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Nitrogen-doped carbon nanotube arrays with high electrocatalytic activity for oxygen reduction

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1852	Intrinsically sulfur- and nitrogen-co-doped carbons from thiazolium salts. <b>2012</b> , 18, 15416-23	72
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1135	Solution-processed PEDOT:PSS/graphene composites as the electrocatalyst for oxygen reduction reaction. <b>2014</b> , 6, 3587-93	97
1134	Biosourced nitrogen-doped microcellular carbon monoliths. <b>2014</b> , 7, 397-401	10

1133	N-doped graphitic self-encapsulation for high performance silicon anodes in lithium-ion batteries. <b>2014</b> , 7, 621-626	127
1132	Heterogeneous nanocarbon materials for oxygen reduction reaction. <b>2014</b> , 7, 576	79 <sup>2</sup>
1131	High-performance bi-functional electrocatalysts of 3D crumpled graphenellobalt oxide nanohybrids for oxygen reduction and evolution reactions. <b>2014</b> , 7, 609-616	524
1130	Luminescent graphene quantum dots as new fluorescent materials for environmental and biological applications. <b>2014</b> , 54, 83-102	245
1129	Interaction of multi-walled carbon nanotubes with perfluorinated sulfonic acid ionomers and surface treatment studies. <b>2014</b> , 71, 218-228	27
1128	Hierarchically porous graphene sheets and graphitic carbon nitride intercalated composites for enhanced oxygen reduction reaction. <b>2014</b> , 2, 3209-3215	49
1127	Controllable synthesis of nanotube-type graphitic C3N4 and their visible-light photocatalytic and fluorescent properties. <b>2014</b> , 2, 2885	223
1126	Pt/XC-72 catalysts coated with nitrogen-doped carbon (Pt/XC-72@CN) for methanol electro-oxidation. <b>2014</b> , 144, 17-24	19
1125	Application of carbon materials in redox flow batteries. <b>2014</b> , 253, 150-166	220
1124	Aerobic oxidation of benzyl alcohol to benzaldehyde catalyzed by carbon nanotubes without any promoter. <b>2014</b> , 240, 434-442	80
1123	Facile synthesis of mesoporous nitrogen-doped graphene: An efficient methanol <b>E</b> olerant cathodic catalyst for oxygen reduction reaction. <b>2014</b> , 3, 55-63	169
1122	Facile synthesis of P-doped carbon quantum dots with highly efficient photoluminescence. <b>2014</b> , 4, 5465	148
1121	The effects of catalyst on the morphology and physicochemical properties of nitrogen-doped carbon nanotubes. <b>2014</b> , 116, 289-292	26
1120	Oxygen adsorption on single layer graphyne: a DFT study. <b>2014</b> , 16, 974-80	60
1119	Prussian Blue-Carbon Hybrid as a Non-Precious Electrocatalyst for the Oxygen Reduction Reaction in Alkaline Medium. <b>2014</b> , 119, 92-98	23
1118	Improved electrocatalytic activity of carbon materials by nitrogen doping. <b>2014</b> , 147, 633-641	92
1117	Sulfur-doped graphene as a potential alternative metal-free electrocatalyst and Pt-catalyst supporting material for oxygen reduction reaction. <b>2014</b> , 16, 103-9	185
1116	Oxygen electrocatalysts in metal-air batteries: from aqueous to nonaqueous electrolytes. <b>2014</b> , 43, 7746-86	1073

1115	A polarization rule on atomic arrangements of graphite-like boron carbonitride. <b>2014</b> , 71, 1-10	7
1114	Development of shape-engineered EMnO 2 materials as bi-functional catalysts for oxygen evolution reaction and oxygen reduction reaction in alkaline medium. <b>2014</b> , 39, 21024-21036	88
1113	Microwave-assisted solvothermal preparation of nitrogen and sulfur co-doped reduced graphene oxide and graphene quantum dots hybrids for highly efficient oxygen reduction. <b>2014</b> , 2, 20605-20611	66
1112	Nitrogen-doped graphene-supported Co/CoNx nanohybrid as a highly efficient electrocatalyst for oxygen reduction reaction in an alkaline medium. <b>2014</b> , 4, 62272-62280	12
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1110	Electrochemical performance of binder-free carbon nanotubes with different nitrogen amounts grown on the nickel foam as cathodes in Li <b>D</b> 2 batteries. <b>2014</b> , 2, 18746-18753	41
1109	Nano-intermetallic AuCultatalyst for oxygen reduction reaction: performance and mechanism. <b>2014</b> , 10, 2662-9	50
1108	Selective Hydrogenation of Phenol to Cyclohexanone in Water over Pd@N-Doped Carbon Derived from Ionic-Liquid Precursors. <b>2014</b> , 6, 3328-3332	64
1107	Strongly Coupled Rhodium/Graphene Hybrids for H2O2 Oxidation with Ultra-Low Potential and Enhanced Activity. <b>2014</b> , 1, 1480-1483	4
1106	Electroless Bimetal Decoration on N-Doped Carbon Nanotubes and Graphene for Oxygen Reduction Reaction Catalysts. <b>2014</b> , 31, 965-970	19
1105	Toward Full Exposure of Active Sites: Nanocarbon Electrocatalyst with Surface Enriched Nitrogen for Superior Oxygen Reduction and Evolution Reactivity. <b>2014</b> , 24, 5956-5961	300
1104	Dyeing bacterial cellulose pellicles for energetic heteroatom doped carbon nanofiber aerogels. <b>2014</b> , 7, 1861-1872	84
1103	Sulfur, trace nitrogen and iron codoped hierarchically porous carbon foams as synergistic catalysts for oxygen reduction reaction. <b>2014</b> , 6, 21454-60	53
1102	Nitrogen-Doped Carbon Nanotubes Prepared at Different Temperatures for Oxygen Reduction Reaction. <b>2014</b> , 161, F1140-F1145	12
1101	Ab Initio Study of Thin OxideMetal Overlayers as an Inverse Catalytic System for Dioxygen Reduction and Enhanced CO Tolerance. <b>2014</b> , 4, 4074-4080	40
1100	In Situ XAFS and HAXPES Analysis and Theoretical Study of Cobalt Polypyrrole Incorporated on Carbon (CoPPyC) Oxygen Reduction Reaction Catalysts for Anion-Exchange Membrane Fuel Cells. <b>2014</b> , 118, 25480-25486	18
1099	Stability and spectroscopy of single nitrogen dopants in graphene at elevated temperatures. <b>2014</b> , 8, 11806-15	39
1098	Density Functional Theory Study of Pt3M Alloy Surface Segregation with Adsorbed O/OH and Pt3Os as Catalysts for Oxygen Reduction Reaction. <b>2014</b> , 118, 26703-26712	32

1097	Cathodic catalysts in bioelectrochemical systems for energy recovery from wastewater. <b>2014</b> , 43, 7718-45	185
1096	A novel cathode catalyst for aluminum-air fuel cells: Activity and durability of polytetraphenylporphyrin iron (II) absorbed on carbon black. <b>2014</b> , 39, 20171-20182	33
1095	Carbonization of self-assembled nanoporous hemin with a significantly enhanced activity for the oxygen reduction reaction. <b>2014</b> , 176, 393-408	27
1094	Development of Graphene/CdSe Quantum Dots-Co Phthalocyanine Nanocomposite for Oxygen Reduction Reaction. <b>2014</b> , 26, 2261-2272	14
1093	Iodine-treated heteroatom-doped carbon: conductivity driven electrocatalytic activity. <b>2014</b> , 2, 18115-18124	50
1092	The first principles studies on the reaction pathway of the oxidative dehydrogenation of ethane on the undoped and doped carbon catalyst. <b>2014</b> , 2, 5287	40
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1090	Ab initio assessment of graphene nanoribbons reactivity for molecule adsorption and conductance modulation: nitrogen dioxide nanosensor. <b>2014</b> , 4, 2346-2354	8
1089	Block copolymer-templated nitrogen-enriched nanocarbons with morphology-dependent electrocatalytic activity for oxygen reduction. <b>2014</b> , 5, 3315	37
1088	Synthesis of an efficient heteroatom-doped carbon electro-catalyst for oxygen reduction reaction by pyrolysis of protein-rich pulse flour cooked with SiO2 nanoparticles. <b>2014</b> , 16, 4251-9	40
1087	The role of the central Fe atom in the N4-macrocyclic structure for the enhancement of oxygen reduction reaction in a heteroatom nitrogen-carbon nanosphere. <b>2014</b> , 16, 14905-11	51
1086	A high-performance electrocatalyst for oxygen reduction based on reduced graphene oxide modified with oxide nanoparticles, nitrogen dopants, and possible metal-N-C sites. <b>2014</b> , 2, 1631-1635	41
1085	Electrocatalytic activity for the oxygen reduction reaction of oxygen-containing nanocarbon synthesized by solution plasma. <b>2014</b> , 2, 10589	53
1084	Metal (metal = Fe, Co), N codoped nanoporous carbon for efficient electrochemical oxygen reduction. <b>2014</b> , 4, 37779-37785	20
1083	Nitrogen-doped activated carbon with micrometer-scale channels derived from luffa sponge fibers as electrocatalysts for oxygen reduction reaction with high stability in acidic media. <b>2014</b> , 149, 56-64	53
1082	Electrodeposited Ultrafine TaOx/CB Catalysts for PEFC Cathode Application: Their Oxygen Reduction Reaction Kinetics. <b>2014</b> , 149, 76-85	15
1081	CN and CP bond formation via cross dehydrative coupling reaction: an efficient synthesis of novel 3,4-dihydroquinazolines. <b>2014</b> , 4, 55884-55888	14
1080	Non-nitrogen doped and non-metal oxygen reduction electrocatalysts based on carbon nanotubes: mechanism and origin of ORR activity. <b>2014</b> , 7, 1950-1958	107

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1078	Synthesis of Cu9S8/carbon nanotube nanocomposites with high electrocatalytic activity for the oxygen reduction reaction. <b>2014</b> , 2, 11899	20
1077	N-doped mesoporous carbon spheres as the oxygen reduction reaction catalysts. <b>2014</b> , 2, 18139-18146	168
1076	Microwave assisted synthesis and characterization of silicon and phosphorous co-doped carbon as an electrocatalyst for oxygen reduction reaction. <b>2014</b> , 4, 6306	27
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1074	Ultrasound mediated synthesis of the minophosphonates and 3,4-dihydropyrimidin-2-ones using graphene oxide as a recyclable catalyst under solvent-free conditions. <b>2014</b> , 4, 45831-45837	19
1073	Nitrogen-doped porous carbon nanosheets made from biomass as highly active electrocatalyst for oxygen reduction reaction. <b>2014</b> , 272, 8-15	167
1072	Facile preparation of modified carbon black-LaMnO3 hybrids and the effect of covalent coupling on the catalytic activity for oxygen reduction reaction. <b>2014</b> , 35, 1173-1188	28
1071	Metal-free Ketjenblack incorporated nitrogen-doped carbon sheets derived from gelatin as oxygen reduction catalysts. <b>2014</b> , 14, 1870-6	134
1070	Hierarchically porous carbons with optimized nitrogen doping as highly active electrocatalysts for oxygen reduction. <b>2014</b> , 5, 4973	808
1069	Nanocarbon-based electrochemical systems for sensing, electrocatalysis, and energy storage. <b>2014</b> , 9, 405-432	81
1068	Nitrogen-doped hierarchically porous carbon as efficient oxygen reduction electrocatalysts in acid electrolyte. <b>2014</b> , 2, 17047-17057	57
1067	Nitrogen-doped mesoporous carbon hollow spheres as a novel carbon support for oxygen reduction reaction. <b>2014</b> , 38, 5521-5526	17
1066	A promising monolayer membrane for oxygen separation from harmful gases: nitrogen-substituted polyphenylene. <b>2014</b> , 6, 9960-4	47
1065	Mesoporous graphene-like carbon sheet: high-power supercapacitor and outstanding catalyst support. <b>2014</b> , 2, 12262-12269	69
1064	Hollow nitrogen-doped carbon spheres as efficient and durable electrocatalysts for oxygen reduction. <b>2014</b> , 50, 9473-6	82
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1062	A high-performance electrocatalytic air cathode derived from aniline and iron for use in microbial fuel cells. <b>2014</b> , 4, 12789-12794	10

