Monte Carlo simulation. **2022**, 598, 153834 0
- 67 Oxygen reduction reaction by metal-free catalysts. **2022**, 241-275
- 66 Boron compounds for catalytic applications. **2022**,
- 65 High-Performance Ultrabroadband Photodetector Based on Photothermoelectric Effect.
- 64 Transition Metal Non-Oxides as Electrocatalysts: Advantages and Challenges. 2202033 4
- 63 Metal-Free Carbon-Based Nanomaterials: Fuel Cell Applications as Electrocatalysts. **2022**, 73-139

62	New nitrogen-doped graphitic carbon nanosheets with rich structural defects and hierarchical nanopores as efficient metal-free electrocatalysts for oxygen reduction reaction in Zn-Air batteries. 2022 , 259, 117816	0
61	Unveiling the nanoalloying modulation on hydrogen evolution activity of ruthenium-based electrocatalysts encapsulated by B/N co-doped graphitic nanotubes. 2022 , 316, 121626	0
60	Carbon nanostructures containing boron impurity atoms: synthesis, physicochemical properties and potential applications. 2022 , 8, 23-42	0
59	Promotion role of B doping in N, B co-doped humic acids-based porous carbon for enhancing catalytic performance of oxidative dehydrogenation of propane using CO ₂ . 2022 , 135, 1785-1802	0
58	Metal-free boron doped g-C ₃ N ₅ catalyst: efficient doping regulatory strategy for photocatalytic water splitting. 2022 , 154186	2
57	Graphene-Based Materials for Electrocatalysis. 2022 , 245-273	
56	ZIF-67-derived Co/C embedded boron carbonitride nanotubes for efficient electromagnetic wave absorption. 2022 , 450, 138011	2
55	Nonthermal Plasma Treatment for Electrocatalysts Structural and Surface Engineering. 2200235	1
54	Enhanced stability of nitrogen doped porous carbon fiber on cathode materials for high performance lithium-sulfur batteries. 2022 , 12, 22996-23005	0
53	Advances in Intelligent Regeneration of Cathode Materials for Sustainable Lithium-Ion Batteries. 2201526	0
52	State-of-the-art and developmental trends in platinum group metal-free cathode catalyst for anion exchange membrane fuel cell (AEMFC). 2022 , 121733	2
51	Transformation of carbon dioxide, a greenhouse gas, into useful components and reducing global warming: A comprehensive review.	1
50	Tuning electron delocalization and surface area in COFs derived N, B co-doped carbon materials for efficient selective hydrogenation of nitroarenes. 2022 , 107770	
49	Nitrogen-doped carbon nanotubes filled with Fe ₃ C nanowires for efficient electrocatalytic oxygen reduction. 2022 , 654, 130095	0
48	Carbon-Based Nanomaterials for Oxygen Evolution Reaction. 2022 , 147-167	0
47	Doping engineering:modulating the intrinsic activity of bifunctional carbon-based oxygen electrocatalysts for high-performance Zinc-air batteries.	1
46	Strategic design of Fe and N co-doped hierarchically porous carbon as superior ORR catalyst: from the perspective of nanoarchitectonics. 2022 , 13, 10836-10845	14
45	Boron doping positively enhances the catalytic activity of carbon materials for the removal of bisphenol A. 2022 , 12, 21780-21792	0

- 44 Doping of the Mn vacancy of Mn₂B₂ with a single different transition metal atom as the dual-function electrocatalyst. **2022**, 24, 20988-20997 1
- 43 Carbon nanostructures containing boron impurity atoms: synthesis, physicochemical properties and potential applications. **2022**, 25, 64-91 0
- 42 Advances of graphene-based aerogels and their modifications in lithium-sulfur batteries. **2023**, 201, 679-702 0
- 41 Review Heteroatom-Doped High Porous Carbon Metal Free Nanomaterials for Energy Storage and Conversion. **2022**, 11, 091006 0
- 40 Ternary (N, B, F)-Doped Biocarbon Derived from Bean Residues as Efficient Bifunctional Electrocatalysts for Oxygen Reduction and Evolution Reactions. **2022**, 169, 096517 0
- 39 Insights into the electrocatalytic behavior of nitrogen and sulfur co-doped carbon nanotubes toward oxygen reduction reaction in alkaline media. **2022**, 57, 16739-16754 0
- 38 Enhancing lithium-ion and electric conductive Li₂FeSiO₄ cathode through in situ boron-doping and carbon-coating strategy. 1
- 37 High-performance ORR Catalyst of N-doping Carbon-coated Cobalt Nanoparticles Synthesized by DC Arc Plasma. **2022**, 7, 0
- 36 A hybrid of Co₃O₄ nanoparticles coupled with B, Co/N-codoped C@B₄C as an efficient bifunctional catalyst for oxygen reduction and oxygen evolution reactions. **2022**, 0
- 35 In Situ Synthesized Homochiral Spiroborate Ester Metal-Organic Framework with Mono-, Di-, and Trivalent Cations. 0
- 34 A Facile Strategy of Post-Impregnation to Fabricate Hierarchically Porous Carbons. 0
- 33 Design of Oxygen Reduction Catalysts in Primary Zinc-Air Batteries. **2022**, 35-67 1
- 32 In-situ hydrothermal synthesis of NiCo(X)Se compound on nickel foam for efficient performance of water splitting reaction in alkaline media. **2022**, 926, 116929 0
- 31 Modification of silica particles with poly(phenylboronic acid) brushes for fabricating hollow mesoporous carbon nanospheres. 0
- 30 Recent progress in heteroatom doped carbon based electrocatalysts for oxygen reduction reaction in anion exchange membrane fuel cells. **2022**, 0
- 29 Advances in platinum-based and platinum-free oxygen reduction reaction catalysts for cathodes in direct methanol fuel cells. 10, 1
- 28 Conductivity-enhanced porous N/P co-doped metal-free carbon significantly enhances oxygen reduction kinetics for aqueous/flexible zinc-air batteries. **2023**, 633, 500-510 0
- 27 Co-modified polyoxovanadoborates derived Co/BN-CNT/VN based bifunctional electrocatalysts for rechargeable zinc-air batteries. **2023**, 634, 675-683 0