1061	Particle size dependence on oxygen reduction reaction activity of electrodeposited TaO(x) catalysts in acidic media. <b>2014</b> , 16, 895-8	30
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1057	Salt-confinement enables production of nitrogen-doped porous carbons in an air oven. <b>2014</b> , 4, 37714-37720	7
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1055	Submerged liquid plasma llow energy synthesis of nitrogen-doped graphene for electrochemical applications. <b>2014</b> , 2, 3332-3337	45
1054	Well-defined carbon polyhedrons prepared from nano metalBrganic frameworks for oxygen reduction. <b>2014</b> , 2, 11606-11613	384
1053	Boron-doped carbon-iron nanocomposites as efficient oxygen reduction electrocatalysts derived from carbon dioxide. <b>2014</b> , 50, 6349-52	36
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1052	From two-dimension to one-dimension: the curvature effect of silicon-doped graphene and carbon nanotubes for oxygen reduction reaction. <b>2014</b> , 16, 17479-86	340 42
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1042	Growth of metal-catalyst-free nitrogen-doped metallic single-wall carbon nanotubes. <b>2014</b> , 6, 12065-70	20
1041	Post modification of MOF derived carbon via g-C3N4 entrapment for an efficient metal-free oxygen reduction reaction. <b>2014</b> , 50, 3363-6	132
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1037	Mesoporous carbon material co-doped with nitrogen and iron (FeNII): high-performance cathode catalyst for oxygen reduction reaction in alkaline electrolyte. <b>2014</b> , 2, 8617-8622	80
1036	2D polyacrylonitrile brush derived nitrogen-doped carbon nanosheets for high-performance electrocatalysts in oxygen reduction reaction. <b>2014</b> , 5, 2057-2064	49
1035	Nitrogen-enriched carbon from bamboo fungus with superior oxygen reduction reaction activity. <b>2014</b> , 2, 18263-18270	63
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1033	Ordered hierarchically porous carbon codoped with iron and nitrogen as electrocatalyst for the oxygen reduction reaction. <b>2014</b> , 7, 3435-41	15
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1030	Synthesis and characterization of Mn-based composite oxides with enhanced electrocatalytic activity for oxygen reduction. <b>2014</b> , 2, 13345-13351	16
1029	Polypyrrole-derived nitrogen and oxygen co-doped mesoporous carbons as efficient metal-free electrocatalyst for hydrazine oxidation. <b>2014</b> , 26, 6510-6	97
1028	Electrocatalysis of oxygen reduction on carbon nanotubes with different surface functional groups in acid and alkaline solutions. <b>2014</b> , 39, 16964-16975	26
1027	Non-precious electrocatalysts synthesized from metal Brganic frameworks. <b>2014</b> , 2, 12270	64
1026	Mechanistic Studies of Electrode-Assisted Catalytic Oxidation by Flavinium and Acridinium Cations. <b>2014</b> , 4, 2635-2644	13

1025	The selective formation of graphene ranging from two-dimensional sheets to three-dimensional mesoporous nanospheres. <b>2014</b> , 6, 7204-8	9
1024	Platinum and palladium nanotubes based on genetically engineered elastin-mimetic fusion protein-fiber templates: synthesis and application in lithium-Olbatteries. <b>2014</b> , 9, 2555-9	7
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1022	Substitutional doping of carbon nanotubes with heteroatoms and their chemical applications. <b>2014</b> , 7, 1240-50	58
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1020	ZIF-derived in situ nitrogen-doped porous carbons as efficient metal-free electrocatalysts for oxygen reduction reaction. <b>2014</b> , 7, 442-450	634
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1018	Hybrid electrolyte Li-air rechargeable batteries based on nitrogen- and phosphorus-doped graphene nanosheets. <b>2014</b> , 4, 13119-13122	16
1017	Nitrogen-doped nanoporous carbon nanosheets derived from plant biomass: an efficient catalyst for oxygen reduction reaction. <b>2014</b> , 7, 4095-4103	476
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1012	Selective Allylic Oxidation of Cyclohexene Catalyzed by Nitrogen-Doped Carbon Nanotubes. <b>2014</b> , 4, 1617-1625	111
1011	Design and synthesis of heteroatoms doped carbon/polyaniline hybrid material for high performance electrode in supercapacitor application. <b>2014</b> , 146, 242-248	82
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1007	One-step hydrothermal synthesis of nitrogen-doped carbon nanotubes as an efficient electrocatalyst for oxygen reduction reactions. <b>2014</b> , 9, 2915-20	14
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995	Oxygen Reduction Reaction in a Droplet on Graphite: Direct Evidence that the Edge Is More Active than the Basal Plane. <b>2014</b> , 126, 10980-10984	88
994	Corn protein-derived nitrogen-doped carbon materials with oxygen-rich functional groups: a highly efficient electrocatalyst for all-vanadium redox flow batteries. <b>2014</b> , 7, 3727-3735	184
993	Vertically aligned N-doped coral-like carbon fiber arrays as efficient air electrodes for high-performance nonaqueous Li-O2 batteries. <b>2014</b> , 8, 3015-22	219
992	NADH dehydrogenase-like behavior of nitrogen-doped graphene and its application in NAD(+)-dependent dehydrogenase biosensing. <b>2014</b> , 62, 170-6	33
991	Electrocatalytic activities of alkyne-functionalized copper nanoparticles in oxygen reduction in alkaline media. <b>2014</b> , 268, 469-475	25
990	A facile method of synthesizing uniform resin colloidal and microporous carbon spheres with high nitrogen content. <b>2014</b> , 431, 132-8	16

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98.	Oxidation of Ethylbenzene to Acetophenone with N-Doped Graphene: Insight from Theory. <b>2014</b> , 118, 12275-12284	31
98	Strongly Veined Carbon Nanoleaves as a Highly Efficient Metal-Free Electrocatalyst. <b>2014</b> , 126, 7025-7029	43
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97:	Mn3O4/Carbon Nanotube Nanocomposites as Electrocatalysts for the Oxygen Reduction Reaction in Alkaline Solution. <b>2014</b> , 1, 1531-1536	16
97 <sup>5</sup>	A self-sponsored doping approach for controllable synthesis of S and N co-doped trimodal-porous structured graphitic carbon electrocatalysts. <b>2014</b> , 7, 3720-3726	180
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97.	One-step synthesis of nitrogen-doped microporous carbon materials as metal-free electrocatalysts for oxygen reduction reaction. <b>2014</b> , 2, 11666-11671	70
97.	Nanoscale electrocatalysis: visualizing oxygen reduction at pristine, kinked, and oxidized sites on individual carbon nanotubes. <b>2014</b> , 136, 11252-5	113
97.	Oxygen Reduction on Graphenellarbon Nanotube Composites Doped Sequentially with Nitrogen and Sulfur. <b>2014</b> , 4, 2734-2740	145
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970	SnO2-embedded worm-like carbon nanofibers supported Pt nanoparticles for oxygen reduction reaction. <b>2014</b> , 141, 13-19	24
969	Hierarchically porous N-doped carbon nanoflakes: Large-scale facile synthesis and application as an oxygen reduction reaction electrocatalyst with high activity. <b>2014</b> , 78, 60-69	43
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967	Nitrogen-doped graphdiyne as a metal-free catalyst for high-performance oxygen reduction reactions. <b>2014</b> , 6, 11336-43	188
966	Possible Oxygen Reduction Reactions for Graphene Edges from First Principles. <b>2014</b> , 118, 17616-17625	46
965	Synthesis of iron oxide/partly graphitized carbon composites as a high-efficiency and low-cost cathode catalyst for microbial fuel cells. <b>2014</b> , 6, 13438-47	53
964	Small-sized and high-dispersed WN from [SiO4(W3O9)4]4[clusters loading on GO-derived graphene as promising carriers for methanol electro-oxidation. <b>2014</b> , 7, 1939-1949	111
963	Effect of N-doping of single-walled carbon nanotubes on bioelectrocatalysis of laccase. <b>2014</b> , 86, 5053-60	15
962	Combination of carbon nitride and carbon nanotubes: synergistic catalysts for energy conversion. <b>2014</b> , 7, 2303-9	71
961	Earth-abundant inorganic electrocatalysts and their nanostructures for energy conversion applications. <b>2014</b> , 7, 3519-3542	976
960	Sulfur-doped porous reduced graphene oxide hollow nanosphere frameworks as metal-free electrocatalysts for oxygen reduction reaction and as supercapacitor electrode materials. <b>2014</b> , 6, 13740-7	159
959	Fe-N decorated hybrids of CNTs grown on hierarchically porous carbon for high-performance oxygen reduction. <b>2014</b> , 26, 6074-9	439
958	Nitrogen-doped carbon-based dots prepared by dehydrating EDTA with hot sulfuric acid and their electrocatalysis for oxygen reduction reaction. <b>2014</b> , 4, 32791-32795	25
957	Molecular doping of graphene as metal-free electrocatalyst for oxygen reduction reaction. <b>2014</b> , 50, 10672-5	73
956	Recent advances of doped carbon as non-precious catalysts for oxygen reduction reaction. <b>2014</b> , 2, 15704-15	71%
955	One-pot synthesis of a nitrogen and phosphorus-dual-doped carbon nanotube array as a highly effective electrocatalyst for the oxygen reduction reaction. <b>2014</b> , 2, 15448-15453	44
954	Boron Doped Multi-walled Carbon Nanotubes as Catalysts for Oxygen Reduction Reaction and Oxygen Evolution Reactionin in Alkaline Media. <b>2014</b> , 143, 291-296	102

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953	Significant promotion effect of carbon nanotubes on the electrocatalytic activity of supported Pd NPs for ethanol oxidation reaction of fuel cells: the role of inner tubes. <b>2014</b> , 50, 13732-4	29
952	A green one-arrow-two-hawks strategy for nitrogen-doped carbon dots as fluorescent ink and oxygen reduction electrocatalysts. <b>2014</b> , 2, 6320	118
951	Palladium nanoparticle decorated high nitrogen-doped graphene with high catalytic activity for SuzukiMiyaura and Ullmann-type coupling reactions in aqueous media. <b>2014</b> , 488, 265-274	66
950	MetalBrganic framework templated nitrogen and sulfur co-doped porous carbons as highly efficient metal-free electrocatalysts for oxygen reduction reactions. <b>2014</b> , 2, 6316-6319	156
949	Highly Selective Two-Electron Oxygen Reduction Catalyzed by Mesoporous Nitrogen-Doped Carbon. <b>2014</b> , 4, 3749-3754	256
948	Electrochemical activation of pristine single walled carbon nanotubes: impact on oxygen reduction and other surface sensitive redox processes. <b>2014</b> , 16, 9966-73	8
947	Metal-free ionic liquid-derived electrocatalyst for high-performance oxygen reduction in acidic and alkaline electrolytes. <b>2014</b> , 1, 588-594	63
946	Residual metallic impurities within carbon nanotubes play a dominant role in supposedly "metal-free" oxygen reduction reactions. <b>2014</b> , 50, 12662-4	52
945	Nitrogen-doped carbon nanotubes and graphene composite structures for energy and catalytic applications. <b>2014</b> , 50, 6818-30	361
944	Solid-phase synthesis of highly fluorescent nitrogen-doped carbon dots for sensitive and selective probing ferric ions in living cells. <b>2014</b> , 86, 9846-52	378
943	Metal-nitrogen doping of mesoporous carbon/graphene nanosheets by self-templating for oxygen reduction electrocatalysts. <b>2014</b> , 7, 3002-6	49
942	N-, O-, and S-tridoped nanoporous carbons as selective catalysts for oxygen reduction and alcohol oxidation reactions. <b>2014</b> , 136, 13554-7	271
941	Unique Configuration of a Nitrogen-Doped Graphene Nanoribbon: Potential Applications to Semiconductor and Hydrogen Fuel Cell. <b>2014</b> , 118, 24723-24729	8
940	Edge-iodine/sulfonic acid-functionalized graphene nanoplatelets as efficient electrocatalysts for oxygen reduction reaction. <b>2014</b> , 2, 8690-8695	39
939	Mechanism of Enhanced Carbon Cathode Performance by Nitrogen Doping in LithiumBulfur Battery: An X-ray Absorption Spectroscopic Study. <b>2014</b> , 118, 7765-7771	93
938	Tubular bamboo charcoal for anode in microbial fuel cells. <b>2014</b> , 272, 277-282	60
937	Density-Functional-Theory Calculation Analysis of Active Sites for Four-Electron Reduction of O2 on Fe/N-Doped Graphene. <b>2014</b> , 4, 4170-4177	168
936	Thermally-induced desulfurization and conversion of guanidine thiocyanate into graphitic carbon nitride catalysts for hydrogen photosynthesis. <b>2014</b> , 2, 2942	156

935	Metal-organic framework derived hybrid Co3O4-carbon porous nanowire arrays as reversible oxygen evolution electrodes. <b>2014</b> , 136, 13925-31	1512
934	Fabrication of graphene-supported tetraferrocenylporphyrin electrocatalyst for oxygen reduction and its unique electrochemical response in both alkaline and acid media. <b>2014</b> , 18, 2743-2753	10
933	Mechanical exfoliation of graphite in 1-butyl-3-methylimidazolium hexafluorophosphate (BMIM-PF6) providing graphene nanoplatelets that exhibit enhanced electrocatalysis. <b>2014</b> , 271, 312-325	7
932	Carbon Composite Cathode Catalysts for Alkaline PEM Fuel Cells. <b>2014</b> , 319-356	2
931	Recent progress on nitrogen/carbon structures designed for use in energy and sustainability applications. <b>2014</b> , 7, 1212-1249	487
930	Non-precious Metal Oxides and Metal Carbides for ORR in Alkaline-Based Fuel Cells. <b>2014</b> , 357-388	5
929	Flexible nitrogen-doped graphene/carbon nanotube/Co3O4 paper and its oxygen reduction activity. <b>2014</b> , 6, 7534-41	72
928	Modified Carbon Materials for O2 Reduction Reaction Electrocatalysts in Acid PEM Fuel Cells. <b>2014</b> , 119-156	3
927	Effects of organic additives with oxygen- and nitrogen-containing functional groups on the negative electrolyte of vanadium redox flow battery. <b>2014</b> , 130, 314-321	34
926	One-pot synthesis of nitrogen and sulfur co-doped graphene as efficient metal-free electrocatalysts for the oxygen reduction reaction. <b>2014</b> , 50, 4839-42	266
925	Nitrogen-doped graphene nanoribbons as efficient metal-free electrocatalysts for oxygen reduction. <b>2014</b> , 6, 4214-22	138
924	Structurally-Tuned Nitrogen-Doped Cerium Oxide Exhibits Exceptional Regenerative Free Radical Scavenging Activity in Polymer Electrolytes. <b>2014</b> , 161, F1-F9	27
923	Direct synthesis of Fe3 C-functionalized graphene by high temperature autoclave pyrolysis for oxygen reduction. <b>2014</b> , 7, 2099-103	39
922	Observation of active sites for oxygen reduction reaction on nitrogen-doped multilayer graphene. <b>2014</b> , 8, 6856-62	445
921	Graphdiyne as a metal-free catalyst for low-temperature CO oxidation. <b>2014</b> , 16, 5640-8	89
920	Electrocatalysts for Acid Proton Exchange Membrane (PEM) Fuel Cells 🗈 Overview. <b>2014</b> , 1-28	1
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918	A bifunctional oxygen electrocatalyst from monodisperse MnCo2O4 nanoparticles on nitrogen enriched carbon nanofibers. <b>2014</b> , 4, 25089-25092	34

917	A comparison of N-containing carbon nanostructures (CN) and N-coordinated ironBarbon catalysts (FeNC) for the oxygen reduction reaction in acidic media. <b>2014</b> , 317, 30-43	84
916	High-Performance Doped Carbon Catalyst Derived from Nori Biomass with Melamine Promoter. <b>2014</b> , 138, 353-359	72
915	Tailored design of functional nanoporous carbon materials toward fuel cell applications. 2014, 9, 305-323	230
914	One-pot green synthesis of high quantum yield oxygen-doped, nitrogen-rich, photoluminescent polymer carbon nanoribbons as an effective fluorescent sensing platform for sensitive and selective detection of silver(I) and mercury(II) ions. <b>2014</b> , 86, 7436-45	117
913	The key role of metal dopants in nitrogen-doped carbon xerogel for oxygen reduction reaction. <b>2014</b> , 269, 225-235	63
912	Mesoporous Mn3O4LoO corelhell spheres wrapped by carbon nanotubes: a high performance catalyst for the oxygen reduction reaction and CO oxidation. <b>2014</b> , 2, 3794	73
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910	Active catalysts based on cobalt oxide@cobalt/N-C nanocomposites for oxygen reduction reaction in alkaline solutions. <b>2014</b> , 7, 1054-1064	65
909	Highly active nitrogen-doped few-layer graphene/carbon nanotube composite electrocatalyst for oxygen reduction reaction in alkaline media. <b>2014</b> , 73, 361-370	226
908	Hollow spheres of iron carbide nanoparticles encased in graphitic layers as oxygen reduction catalysts. <b>2014</b> , 53, 3675-9	719
907	Facile one-step room-temperature synthesis of Mn-based spinel nanoparticles for electro-catalytic oxygen reduction. <b>2014</b> , 4, 4727-4731	23
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905	Facile and green synthesis of a surfactant-free Au clusters/reduced graphene oxide composite as an efficient electrocatalyst for the oxygen reduction reaction. <b>2014</b> , 2, 13682	32
904	Nitrogen-doped carbon nanotubes decorated silicon carbide as a metal-free catalyst for partial oxidation of H2S. <b>2014</b> , 482, 397-406	42
903	Intrinsic relationship between enhanced oxygen reduction reaction activity and nanoscale work function of doped carbons. <b>2014</b> , 136, 8875-8	273
902	Modification of a glassy carbon electrode with a bilayer of multiwalled carbon nanotube/benzene disulfonate-doped polypyrrole: application to sensitive voltammetric determination of olanzapine. <b>2014</b> , 4, 40553-40560	9
901	Carbon black/sulfur-doped graphene composite prepared by pyrolysis of graphene oxide with sodium polysulfide for oxygen reduction reaction. <b>2014</b> , 142, 51-60	26
900	High-rate oxygen electroreduction over graphitic-N species exposed on 3D hierarchically porous nitrogen-doped carbons. <b>2014</b> , 53, 9503-7	316

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898	The performance of phosphorus (P)-doped activated carbon as a catalyst in air-cathode microbial fuel cells. <b>2014</b> , 170, 379-384	52
897	Graphene quantum dots cut from graphene flakes: high electrocatalytic activity for oxygen reduction and low cytotoxicity. <b>2014</b> , 4, 23097-23106	51
896	Role of Cu-Ion Doping in Cu-EMnO2 Nanowire Electrocatalysts for the Oxygen Reduction Reaction. <b>2014</b> , 118, 17342-17350	96
895	Iron-nitrogen-doped mesoporous tungsten carbide nanostructures as oxygen reduction electrocatalysts. <b>2014</b> , 16, 14644-50	25
894	Hierarchical CarbonNitrogen Architectures with Both Mesopores and Macrochannels as Excellent Cathodes for Rechargeable LiD2 Batteries. <b>2014</b> , 24, 6826-6833	145
893	N-doped graphene: an alternative carbon-based matrix for highly efficient detection of small molecules by negative ion MALDI-TOF MS. <b>2014</b> , 86, 9122-30	94
892	Hydrothermal synthesis of vanadium nitride and modulation of its catalytic performance for oxygen reduction reaction. <b>2014</b> , 6, 9608-13	77
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885	Abiotic Oxygen Reduction Reaction Catalysts Used in Microbial Fuel Cells. <b>2014</b> , 1, 1813-1821	96
884	Cobalt-Embedded Nitrogen-Rich Carbon Nanotubes Efficiently Catalyze Hydrogen Evolution Reaction at All pH Values. <b>2014</b> , 126, 4461-4465	328
883	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. <b>2014</b> , 272, 267-276	59
882	Fabrication of 2D ordered mesoporous carbon nitride and its use as electrochemical sensing platform for H2O2, nitrobenzene, and NADH detection. <b>2014</b> , 53, 250-6	131

881	Highly Efficient Metal-Free Sulfur-Doped and Nitrogen and Sulfur Dual-Doped Reduced Graphene Oxide Counter Electrodes for Dye-Sensitized Solar Cells. <b>2014</b> , 118, 17010-17018	53
880	A facile and general approach for the direct fabrication of 3D, vertically aligned carbon nanotube array/transition metal oxide composites as non-Pt catalysts for oxygen reduction reactions. <b>2014</b> , 26, 3156-61	68
879	Graphene-supported nanoelectrocatalysts for fuel cells: synthesis, properties, and applications. <b>2014</b> , 114, 5117-60	790
878	Direct Synthesis of Nitrogen-Doped Carbon Materials from Protic Ionic Liquids and Protic Salts: Structural and Physicochemical Correlations between Precursor and Carbon. <b>2014</b> , 26, 2915-2926	130
877	Pyrolyzing cobalt diethylenetriamine chelate on carbon (CoDETA/C) as a family of non-precious metal oxygen reduction catalyst. <b>2014</b> , 39, 267-276	28
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875	The Impact of Loading and Temperature on the Oxygen Reduction Reaction at Nitrogen-doped Carbon Nanotubes in Alkaline Medium. <b>2014</b> , 129, 47-54	32
874	Selected Topics on the Synthesis, Properties and Applications of Multiwalled Carbon Nanotubes. <b>2014</b> , 42, 49-57	28
873	Activated nitrogen-doped carbon nanofibers with hierarchical pore as efficient oxygen reduction reaction catalyst for microbial fuel cells. <b>2014</b> , 266, 36-42	102
872	Porous nitrogen-doped carbon vegetable-sponges with enhanced lithium storage performance. <b>2014</b> , 69, 515-524	91
871	Structure and electronic states of single-wall carbon nanohorns prepared under nitrogen atmosphere. <b>2014</b> , 75, 322-326	18
870	No cytotoxic nitrogen-doped carbon nanotubes as efficient metal-free electrocatalyst for oxygen reduction in fuel cells. <b>2014</b> , 30, 21-25	8
869	High oxygen reduction activity of few-walled carbon nanotubes with low nitrogen content. <b>2014</b> , 158-159, 233-241	56
868	Heteroatom-doped carbon nanorods with improved electrocatalytic activity toward oxygen reduction in an acidic medium. <b>2014</b> , 69, 132-141	40
867	Influence of pyrolyzing atmosphere on the catalytic activity and structure of Co-based catalysts for oxygen reduction reaction. <b>2014</b> , 115, 1-9	12
866	Highly efficient cathode catalyst layer based on nitrogen-doped carbon nanotubes for the alkaline direct methanol fuel cell. <b>2014</b> , 156-157, 341-349	28
865	Carbon-supported Co-phthalocyanine modified with pyridine, 2-acid pyridine and 2-methyl pyridine as novel cathode catalysts for alkaline PEM fuel cells. <b>2014</b> , 390, 69-75	13
864	Heteroatom doped mesoporous carbon/graphene nanosheets as highly efficient electrocatalysts for oxygen reduction. <b>2014</b> , 421, 160-4	23

863	Hierarchical porous carbons by liquid phase impregnation of zeolite templates with lignin solution. <b>2014</b> , 196, 68-78	42
862	Electrocatalytic Activity of Carbonized Nanostructured Polyanilines for Oxidation Reactions: Sensing of Nitrite Ions and Ascorbic Acid. <b>2014</b> , 120, 147-158	27
861	Iron tetrasulfophthalocyanine functionalized graphene nanosheets for oxygen reduction reaction in alkaline media. <b>2014</b> , 130, 543-550	19
860	Synthesis of nitrogen-doped multilayer graphene from milk powder with melamine and their application to fuel cells. <b>2014</b> , 76, 1-9	51
859	Influence of pre-treatment on the catalytic activity of carbon and its Co-based catalyst for oxygen reduction reaction. <b>2014</b> , 39, 3198-3210	11
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857	A co-pyrolysis route to synthesize nitrogen doped multiwall carbon nanotubes for oxygen reduction reaction. <b>2014</b> , 68, 232-239	30
856	Luminescence properties of boron and nitrogen doped graphene quantum dots prepared from arc-discharge-generated doped graphene samples. <b>2014</b> , 595-596, 203-208	142
855	Soybean-derived mesoporous carbon as an effective catalyst support for electrooxidation of methanol. <b>2014</b> , 248, 427-433	46
854	A novel nitrogen-containing electrocatalyst for oxygen reduction reaction from blood protein pyrolysis. <b>2014</b> , 245, 841-845	61
853	Synthesizing nitrogen-doped activated carbon and probing its active sites for oxygen reduction reaction in microbial fuel cells. <b>2014</b> , 6, 7464-70	138
852	Synthesis of nitrogen- and sulfur-codoped 3D cubic-ordered mesoporous carbon with superior performance in supercapacitors. <b>2014</b> , 6, 2657-65	152
851	Three-dimensional porous supramolecular architecture from ultrathin g-C(3)N(4) nanosheets and reduced graphene oxide: solution self-assembly construction and application as a highly efficient metal-free electrocatalyst for oxygen reduction reaction. <b>2014</b> , 6, 1011-7	210
850	New methods of synthesis and varied properties of carbon quantum dots with high nitrogen content. <b>2014</b> , 29, 383-391	41
849	Hybrid of Iron Nitride and Nitrogen-Doped Graphene Aerogel as Synergistic Catalyst for Oxygen Reduction Reaction. <b>2014</b> , 24, 2930-2937	348
848	Catalytic Mechanisms of Sulfur-Doped Graphene as Efficient Oxygen Reduction Reaction Catalysts for Fuel Cells. <b>2014</b> , 118, 3545-3553	316
847	Highly efficient non-precious metal electrocatalysts prepared from one-pot synthesized zeolitic imidazolate frameworks. <b>2014</b> , 26, 1093-7	270
846	Nitrogen and phosphorus dual-doped hierarchical porous carbon foams as efficient metal-free electrocatalysts for oxygen reduction reactions. <b>2014</b> , 20, 3106-12	169