26	Strategies for enhancing the catalytic activity and electronic conductivity of MOFs-based electrocatalysts. 2023 , 478, 214969	1
25	Heteroatoms-Doped Carbon Nanotubes for Energy Applications. 2022 , 485-523	0
24	Synthesis of Heteropolycyclic Aromatic Hydrocarbons Through Directed C-H Functionalization. 1-23	0
23	Nitrogen inclusion in carbon nanotubes initiated by boron doping and chlorination: Their use as electrocatalysts for oxygen reduction reaction. 9,	0
22	Carbon nanotubes supported oxygen reduction reaction catalysts: role of inner tubes. 2023 , 6,	1
21	Metal-Free Molecular Catalysts for the Oxygen Reduction Reaction: Electron Affinity as an Activity Descriptor. 476-480	0
20	Synthetic porous carbons for clean energy storage and conversion. 2023 , 100099	0
19	Fe-Trimesic Acid/Melamine Gel-Derived Fe/N-Doped Carbon Nanotubes as Catalyst of Peroxymonosulfate to Remove Sulfamethazine. 2023 , 15, 381	0
18	ORR Catalysts Derived from Biopolymers. 2023 , 13, 80	0
17	Recent Progress of Non-Pt Catalysts for Oxygen Reduction Reaction in Fuel Cells. 2023 , 11, 361	0
16	Recent progress in heteroatom doping to modulate the coordination environment of MnO ₂ catalysts for the oxygen reduction reaction.	0
15	Bamboo fiber-derived bifunctional electrocatalyst for rechargeable Zn- Air batteries.	0
14	Manipulating electron redistribution of active sites by in situ engineering B-S-V bond in VS ₂ catalyst for stable nitrogen fixation. 2023 , 463, 142384	0
13	Unifying the origin of catalytic activities for carbon-based metal-free electrocatalysts. 2023 , 418, 114129	0
12	CO ₂ -derived edge-boron-doped hierarchical porous carbon catalysts for highly effective electrochemical H ₂ O ₂ production. 2023 , 329, 122557	0
11	N-doping carbon-coated Cu@C(N) nanocapsules synthesized by arc plasma toward high-performance ORR electrocatalyst. 2023 , 948, 169739	0
10	Highly Active Porous Carbon-Supported CoNi Bimetallic Catalysts for Four-Electron Reduction of Oxygen. 2023 , 37, 4026-4037	0
9	Approaches to construct high-performance Mg-air batteries: from mechanism to materials design. 2023 , 11, 7924-7948	0

- 8 Revolutionizing Fuel Cell Efficiency with Non-Metallic Catalysts for Oxygen Reduction Reactions. 9, 49-59 ○
- 7 Facile-prepared Fe/Mn co-doped biochar is an efficient catalyst for mediating the degradation of aqueous ibuprofen via catalytic ozonation. **2023**, 461, 142028 ○
- 6 Synthesis of Boron-Doped Carbon Nanomaterial. **2023**, 16, 1986 1
- 5 Pyrolyzed cobalt hexacyanocobaltate dispersed on reduced-graphene-oxide as an electrocatalyst of the oxygen reduction reaction in an alkaline medium. **2023**, 11, 7286-7298 ○
- 4 Influence of Nitrogen Doping into Carbon on the Activation Barrier of ORR in Alkaline Medium: An Investigation Based on Eyring Analysis. **2023**, 39, 4351-4361 ○
- 3 2D carbon network arranged into high-order 3D nanotube arrays on a flexible microelectrode: integration into electrochemical microbiosensor devices for cancer detection. **2023**, 15, ○
- 2 Enhanced formic acid oxidation with Pd nanoparticles deposited on boron-doped graphene: A comprehensive electrochemical and spectroscopic investigation. **2023**, 18, 100156 ○
- 1 Intrinsic Carbon Structural Imperfections for Enhancing Energy Conversion Electrocatalysts. **2023**, 143060 ○