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845	Facile one-pot, one-step synthesis of a carbon nanoarchitecture for an advanced multifunctonal electrocatalyst. <b>2014</b> , 53, 6496-500	155
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843	Synthesis, characterization and magnetic properties of Co@Au core-shell nanoparticles encapsulated by nitrogen-doped multiwall carbon nanotubes. <b>2014</b> , 77, 722-737	21
842	NMR Chemical Shifts of 15N-Bearing Graphene. <b>2014</b> , 118, 13929-13935	10
841	Preparation of Nitrogen-Doped Porous Carbon Nanofibers and the Effect of Porosity, Electrical Conductivity, and Nitrogen Content on Their Oxygen Reduction Performance. <b>2014</b> , 6, n/a-n/a	23
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839	Polydopamine and its derivative materials: synthesis and promising applications in energy, environmental, and biomedical fields. <b>2014</b> , 114, 5057-115	3034
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837	Energetic carbon-based hybrids: green and facile synthesis from soy milk and extraordinary electrocatalytic activity towards ORR. <b>2014</b> , 6, 2964-70	49
836	Density functional theory study of the oxygen reduction reaction mechanism in a BN co-doped graphene electrocatalyst. <b>2014</b> , 2, 10273	76
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834	Solution plasma synthesis process of tungsten carbide on N-doped carbon nanocomposite with enhanced catalytic ORR activity and durability. <b>2014</b> , 4, 16813	40
833	A novel Pt/CeO2 catalyst coated with nitrogen-doped carbon with excellent performance for DMFCs. <b>2014</b> , 2, 4038	49
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831	Electrochemical performance of electrospun free-standing nitrogen-doped carbon nanofibers and their application for glucose biosensing. <b>2014</b> , 6, 6275-80	48
830	Preparation of Mn-N-C catalyst and its electrocatalytic activity for the oxygen reduction reaction in alkaline medium. <b>2014</b> , 42, 467-475	13
829	Nitrogen-doped carbon nanotubes on silicon carbide as a metal-free catalyst. <b>2014</b> , 35, 906-913	28
828	Solution phase synthesis of halogenated graphene and the electrocatalytic activity for oxygen reduction reaction. <b>2014</b> , 35, 884-890	19

827	Electrocatalytic activity of carbon nanoparticles from diffusion flame towards oxygen reduction. <b>2014</b> , 136, 176-181	8
826	Recent advances in zinc-air batteries. <b>2014</b> , 43, 5257-75	1484
825	N-Doped Hierarchical Hollow Mesoporous Carbon as Metal-Free Cathode for Dye-Sensitized Solar Cells. <b>2014</b> , 118, 16694-16702	44
824	Electrocatalytic activity of various types of h-BN for the oxygen reduction reaction. <b>2014</b> , 16, 13755-61	45
823	Boron nitride nanosheet on gold as an electrocatalyst for oxygen reduction reaction: theoretical suggestion and experimental proof. <b>2014</b> , 136, 6542-5	203
822	One-Step Production of Sulfur and Nitrogen Co-doped Graphitic Carbon for Oxygen Reduction: Activation Effect of Oxidized Sulfur and Nitrogen. <b>2014</b> , 6, n/a-n/a	7
821	Gently reduced graphene oxide incorporated into cobalt oxalate rods as bifunctional oxygen electrocatalyst. <b>2014</b> , 140, 404-411	34
820	First-principles study of single atom adsorption on capped single-walled carbon nanotubes. <b>2014</b> , 39, 10161-10168	9
819	High-performance doped carbon electrocatalyst derived from soybean biomass and promoted by zinc chloride. <b>2014</b> , 39, 10128-10134	43
818	Low temperature thermal treatment of hexamethylenetetramine to synthesize nitrogen-doped carbon for non-enzymatic H2O2 sensing. <b>2014</b> , 201, 240-245	11
817	Manganese monoxide nanoparticles adhered to mesoporous nitrogen-doped carbons for nonaqueous lithiumBxygen batteries. <b>2014</b> , 267, 20-25	30
816	Preparation of ordered mesoporous WO3IIiO2 films and their performance as functional Pt supports for synergistic photo-electrocatalytic methanol oxidation. <b>2014</b> , 248, 510-516	31
815	Electronic structure and surface reactivity of BC3 nanotubes from first-principle calculations. <b>2014</b> , 25, 187-195	6
814	Nanowire Electrodes for Advanced Lithium Batteries. <b>2014</b> , 2,	16
813	Nitrogen and Chlorine Dual-doped Mesoporous Carbon as Efficient Nonprecious Electrocatalyst for Oxygen Reduction Reaction Both in Alkaline and Acidic Electrolytes. <b>2014</b> , 43, 1484-1486	9
812	How Nanotechnologies Can Enhance Sustainability in the Agrifood Sector. <b>2014</b> , 74-93	2
811	Highly Efficient Electrocatalysts for Oxygen Reduction Based on 2D Covalent Organic Polymers Complexed with Non-precious Metals. <b>2014</b> , 126, 2465-2469	47
810	Hollow Spheres of Iron Carbide Nanoparticles Encased in Graphitic Layers as Oxygen Reduction Catalysts. <b>2014</b> , 126, 3749-3753	106

809	Solution Plasma Synthesis of Nitrogen-Doped Carbon Nanoballs as Effective Metal-Free Electrocatalysts for Oxygen Reduction Reaction. <b>2014</b> , 1641, 1	1
808	An In Situ Source-Template-Interface Reaction Route to 3D Nitrogen-Doped Hierarchical Porous Carbon as Oxygen Reduction Electrocatalyst. <b>2015</b> , 2, 1500199	38
807	From Cyano-aromatic Molecules to Nitrogen-doped Carbons by Solution Plasma for the Oxygen Reduction Reaction in Alkaline Medium. <b>2015</b> , 2, 4302-4308	5
806	Advanced Materials for LiAir Rechargeable Batteries. <b>2015</b> , 183-210	
805	Future Catalyst Approaches for Electrochemical Energy Storage and Conversion. <b>2015</b> , 55-75	
804	Electrocatalytic activity of a nitrogen-enriched mesoporous carbon framework and its hybrids with metal nanoparticles fabricated through the pyrolysis of block copolymers. <b>2015</b> , 5, 105760-105773	7
803	Stochastic Events in Nanoelectrochemical Systems. <b>2015</b> , 256-307	
802	Spectroscopic Analysis of Nanocarbon-Based non-precious Metal Catalyst for ORR. <b>2015</b> , 117-148	
801	- Different Functionalization Methods of Carbon-Based Nanomaterials. <b>2015</b> , 54-83	
800	Nanocarbon-Based Hybrids as Cathode Electrocatalysts for Microbial Fuel Cells. <b>2015</b> , 215-232	
799	Heteroatom-Doped Nanoporous Carbon for Electrocatalysis. 2015, 43-74	
798	Nanocarbon-Based Nonprecious-Metal Electrocatalysts for Oxygen Reduction in Various Electrolytes. <b>2015</b> , 75-116	
797	Dynamic graphene filters for selective gas-water-oil separation. <b>2015</b> , 5, 14321	41
796	New Nanoscale Material: Graphene Quantum Dots. <b>2015</b> , 141-194	3
795	Carbon- and Nitrogen-Based Porous Solids: A Recently Emerging Class of Materials. <b>2015</b> , 88, 386-398	103
794	Use of a borocarbonitrideIron pthalocyanine composite in ORR. <b>2015</b> , 4, 3-8	1
793	Reassembly of Exfoliated ⊠rP Nanosheets and Cobalt Porphyrin Used as an Oxygen Sensor. <b>2015</b> , 44, 1345-1346	2
792	Single-Walled Carbon Nanotubes: Functionalization by Intercalation. <b>2015</b> , 1-24	

791	High Performance Heteroatoms Quaternary-doped Carbon Catalysts Derived from Shewanella Bacteria for Oxygen Reduction. <b>2015</b> , 5, 17064	47
790	One-Dimensional Nanostructure-Enhanced Catalysis. <b>2015</b> , 1-29	
789	Electro-Catalytic Oxygen Reduction Activity of Graphene-Covered Nickel Particles Prepared by Microwave-assisted Catalytic Decomposition. <b>2015</b> , 83, 339-341	4
788	Carbon Alloy Catalysts for Polymer Electrolyte Fuel Cells: Exploration of Materials and Understanding of Mechanisms. <b>2015</b> , 83, 319-325	5
787	Heteroatom-Doped Carbon Nanotubes as Advanced Electrocatalysts for Oxygen Reduction Reaction. <b>2015</b> , 1-16	3
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584	Layered-Template Synthesis of Graphene-like Fe-N-C Nanosheets for Highly Efficient Oxygen Reduction Reaction.	1
583	Phase-mediated cobalt phosphide with unique core-shell architecture serving as efficient and bifunctional electrocatalyst for hydrogen evolution and oxygen reduction reaction. <b>2021</b> ,	3
582	Recent Insights and Multifactorial Applications of Carbon Nanotubes <b>2021</b> , 12,	2
581	Molten-Salt-Assisted Synthesis of Nitrogen-Doped Carbon Nanosheets Derived from Biomass Waste of Gingko Shells as Efficient Catalyst for Oxygen Reduction Reaction. <b>2021</b> , 9, 2124	O
580	Roles of Co Dopants in Electrocatalytic Hydrogen Evolution by N-Rich Carbon Nanotubes Grafted on Carbon Layers. <b>2021</b> , 4, 11830-11840	O
579	Revealing the impact of small pores on oxygen reduction on carbon electrocatalysts: A journey through recent findings. <b>2021</b> , 188, 289-289	1
578	Mesoporous Carbon Promoting the Efficiency and Stability of Single Atomic Electrocatalysts for Oxygen Reduction Reaction.	
577	Construction of a three-dimensional S,N co-doped ZIF-67 derivative assisted by PEDOT nanowires and its application in rechargeable Zn atteries. <b>2021</b> , 45, 22787-22797	1
576	N-Doped graphene supported on N-rGO nanosheets as metal-free oxygen reduction reaction electrocatalysts for ZnBir batteries. <b>2021</b> , 45, 21716-21724	O

575	Elaborating Nitrogen and Oxygen Dopants Configurations within Graphene Electrocatalysts for Two-Electron Oxygen Reduction. 320-328	2
574	Activity origin of boron doped carbon cluster for thermal catalytic oxidation: Coupling effects of dopants and edges <b>2022</b> , 613, 47-56	0
573	An overview on nanostructure-modified supported liquid membranes for the electromembrane extraction method <b>2022</b> ,	3
572	Enhanced electrocatalytic activity of N-doped nano-onion/gold nanorod nanocomposites for the oxygen reduction reaction. <b>2022</b> , 405, 139816	O
571	Maximizing Fe-N exposure by tuning surface composition via twice acid treatment based on an ultrathin hollow nanocarbon structure for highly efficient oxygen reduction reaction. <b>2022</b> , 432, 134362	O
570	Systematic investigation of experimental parameters on nitrogen incorporation into carbon nanotube forests. <b>2022</b> , 148, 111676	
569	Microbial synthesis of efficient palladium electrocatalyst with high loadings for oxygen reduction reaction in acidic medium <b>2021</b> , 611, 161-171	0
568	The influence of carboxyl group on nitrogen doping for defective carbon nanotubes toward oxygen reduction reaction. <b>2022</b> , 189, 369-376	O
567	On the deactivation of N-doped carbon materials active sites during oxygen reduction reaction. <b>2022</b> , 189, 548-560	2
566	Oxygen adsorption in pores promotes its reduction on metal-free carbon catalysts: A case of carbon blacks. <b>2022</b> , 189, 230-239	1
565	Selective and efficient removal of radioactive ions from water with well-dispersed metal oxide nanoparticles@N-doped carbon. <b>2022</b> , 285, 120366	2
564	A facile iron-sulfur double-doping strategy to prepare high performance FeNx/S-NC electrocatalyst for oxygen reduction reaction in zinc-air battery. <b>2022</b> , 580, 152255	1
563	Pyrolyzed polydopamine-modified carbon black for selective and durable electrocatalytic oxygen reduction to hydrogen peroxide in acidic medium. <b>2022</b> , 305, 121036	3
562	Precise identification of active sites of a high bifunctional performance 3D Co/N-C catalyst in Zinc-air batteries. <b>2022</b> , 433, 134500	3
561	Catalysts derived from Earth-abundant natural biomass enable efficient photocatalytic CO2 conversion for achieving a closed-loop carbon cycle. <b>2021</b> , 23, 9683-9692	O
560	Investigation of Ammonia/Steam Activation for the Scalable Production of High-Surface Area Nitrogen-Containing Activated Carbons.	
559	Unmasking the Critical Role of the Ordering Degree of Bimetallic Nanocatalysts on Oxygen Reduction Reaction by In-situ Raman Spectroscopy.	
558	The synergetic effect of an aqua ligand and metal site on the performance of single-atom catalysts in HO synthesis: a density functional theory study <b>2022</b> ,	1

 $557 \hspace{0.5cm} \textbf{Synthesis of Ag Becorated vertical graphene nanosheets and their electrocatalytic efficiencies.} \\$ 

556	Domain-Confined Etching Strategy to Regulate Defective Sites in Carbon for High-Efficiency Electrocatalytic Oxygen Reduction. 2111396	2
555	Highly porous nitrogen-doped carbon superstructures derived from the intramolecular cyclization-induced crystallization-driven self-assembly of poly(amic acid).	О
554	Metal <b>f</b> ree C2N doped with sp2flybridized B atom as highlificiency photocatalyst for nitrobenzene reduction reaction: A density functional theory study. <b>2022</b> , 518, 112080	O
553	Hydrothermal Synthesis of Fe3+/3-Aminophenol <b>B</b> ormaldehyde as an Oxygen Electroreduction Catalyst in Alkaline Conditions.	О
552	Electronic structure modulation of metal-free graphdiyne for acidic oxygen evolution reaction. <b>2022</b> , 9, 014008	2
551	Recent progress of carbon-based electrocatalytic materials in Lithium-based batteries. 2022, e00384	
550	In situ synthesis of CoFe2O4 nanoparticles embedded in N-doped carbon nanotubes for efficient electrocatalytic oxygen reduction reaction. <b>2022</b> , 47, 6059-6066	1
549	Charge transfer of carbon nanomaterials for efficient metal-free electrocatalysis. 2022, 1, 28-50	3
548	A Facile Synthesis of Noble-Metal-Free Catalyst Based on Nitrogen Doped Graphene Oxide for Oxygen Reduction Reaction <b>2022</b> , 15,	1
547	Recent advances in heterostructured cathodic electrocatalysts for non-aqueous Li-O batteries <b>2022</b> , 13, 2841-2856	О
546	Recent Developments in Carbon-Based Nanocomposites for Fuel Cell Applications: A Review <b>2022</b> , 27,	7
545	Bio-Based Graphene Sheet/Copolymer Composite as Supporting Material for Nanocatalysts towards Electrochemical Studies and Direct Alkaline Alcohol Fuel Cells. <b>2022</b> , 2022, 1-13	О
544	Enhancing the activity of Zn, Fe, and Ni-embedded microporous biocarbon: Towards efficiently catalytic fast co-pyrolysis/gasification of lignocellulosic and plastic wastes. <b>2022</b> , 13, 100176	O
543	Porous carbons for energy storage and conversion. <b>2022</b> , 239-540	
542	Preparation of Chemically Structure-Controlled BN-Doped Carbons for the Molecular Understanding of Their Surface Active Sites for Oxygen Reduction Reaction. <b>2022</b> , 12, 1288-1297	2
541	Oxygen reduction reactions from boron-doped graphene quantum dot catalyst electrodes in acidic and alkaline electrolytes. <b>2022</b> , 104196	1
540	Proposal of a Facile Method to Fabricate a Multi-Dope Multiwall Carbon Nanotube as a Metal-Free Electrocatalyst for the Oxygen Reduction Reaction. <b>2022</b> , 14, 965	1

539	A novel 3D hybrid carbon-based conductive network constructed by bimetallic MOF-derived CNTs embedded nitrogen-doped carbon framework for oxygen reduction reaction. <b>2022</b> , 47, 5474-5485	2
538	Size Optimization of a N-Doped Graphene Nanocluster for the Oxygen Reduction Reaction <b>2022</b> , 7, 3093-3098	O
537	Characteristics, properties, synthesis and advanced applications of 2D graphdiyne versus graphene.	2
536	Magnetic zinc-air batteries for storing wind and solar energy <b>2022</b> , 25, 103837	3
535	N-doped carbon electrocatalyst: marked ORR activity in acidic media without the contribution by metal sites?. <b>2022</b> ,	7
534	Graphitic carbon nitride for batteries. <b>2022</b> , 367-392	
533	Heteroatom-Doped Metal-Free Carbon Nanomaterials as Potential Electrocatalysts 2022, 27,	1
532	Defective porous carbon microrods derived from fullerenes (C) as high-performance electrocatalysts for the oxygen reduction reaction <b>2021</b> ,	1
531	Al -Air Batteries. <b>2022</b> , 299-316	
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529	Solvent-Free Production of ECaprolactone from Oxidation of Cyclohexanone Catalyzed by Nitrogen-Doped Carbon Nanotubes. <b>2022</b> , 61, 2037-2044	1
528	Bifunctional CoO/CoS2 hierarchical nanospheres electrocatalyst for rechargeable Zn-Air battery. <b>2022</b> , 32, 100343	1
527	Nanostructured transition-metal phthalocyanine complexes for catalytic oxygen reduction reaction <b>2022</b> ,	1
526	Metal-organic framework-based electrocatalysts for ORR, OER, and HER. <b>2022</b> , 111-144	
525	N-doped carbon electrocatalyst: marked ORR activity in acidic media without the contribution by metal sites?.	
524	Heteroatom-Anchored Porous Carbon as Efficient Electrocatalyst for Oxygen Reduction Reaction.	1
523	Density functional theory method for twisted geometries with application to torsional deformations in group-IV nanotubes. <b>2022</b> , 456, 111023	1
522	Unmasking the Critical Role of the Ordering Degree of Bimetallic Nanocatalysts on Oxygen Reduction Reaction by In-situ Raman Spectroscopy <b>2022</b> ,	2

521	Green fabrication of graphene quantum dots from cotton with CaSiO3 nanostructure and enhanced photocatalytic performance for water treatment. <b>2022</b> , 47, 7228-7241	1
520	Mesoporous carbon promoting the efficiency and stability of single atomic electrocatalysts for oxygen reduction reaction. <b>2022</b> , 191, 393-402	3
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518	Fabrication of Co, N-Doping Hierarchical Porous Graphene from Metal Organic Framework for Oxygen Reduction Reaction in Microbial Fuel Cell. <b>2022</b> , 169, 024501	1
517	Co nanoparticles embedded N-doped hierarchical porous carbon matrix as an efficient electrocatalyst for oxygen reduction reaction. <b>2022</b> , 906, 116023	1
516	CeO2 quantum dots embedded in 3D hierarchical porous foliaceous N-doped carbon as an efficient oxygen reduction electrocatalyst for metal-air battery. <b>2022</b> , 164063	2
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514	Influence of Nitrogen and Boron on the magnetization of nanoporous graphene: A first-principle investigation. <b>2022</b> , 30, e00603	
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512	Jagged carbon nanotubes from polyaniline: Strain-driven high-performance for Zn-air battery. <b>2022</b> , 434, 134617	3
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509	Spatial-type skeleton induced Geobacter enrichment and tailored bio-capacitance of electroactive bioanode for efficient electron transfer in microbial fuel cells <b>2022</b> , 153123	1
508	High electrocatalytic performance of Fe3C-encapsulated N-doped carbon nanotubes and nanosheets for oxygen reduction reaction. <b>2022</b> , 149, 111719	Ο
507	Au(111)@TiO heterostructure composites with enhanced synergistic effects as efficient electrocatalysts for the hydrogen evolution reaction <b>2022</b> ,	Ο
506	The rise of electrochemical NAPXPS operated in the soft X-ray regime exemplified by the oxygen evolution reaction on IrO electrocatalysts <b>2022</b> ,	1
505	Design metal-free single-atom catalyst P@BN for CO oxidation: A DFT-D study. <b>2022</b> , 164, 110615	
504	Dissolution of the Heteroatom Dopants and Formation of Ortho-Quinone Moieties in the Doped Carbon Materials during Water Electrooxidation <b>2022</b> ,	4

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502	Pyridinic nitrogen enables dechlorination of trichloroethylene to acetylene by green rust: Performance, mechanism and applications <b>2022</b> , 824, 153825	O
501	Synthesis of Hollow N,P-Doped Carbon/CoPO Nanotubular Crystals as an Effective Electrocatalyst for the Oxygen Reduction Reaction <b>2022</b> , 7, 5751-5763	О
500	Investigation of ammonia/steam activation for the scalable production of high-surface area nitrogen-containing activated carbons. <b>2022</b> , 191, 581-581	1
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497	Boosting Oxygen Reduction Reaction with Fe and Se Dual-atom Sites Supported by Nitrogen-Doped Porous Carbon. <b>2022</b> , 308, 121206	12
496	In-site salt template-assisted synthesis of FeP self-embedded P, N co-doped hierarchical porous carbon for efficient oxygen reduction reaction. <b>2022</b> , 133, 104252	1
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494	Design Strategies for Single-Atom Iron Electrocatalysts toward Efficient Oxygen Reduction <b>2021</b> , 168-174	6
493	Combined anodic and cathodic hydrogen production from aldehyde oxidation and hydrogen evolution reaction. <b>2022</b> , 5, 66-73	29
492	Green Synthesis of N doped Porous carbon/Carbon dots Composite as Metal-Free Catalytic Electrode Materials for Iodide Mediated Quasi-solid Flexible Supercapacitor.	О
491	Synthesis of nitrogen-doped carbons from single-source precursors by solution plasma. <b>2022</b> , 475-505	
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480	Block Copolymer Self-Assembly Guided Synthesis of Mesoporous Carbons with In-Plane Holey Pores for Efficient Oxygen Reduction Reaction <b>2022</b> , e2100884	Ο
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478	Compositing Fullerene-Derived Porous Carbon Fibers with Reduced Graphene Oxide for Enhanced ORR Catalytic Performance. <b>2022</b> , 8, 13	Ο
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472	Modifying Ti-Based Gas Diffusion Layer Passivation for Polymer Electrolyte Membrane Water Electrolysis via Electrochemical Nitridation <b>2022</b> ,	Ο
471	Structural defects in graphene quantum dots: A review.	1
470	Enhancing Oxygen Reduction Reaction Activity Using Single Atom Catalyst Supported on Tantalum Pentoxide.	О
469	Heteroatom-Doped Carbon-Encapsulated FeP Nanostructure: A Multifunctional Electrocatalyst for Zinc-Air Battery and Water Electrolyzer <b>2022</b> ,	1
468	FeCoNiMnCr High-Entropy Alloy Nanoparticle-Grafted NCNTs with Promising Performance in the Ohmic Polarization Region of Fuel Cells <b>2022</b> ,	Ο

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464	Phosphorus-Doped Graphene Electrocatalysts for Oxygen Reduction Reaction <b>2022</b> , 12,	1
463	Review Dxygen Electrocatalysts based on Various Modulation Strategies for Rechargeable Li-O2 Batteries. <b>2022</b> , 169, 030516	1
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460	Experimental and theoretical review on covalent coupling and elemental doping of carbon nanomaterials for environmental photocatalysis. 1-42	1
459	Recent advances in solid Ilquid gas three-phase interfaces in electrocatalysis for energy conversion and storage.	2
458	Corrosion Chemistry of Electrocatalysts <b>2022</b> , e2200840	5
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448	Doubling Micropore of Carbon Skeleton via Regulating Molecular Structure of Carbohydrate for Oxygen Reduction Reaction.	
447	Precise and controllable tandem strategy triggering boosted oxygen reduction activity. <b>2022</b> , 43, 1042-1048	3
446	Heteroatom-doped fullerene C70 as non-metal electrocatalysts for oxygen reduction and oxygen evolution from computational study. <b>2022</b> , 124, 108954	0
445	Hexagonal boron nitride nanosheets as metal-free electrochemical catalysts for oxygen reduction reactions. <b>2022</b> , 48, 9506-9517	0
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439	Metal ion (Ca2+, Mg2+, Zn2+) catalyzed synthesis of high-quality zeolite templated carbon. <b>2022</b> , 336, 111860	0
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436	Copper-involved highly efficient oxygen reduction reaction in both alkaline and acidic media. <b>2022</b> , 437, 135377	2
435	Single noble metals (Pd, Pt and Ir) anchored Janus MoSSe monolayers: Efficient oxygen reduction/evolution reaction bifunctional electrocatalysts and harmful gas detectors <b>2022</b> , 616, 177-188	1
434	Nitrogen-doping hollow carbon nanospheres derived from conjugated microporous polymers toward oxygen reduction reaction <b>2022</b> , 617, 11-19	1
433	Investigation on the demetallation of Fe-N-C for oxygen reduction reaction: The influence of structure and structural evolution of active site. <b>2022</b> , 309, 121290	2
432	Subtle modulation on electronic properties of platinum by Cu-Nx containing carbon support for highly efficient electrocatalytic hydrogen evolution. <b>2022</b> , 591, 153057	2

431	Modulating the electronic structure of zinc single atom catalyst by P/N coordination and Co2P supports for efficient oxygen reduction in Zn-Air battery. <b>2022</b> , 440, 135928	1
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429	Predoped Oxygenated Defects Activate Nitrogen-Doped Graphene for the Oxygen Reduction Reaction <b>2022</b> , 12, 173-182	5
428	A Nitrogen, Sulfur co-Doped Porphyrin-based Covalent Organic Framework as an Efficient Catalyst for Oxygen Reduction. <b>2022</b> , 38, 167-172	4
427	New rout for synthesizing triammonium citrate crystal with unique crystallography and its application in synthesizing nitrogen doped graphene quantum dot. <b>2021</b> , 1-14	
426	Proton-Conducting Polymer Wrapped Cathode Catalyst for Enhancing Triple-Phase Boundaries in Proton Exchange Membrane Fuel Cells. <b>2022</b> , 5, 627-638	1
425	Oxygen Reduction Reaction of Block Copolymer Template-Directed Porous Carbon Catalysts. <b>2022</b> , 5, 897-914	1
424	Insights into Tuning of Mo-Based Structures toward Enhanced Electrocatalytic Performance of Nitrogen-to-Ammonia Conversion. <b>2022</b> , 3, 2100179	1
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419	Nitrogen-doped graphene quantum dots synthesized by femtosecond laser ablation in liquid from laser induced graphene. <b>2021</b> ,	2
418	Waste-Derived Biocarbons as Nonnoble Metal Catalysts and Supports for Nanocatalysts for Fuel Cells Reactions in Alkaline Media. 1-34	
417	Nanocatalytic Materials for Energy-Related Small-Molecules Conversions: Active Site Design, Identification and Structure-Performance Relationship Discovery <b>2021</b> ,	2
416	Double Perovskite Type (Nh4)3fexco1-Xf6 Electrocatalyst Synthesized Via Low-Temperature Reaction for Efficient Water Oxidation.	
415	Cu/Co/CoS2 embedded in S,N doped carbon as highly-efficient oxygen reduction and evolution electrocatalyst for rechargeable zinc-air batteries.	0
414	Highly efficient C(CO)II(alkyl) bond cleavage in ketones to access esters over ultrathin N-doped carbon nanosheets.	1

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411	Properties and applications of quantum dots derived from two-dimensional materials. 2022, 7,	
410	Enabling Multi-Chemisorption Sites on Carbon Nanofibers Cathodes by an In-situ Exfoliation Strategy for High-Performance Zn-Ion Hybrid Capacitors <b>2022</b> , 14, 106	5
409	Ultrasmall Mo2C embedded in N-doped Holey Carbon Derived from Macrocycle Supramolecular Self-assembly for High-efficiency Electrochemical Oxygen Reduction Reaction.	О
408	Advances and challenges of MOF derived carbon-based electrocatalysts and photocatalyst for water splitting: A review. <b>2022</b> , 15, 103906	2
407	Hierarchical porous carbon for high-performance capacitor derived from sewage sludge by KHCO3 activation. <b>2022</b> , 50, 104644	2
406	Unconventional and scalable synthesis of non-precious metal electrocatalysts for practical proton exchange membrane and alkaline fuel cells: A solid-state co-ordination synthesis approach. <b>2022</b> , 463, 214554	3
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398	Oxygen Reduction Reaction at Single Entity Multiwalled Carbon Nanotubes 2022, 3748-3753	1
397	Ultra-High Voltage Efficiency Rechargeable Zinc-Air Battery Based on High-Performance Structurally Regulated Metal-Rich Nickel Phosphides and Carbon Hybrids Bifunctional Electrocatalysts.	
396	Popcorn-like Co3O4 nanoparticles confined in a three-dimensional hierarchical N-doped carbon nanotube network as a highly-efficient trifunctional electrocatalyst for zincBir batteries and water splitting devices.	O

395	Assembly of N- and P-functionalized carbon nanostructures derived from precursor-defined ternary copolymers for high-capacity lithium-ion batteries. <b>2022</b> ,	1
394	Salt-assisted Pyrolysis of Covalent Organic Framework for Controlled Active Nitrogen Functionalities for Oxygen Reduction Reaction.	1
393	The influence of heteroatom doping on the performance of carbon-based electrocatalysts for oxygen evolution reactions. <b>2022</b> , 37, 321-336	1
392	Efficient Modulation of Electrocatalyst Interfaces by Atomic Layer Deposition: Fundamentals to Application. 2200026	3
391	Interfacial engineering of carbon-based materials for efficient electrocatalysis: Recent advances and future. <b>2022</b> , 100074	3
390	Enhanced Mediated Electron Transfer Pathway of Peroxymonosulfate Activation Dominated with Graphitic-N for the Efficient Degradation of Various Organic Contaminants in Multiple Solutions. <b>2022</b> , 2, 817-829	О
389	Carbon-based metal-free oxygen reduction reaction electrocatalysts: past, present and future. <b>2022</b> , 37, 338-354	0
388	Strategies for improving the catalytic activity of metal-organic frameworks and derivatives in SR-AOPs: Facing emerging environmental pollutants <b>2022</b> , 306, 119386	O
387	A Methodical Review on Carbon-Based Nanomaterials in Energy-Related Applications. 2022, 2022, 1-21	3
386	Synthesis of Pure Thiophene-Sulfur-Doped Graphene for an Oxygen Reduction Reaction with High Performance <b>2022</b> , 4350-4356	O
385	Self-sacrifice MOFs for heterogeneous catalysis: Synthesis mechanisms and future perspectives. <b>2022</b> ,	6
384	Accelerated intermediate conversion through nickel doping into mesoporous Co-N/C nanopolyhedron for efficient ORR. <b>2022</b> ,	O
383	Enhanced oxygen reduction of porous N-doped carbon nanosheets with graphitic N and defects obtained from coal-based graphene quantum dots. <b>2022</b> , 165359	0
382	Non-metallic carbon-based catalysts for acetylene hydrochlorination: The effect of graphitization degree of carbonaceous material. <b>2022</b> , 106458	O
381	Design of efficient ZIF-derived nitrogen and sulfur co-doped nanocarbons toward oxygen reduction through hostguest reactions. 1	0
380	Stable and high-performance N-micro/mesoporous carbon-supported Pt/Co nanoparticles-GDE for electrocatalytic oxygen reduction in PEMFC. <b>2022</b> ,	O
379	Pyrimidine-assisted synthesis of S, N-codoped few-layered graphene for highly efficient hydrogen peroxide production in acid. <b>2022</b> ,	О
378	Carbon Catalysts for Electrochemical CO 2 Reduction toward Multicarbon Products. 2200586	2

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376	Radical and non-radical cooperative degradation in metal-free electro-Fenton based on nitrogen self-doped biochar. <b>2022</b> , 435, 129063	O
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374	Norbornane derived N-doped sp2 carbon framework as an efficient electrocatalyst for oxygen reduction reaction and hydrogen evolution reaction. <b>2022</b> , 323, 124420	O
373	Triton X-100-directed synthesis of carbon nitride and nitrogen-doped carbon for ethylene dichloride dehydrochlorination. <b>2022</b> , 196, 110-119	O
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371	Water electrolysis: from textbook knowledge to the latest scientific strategies and industrial developments <b>2022</b> ,	21
370	Mechanism of oxygen reduction reaction on Ni/CNTs and Ni/X-CNTs (X=B, N, O) catalysts: a theoretical study. <b>2022</b> , 141,	
369	Electrocatalytic Performance of Fe® Encapsulated in Hollowly Mesoporous Carbon Microspheres for Oxygen Reduction Reaction and Zn&ir Battery.	1
368	Easy enrichment of graphitic nitrogen to prepare highly catalytic carbons for oxygen reduction reaction. <b>2022</b> ,	2
367	Role of activated carbons as metal-free catalysts. <b>2022</b> , 245-265	
366	Metal-free catalysts for fuel cell applications. <b>2022</b> , 67-109	
365	Electrocatalysis with metal-free carbon-based catalysts. <b>2022</b> , 213-244	
364	Atomically Miniaturized Bi-Phase IrOx/Ir Catalysts Dotted on N-doped Carbon Nanotubes for High-Performance Li-CO2 Batteries.	1
363	Heteroatoms-Doped Carbon Nanotubes for Energy Applications. <b>2022</b> , 1-39	
362	Heterogeneous carbon metal-free catalysts. <b>2022</b> , 195-212	
361	Nanostructured Materials from Biobased Precursors for Renewable Energy Storage Applications. 307-366	Ο
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359	Highly Dispersed Co-, N-, S-Doped Topological Defect-Rich Hollow Carbon Nanoboxes as Superior Bifunctional Oxygen Electrocatalysts for Rechargeable ZnAir Batteries.	1
358	3D carbon nanotubes-graphene hybrids for energy conversion and storage applications. <b>2022</b> , 137190	2
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356	Theoretical investigations of the heavily boron doped pentadiamond. <b>2022</b> , 126, 109127	
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353	Carbon Composite Catalysts for Oxygen Reduction Reactions. <b>2022</b> , 107-130	
352	Environmentally Friendly Bifunctional Catalyst for ORR and OER from Coconut Shell Particles. <b>2022</b> , 12, 106-123	О
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350	Revisiting the Origin of Orr and Her Activities of N-Doped EGraphdiyne from the Perspective of Edge Effects.	
349	Polymer nanocomposites for automotive applications. <b>2022</b> , 267-317	
348	Preparation of in-situ nitrogen-doped lignin-based porous carbon and its efficient adsorption of chloramphenicol in water.	O
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346	2H-5,10,15,20-tetrakis(3-aminophenyl)porphyrin films: electrochemical formation and catalyst property testing. <b>2022</b> , 116476	O
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344	Palladium <b>L</b> obalt Bimetallic Nanoparticles Supported on Nitrogen-Doped Graphene as Efficient Electrocatalyst for Oxygen Reduction.	
343	Green Bridge between Waste and Energy_Conversion the Rotten Wood into Cathode for Functional Zn-Air Battery. <b>2022</b> , 140667	0
342	Single-Atom Catalysts for Hydrogen Generation: Rational Design, Recent Advances, and Perspectives. 2200875	5

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340	Enhanced oxygen reduction reaction activity by utilizing carbon nanotube intramolecular junctions. <b>2022</b> , 1214, 113765	
339	Chapter 8. Nanocatalysis With Sustainability. <b>2022</b> , 220-254	
338	Revisiting the Origin of Orr and Her Activities of N-Doped EGraphdiyne from the Perspective of Edge Effects.	
337	Oxygen reduction reaction by metal-free catalysts. <b>2022</b> , 241-275	
336	Oxygen reduction reaction in nature and its importance in life. <b>2022</b> , 1-43	
335	Oxygenated P/N co-doped carbon for efficient 2e- oxygen reduction to H2O2.	4
334	Revealing Intrinsic Spin Coupling in Transition Metal-Doped Graphene.	1
333	Oxygen reduction reaction by metallocorroles and metallophthalocyanines. 2022, 79-124	
332	The in situ investigation of the polyaniline-derived N-doped carbon with the interdigitated array electrodes towards the oxygen reduction reaction.	
331	ReviewDevelopment of Highly Active and Stable Catalyst Supports and PlatinumEree Catalysts for PEM Fuel Cell.	O
330	High-Performance Ultrabroadband Photodetector Based on Photothermoelectric Effect.	
329	Next-Generation Energy Harvesting and Storage Technologies for Robots Across All Scales. 2200045	O
328	A Universal Descriptor for Complicated Interfacial Effects on Electrochemical Reduction Reactions.	3
327	Cattail leaf-derived nitrogen-doped carbons via hydrothermal ammonia treatment for electrocatalytic oxygen reduction in an alkaline electrolyte. <b>2022</b> ,	
326	Highly effective bi-functional electrochemical activity of Ag 2 O-PrO 2 / EAl 2 O 3 electrocatalysts towards OER and ORR.	0
325	Peach gum derived S, N co-doped nanoporous carbon coupled with layered double (Ni, Fe) hydroxide for efficient bifunctional oxygen electrocatalysis in Zn-air batteries.	0
324	Self-Templating Synthesis of N/P/Fe Co-Doped 3D Porous Carbon for Oxygen Reduction Reaction Electrocatalysts in Alkaline Media. <b>2022</b> , 12, 2106	1

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322	Metal-Free Carbon-Based Nanomaterials: Fuel Cell Applications as Electrocatalysts. <b>2022</b> , 73-139	
321	Modulating the microenvironment structure of single Zn atom: ZnN4P/C active site for boosted oxygen reduction reaction. <b>2022</b> , 43, 2193-2201	1
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319	Wood based quasi-solid-state Zn-air battery with dual honeycomb-like porous carbon and cationic nanocellulose film. <b>2022</b> , 186, 115242	
318	Enhancing microbial fuel cell performance by carbon nitride-based nanocomposites. <b>2022</b> , 63-79	
317	Nanosized porous artificial enzyme as a pH-sensitive doxorubicin delivery system for joint enzymatic and chemotherapy towards tumor treatment.	1
316	Triple-Doping (Cu, P, N) for the Activation of Catalytic Sites in Co0.4mn0.6o2 Nanosheets for Zn-Air Battery Applications.	
315	Identification of pyrone-type species as the active site for oxygen reduction reaction.	O
314	Nitrogen-doped Carbon Pyrolyzed from ZIF-8 for Electrocatalytic Oxygen Reduction to Hydrogen Peroxide. <b>2022</b> , 80, 772	1
313	Exploring the structural dependence of metal-free carbon electrocatalysts on zinc-based metalBrganic framework types.	0
312	2D Zinc-Based Metal Drganic Complexes Derived N-Doped Porous Carbon Nanosheets as Durable Air Cathode for Rechargeable Zn Air Batteries. <b>2022</b> , 14, 2581	1
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309	Recent Advances in Cu-Based Metal©rganic Frameworks and Their Derivatives for Battery Applications. <b>2022</b> , 5, 7842-7873	0
308	Optimization of H2O2 production in small-scale off-grid buffer layer flow cell equipped with Cobalt@N-Doped Graphitic Carbon CoreBhell Nanohybrid electrocatalyst. <b>2022</b> , 101092	O
307	Does Nitrogen Doping Enhance the Electrocatalysis of the Oxygen Reduction Reaction by Multiwalled Carbon Nanotubes?. 8740-8745	2
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305	Interconnected Porous Structural Construction of Mn- and N-Doped Carbon Nanosheets for Fuel Cell Application.	1
304	High degree of N-functionalization in macroscopically assembled carbon nanotubes.	O
303	Semi-Crystalline Conjugated Polymers with Well-Defined Active Sites for Nitrogen Fixation in Seawater Electrolyte. 2201853	2
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296	Calculation screening of Janus WSSe monolayer modified with single platinum group metal atom as efficient bifunctional oxygen electrocatalysts. <b>2022</b> , 643, 118777	O
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294	Facile off-on fluorescence biosensing of human papillomavirus using DNA probe coupled with sunflower seed shells carbon dots. <b>2022</b> , 181, 107742	O
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289	Oxygen Plasma-Activated NiFe Prussian Blue Analogues Interconnected N-Doped Carbon Nanotubes as a Bifunctional Electrocatalyst for a Rechargeable ZincAir Battery.	1
288	The Preparation of Pani-Doped Co-Ni-Zif Carbonized Derivatives and the Exploration of Eet Process by the Dft Calculation and the Prediction of Related Functional Genes.	

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286	Rational design and modulation strategies of Mo-based electrocatalysts and photo/electrocatalysts towards nitrogen reduction to ammonia (NH3). <b>2022</b> , 138320	1
285	Carbon-based metal-free electrocatalysts: Recent progress and forward looking. 2022,	1
284	DNA-guided lattice remodeling of carbon nanotubes. <b>2022</b> , 377, 535-539	5
283	State-of-the-art and developmental trends in platinum group metal-free cathode catalyst for anion exchange membrane fuel cell (AEMFC). <b>2022</b> , 121733	2
282	Mixed-phase cobalt-based nanosheets prepared by rapid thermal annealing for oxygen evolution catalysis.	O
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280	N, O-doped carbon foam as metal-free electrocatalyst for efficient hydrogen production from seawater.	3
279	Surface Modification of Hollow Nanostructured Materials for Energy Storage.	O
278	Carbon Aerogels as Electrocatalysts for Sustainable Energy Applications: Recent Developments and Prospects. <b>2022</b> , 12, 2721	
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275	Carbon-Shielded Single-Atom Alloy Material Family for Multi-Functional Electrocatalysis. 2205654	1
274	Computational study of transition metal single-atom catalysts supported on nitrogenated carbon nanotubes for electrocatalytic nitrogen reduction.	O
273	Electrochemical Performance of Fe2O3@PPy Nanocomposite as an Effective Electrode Material for Supercapacitor.	
272	Thin-Film Coating Methods: A Successful Marriage of High-Quality and Cost-Effectiveness A Brief Exploration. <b>2022</b> , 12, 1115	O
271	Metal®rganic Frameworks (MOFs) Derived Materials Used in ZnAir Battery. <b>2022</b> , 15, 5837	1
270	Coiling of Single-Walled Carbon Nanotubes via Selective Topological Fluid Flow: Implications for Sensors. <b>2022</b> , 5, 11586-11594	1

269	Rational Design of Atomic Site Catalysts for Electrocatalytic Nitrogen Reduction Reaction: One Step Closer to Optimum Activity and Selectivity. <b>2022</b> , 5,	О
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267	Nucleobases-derived carbon materials: Synthesis and application in heterogeneous catalysis. <b>2022</b> , 35, 100415	
266	Carbon dots-derived carbon nanoflowers decorated with cobalt single atoms and nanoparticles as efficient electrocatalysts for oxygen reduction. <b>2022</b> , 43, 2443-2452	1
265	Rapid and highly selective conversion of CO2 to methanol by heterometallic porous ZIF-8. <b>2022</b> , 64, 102172	О
264	Double recovery and regeneration of Pt/C catalysts: Both platinum from the spent proton exchange membrane fuel cell stacks and carbon from the pomelo peel. <b>2022</b> , 428, 140918	
263	Construction of hierarchically porous carbon spheres supported nonprecious metal single-atom electrocatalysts for oxygen reduction reaction. <b>2022</b> , 545, 231913	О
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<b>26</b> 0	The performance of a new electrolyte for organic supercapacitors: Poly(hydridocarbyne). <b>2022</b> , 99, 100732	O
259	Nanotubes-nanosheets (1D/2D) heterostructured bifunctional electrocatalysts for overall water splitting. <b>2022</b> , 430, 141095	O
258	MetalBrganic framework-derived heteroatom-doped nanoarchitectures for electrochemical energy storage: Recent advances and future perspectives. <b>2022</b> , 52, 685-735	2
257	Sp-nitrogen and Fray modulating multiply Egraphyne for anchoring Pt nanoparticles to boost oxygen reduction activity and stability. <b>2022</b> , 29, 101626	1
256	Efficient reduction of nitrobenzene to aniline by metal-free B-doped graphdiyne. <b>2022</b> , 655, 130229	1
255	Nitrogen-doped carbon nanotubes filled with Fe3C nanowires for efficient electrocatalytic oxygen reduction. <b>2022</b> , 654, 130095	О
254	Controlling sp3 defect density of carbon-based catalysts by defining a limiting space. <b>2023</b> , 452, 139221	2
253	Revealing the activity origin of oxygen-doped amorphous carbon material for SO2 catalytic oxidation: A descriptor considering dynamic electron transfer during O2 activation. <b>2023</b> , 201, 37-48	О
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251	Carbon-Based Nanomaterials for Oxygen Evolution Reaction. 2022, 147-167	0
250	Carbon-Based Nanomaterials for Hydrogen Evolution Reaction. <b>2022</b> , 123-146	O
249	Carbon-Based Nanomaterials for Carbon Dioxide Reduction Reaction. 2022, 169-186	O
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247	Doping engineering:modulating the intrinsic activity of bifunctional carbon-based oxygen electrocatalysts for high-performance Zinc-air batteries.	1
246	Enhancing the ORR activity of fullerene-derived carbons by implanting Fe in assembled diamine[160 spheres.	O
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244	Evolving aprotic Lifiir batteries. <b>2022</b> , 51, 8045-8101	4
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241	Ascorbic acid-modified dual-metalBrganic-framework derived C-Fe/Fe3O4 loaded on a N-doped graphene framework for enhanced electrocatalytic oxygen reduction. <b>2022</b> , 46, 15860-15870	O
240	Mechanical interlocking of SWNTs with N-rich macrocycles for efficient ORR electrocatalysis. <b>2022</b> , 13, 9706-9712	1
239	Atomic-Scale Carbon Framework Reconstruction Enables Record Nitrogen-Doping Up to 33.8 At% in Graphene Nanoribbon.	О
238	N and S Dual-Doped Mesoporous Carbon Nanostructure as a High Performance and Durable Metal	
	Free Oxygen Reduction Reaction Electrocatalyst. <b>2022</b> , 355, 01006	О
237	Co2p Encapsulated in N, O Co-Doped Carbons as Bifunctional Electrocatalysts for Oxygen Evolution and Reduction Reactions.	0
237	Co2p Encapsulated in N, O Co-Doped Carbons as Bifunctional Electrocatalysts for Oxygen Evolution	
	Co2p Encapsulated in N, O Co-Doped Carbons as Bifunctional Electrocatalysts for Oxygen Evolution and Reduction Reactions.  Fabricating 3D ultra-thin N-doped porous graphene-like catalysts based on polymerized amino acid	О

233	Controlling Sp3 Defect Density of Carbon-Based Catalysts by Confining a Limit Space.	O
232	Carbon-Based Nanomaterials for Metal-Air Batteries. <b>2022</b> , 249-270	O
231	Two birds with one stone: large catalytic areas and abundant nitrogen sites inspired by fluorine doping contributing to CO2RR activity and selectivity.	О
230	Rational design, application and dynamic evolution of CuNC single-atom catalysts.	O
229	Defect-Engineered Mesoporous Undoped Carbon Nanoribbons Outperform the Pt/C Benchmark for Oxygen Reduction.	O
228	Improved oxygen evolution reaction performance in Co0.4Mn0.6O2 nanosheets through Triple-doping (Cu, P, N) strategy and its application to Zn-air battery. <b>2023</b> , 320, 122023	3
227	Science and engineering for non-noble-metal-based electrocatalysts to boost their ORR performance: A critical review. <b>2023</b> , 474, 214854	1
226	Ultra-high voltage efficiency rechargeable zinc-air battery based on high-performance structurally regulated metal-rich nickel phosphides and carbon hybrids bifunctional electrocatalysts. <b>2023</b> , 321, 122041	O
225	Reconstructing bridging carbon atoms (from sp3-C to sp2-C) of pyrolytic N-doped carbon to enhance oxygen reduction reaction. <b>2023</b> , 332, 126158	О
224	Three-Dimensional Hybrid Nanostructures of Fe3O4 Nanoparticles/Vertically-Aligned Carbon Nanotubes for High-Performance Supercapacitors. <b>2022</b> , 3, 507-519	O
223	Ultralow Loading Ru-Mo2C on CNT Boosting High Durability Electrocatalyst for Oxygen Reduction Reaction. <b>2022</b> , 169, 096512	O
222	ReviewHeteroatom-Doped High Porous Carbon Metal Free Nanomaterials for Energy Storage and Conversion. <b>2022</b> , 11, 091006	O
221	Exploring of catalytic oxygen reduction reaction activity of lattice carbons of vanadium and niobium doped nitrogen codoped carbon nanotubes by density functional theory.	O
220	Schiff-base polymer derived FeCo-N-doped porous carbon flowers as bifunctional oxygen electrocatalyst for long-life rechargeable zinc-air batteries. <b>2022</b> ,	O
219	Review on recent applications of Nitrogen-Doped Carbon materials in CO 2 capture and energy conversion and storage.	1
218	Graphene: A Path-Breaking Discovery for Energy Storage and Sustainability. <b>2022</b> , 15, 6241	Ο
217	An Unsaturated Bond Strategy to Regulate Active Centers of Metal-Free Covalent Organic Frameworks[for Efficient Oxygen Reduction.	О
216	Highly Efficient Oxygen Reduction Reaction Fe-N-C Cathode in Long-durable Direct Glycol Fuel Cells.	O

215	Nitrogen-doped mesoporous carbon nanospheres loaded with cobalt nanoparticles for oxygen reduction and Zn-air batteries. <b>2022</b> , 107815	O
214	Periodically Interrupting Bonding Behavior to Reformat Delocalized Electronic States of Graphdiyne for Improved Electrocatalytic Hydrogen Evolution.	O
213	3D hierarchical porous carbon foams as high-performance free-standing anodes for microbial fuel cells.	О
212	Recent advances in the energy harvesting device technology using hetero-atom doped carbon nanotubes. <b>2022</b> ,	O
211	An Unsaturated Bond Strategy to Regulate Active Centers of Metal-Free Covalent Organic Frameworks[for Efficient Oxygen Reduction.	3
<b>2</b> 10	Rechargeable Batteries for Grid Scale Energy Storage.	14
209	Transformation of postsynthesized F-MOF to Fe/N/F-tridoped carbon nanotubes as oxygen reduction catalysts for high power density Zn-air batteries. <b>2022</b> , 107860	О
208	Fullerene-Derived Carbon Nanotubes and Their Electrocatalytic Properties in Oxygen Reduction and ZnAir Batteries. <b>2022</b> , 14, 42337-42346	О
207	Periodically Interrupting Bonding Behavior to Reformat Delocalized Electronic States of Graphdiyne for Improved Electrocatalytic Hydrogen Evolution.	0
206	ZIF-8 derived bimetallic FeNi-Nanoporous carbon for enhanced oxygen reduction reaction. 2022,	O
205	Novel Peripheral and Non-Peripheral Oxobenzo[d]thiazol Substituted Cobalt Phthalocyanines: Synthesis, Electrochemistry, Spectroelectrochemistry, Electrocatalytic Hydrogen Production in Alkaline Medium. <b>2022</b> , 116864	0
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203	Recognition of the catalytic activities of graphitic N for zinc-iodine batteries. 2022, 53, 544-551	0
202	Recent major advances and challenges in the emerging Graphene based nanomaterials in electrocatalytic Fuel Cell technology.	Ο
201	Novel nanostructures suspended in graphene vacancies, edges and holes.	0
200	Activating Nitrogen-doped Graphene Oxygen Reduction Electrocatalysts in Acidic Electrolytes using Hydrophobic Cavities and Proton-conductive Particles.	1
199	Theoretical Study of Oxygen Reduction Reaction Mechanism in Metal-Free Carbon Materials: Defects, Structural Flexibility, and Chemical Reaction. <b>2022</b> , 16, 16394-16401	1
198	A Janus heteroatom-doped carbon electrocatalyst for hydrazine oxidation.	O

197	Preparing Co/N-Doped Carbon as Electrocatalyst toward Oxygen Reduction Reaction via the Ancient <b>B</b> haraoh Snakes (Reaction. <b>2022</b> , 8, 150	О
196	Design of Bifunctional Oxygen Catalysts in Rechargeable ZincAir Batteries. <b>2022</b> , 69-110	O
195	Activating Nitrogen-doped Graphene Oxygen Reduction Electrocatalysts in Acidic Electrolytes using Hydrophobic Cavities and Proton-conductive Particles.	О
194	Design of Oxygen Reduction Catalysts in Primary ZincAir Batteries. <b>2022</b> , 35-67	1
193	Two-dimensional carbon-based heterostructures as bifunctional electrocatalysts for water splitting and metallir batteries. <b>2022</b> ,	О
192	Application of Surface Modified Carbon Nanotubes in Fuel Cells. 121-150	O
191	Fullerene-Derived Porous and Defective N-Doped Carbon Nanosheets as Advanced Trifunctional Metal-Free Electrocatalysts.	1
190	B, N co-doping graphene nanoribbons as effective oxygen reduction electrocatalyst.	О
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188	Rational design of advanced oxygen electrocatalysts for high-performance zinc-air batteries. 2022,	О
187	Graphitic-Nitrogen-Enriched Carbon Skeleton with Embedment of Fe3C for Superior Performance Air Cathode in Zinc-air Battery. <b>2022</b> , 101194	О
186	A novel electrocatalyst composed of graphene oxide/graphitic carbon nitride and CuFe/N-C@Co nanoparticles-embedded in nitrogen-doped carbon nanotube for oxygen reduction reaction and supercapacitor. <b>2022</b> , 56, 106012	0
185	Cobalt-based N-doped bamboo-like graphene tubes with enhanced durability for efficient oxygen reduction reaction in direct borohydride fuel cell. <b>2023</b> , 201, 856-863	О
184	Identification of oxidation states in Egraphyne by computational XPS and NEXAFS spectra. <b>2023</b> , 609, 155134	1
183	Directional introduction of pyridine nitrogen functional groups in activated carbon catalysts for the catalytic production of hydrogen: An experimental and DFT calculation. <b>2023</b> , 453, 139744	О
182	The preparation of PANI-doped Co-Ni-ZIF carbonized derivatives and the exploration of EET process by the DFT calculation and the prediction of related functional genes. <b>2023</b> , 333, 126356	o
181	Defect enriched N, S-codoped carbon sheets as an efficient electrocatalyst to oxygen reduction reaction. <b>2023</b> , 935, 167923	0
180	In-situ self-templating construction of FeNi/N co-doped 3D porous carbon from bimetallic ions-coordinated porous organic polymer for rechargeable zinc-air batteries. <b>2023</b> , 321, 122067	O

179	Defect chemistry of electrocatalysts for CO2 reduction. 10,	1
178	Double Perovskite-Type (NH4)3FexCo1⊠F6 Electrocatalyst for Efficient Water Oxidation.	Ο
177	Defective Nanoporous Zinc Cobaltite as a Potential Bifunctional Oxygen Electrocatalyst.	О
176	NCNT grafted perovskite oxide as an active bifunctional electrocatalyst for rechargeable zinc-air battery. <b>2022</b> , 100287	1
175	Degradation of phenolic pollutants by persulfate-based advanced oxidation processes: metal and carbon-based catalysis. <b>2022</b> ,	0
174	Acetyl-CoA regulates lipid metabolism and histone acetylation modification in cancer. 2022, 188837	O
173	Tafel Slope Analysis from Inherent Rate Constants for Oxygen Reduction Reaction Over N-doped Carbon and FeN-doped Carbon Electrocatalysts.	О
172	Status Quo on Graphene Electrode Catalysts for Improved Oxygen Reduction and Evolution Reactions in Li-Air Batteries. <b>2022</b> , 27, 7851	О
171	Alkali Adatom-Amplified Schottky Contact and Built-in Voltage for Stable Zn-Metal Anodes. 2022,	О
170	Degradation Mechanism and Enhancing Strategies of Oxygen Reduction Reaction Catalyzed by Carbon-Based Metal Free Catalysts in Acidic Solution. 2203159	О
169	Chemisorption of CO2 on Nitrogen-Doped Graphitic Carbons.	О
168	Recent progress in heteroatom doped carbon based electrocatalysts for oxygen reduction reaction in anion exchange membrane fuel cells. <b>2022</b> ,	О
167	One step activation by ammonium chloride toward N-doped porous carbon from camellia oleifera for supercapacitor with high specific capacitance and rate capability. <b>2022</b> , 130, 109526	2
166	Physicochemical Confinement Effect Enables High-Performing Zinclbdine Batteries.	O
165	High-Loading Co Single Atoms and Clusters Active Sites toward Enhanced Electrocatalysis of Oxygen Reduction Reaction for High-Performance ZnAir Battery. 2209726	2
164	Solid phase synthesis Ni3N and N-CNT synergetic corn-like multifunctional electrocatalyst. <b>2022</b> , 110224	O
163	Advances in platinum-based and platinum-free oxygen reduction reaction catalysts for cathodes in direct methanol fuel cells. 10,	1
162	Structure Manipulation of C1N1-Derived N-Doped Defective Carbon Nanosheets to Significantly Boost K-Storage Performance.	O

161	Metal-organic frameworks-derived advanced oxygen electrocatalysts as air-cathodes for Zn-air batteries: Recent trends and future perspectives.	O
160	Co,N-doped carbon sheets prepared by a facile method as high-efficiency oxygen reduction catalysts. <b>2022</b> , 12, 33981-33987	0
159	Exploring the underlying oxygen reduction reaction electrocatalytic activities of pyridinic-N and pyrrolic-N doped graphene quantum dots. <b>2023</b> , 535, 112880	1
158	Mesoporous carbon-based materials and their applications as non-precious metal electrocatalysts in the oxygen reduction reaction. <b>2023</b> , 439, 141678	1
157	High-performance zincBir batteries enabled by hybridizing atomically dispersed FeN2 with Co3O4 nanoparticles.	1
156	Rational design of boron-nitrogen coordinated active sites towards oxygen reduction reaction in aluminum-air batteries with robust integrated air cathode. <b>2023</b> , 556, 232476	0
155	Materials design and preparation for high energy density and high power density electrochemical supercapacitors. <b>2023</b> , 152, 100713	0
154	Atomically dispersed FeN4 moieties in porous carbon as efficient cathode catalyst for enhancing the performance in microbial fuel cells. <b>2023</b> , 556, 232434	0
153	Thermotropic flash assembly energy of carbon nanotube in liquid phase based on electrical energy. <b>2023</b> , 332, 120537	0
152	Facile template-free synthesis of 3D cluster-like nitrogen-doped mesoporous carbon as metal-free catalyst for selective oxidation of H2S. <b>2023</b> , 11, 109095	0
151	Revisiting the origin of ORR and HER activities of N-doped Egraphdiyne from the perspective of edge effects. <b>2023</b> , 613, 156084	0
150	Co-modified polyoxovanadoborates derived Co/BN-CNT/VN based bifunctional electrocatalysts for rechargeable zinc-air batteries. <b>2023</b> , 634, 675-683	0
149	Heteroatoms-Doped Carbon Nanotubes for Energy Applications. <b>2022</b> , 485-523	0
148	A review on system and materials for aqueous flexible metallir batteries.	O
147	Fullerenes and derivatives as electrocatalysts: Promises and challenges. 2022,	0
146	Silicon-, Nitrogen-Doped Single-Walled Carbon Nanotubes as Oxygen Reduction Reaction Catalysts. <b>2022</b> , 92, 2458-2464	O
145	Recent progress in carbon-based electrochemical catalysts: From structure design to potential applications. <b>2022</b> ,	1
144	Methods to Synthesize Nanostructured Materials for Electrocatalytic Activities. 31-51	O

143	Electrocatalysts and Electrocatalysis: From Fundamental Mechanisms to Fuel Cell Applications. 53-71	0
142	Carbon Surface-Influenced Heterogeneity of Ni and Co Catalytic Sites as a Factor Affecting the Efficiency of Oxygen Reduction Reaction. <b>2022</b> , 12, 4432	O
141	Designing bifunctional ZIF-67 derivatives decorated N-doped carbon nanotubes as an electrocatalyst for oxygen conversion reaction in rechargeable zinc-air battery. <b>2022</b> , 141, 104598	0
140	Metal-air batteries: progress and perspective. <b>2022</b> , 67, 2449-2486	2
139	Nanostructured Phosphides as Electrocatalysts for Green Energy Generation. 227-255	0
138	Subject Index. 281-284	O
137	Title, Copyright, Foreword. i-v	О
136	Noble Metal-Free Electrocatalysts: Materials for Energy Applications. 73-94	O
135	Introduction to Electrocatalysts. 1-29	0
134	2D, Metal-Free Electrocatalysts for the Nitrogen Reduction Reaction. 2210759	O
133	A Novel Electrode for Value-Generating Anode Reactions in Water Electrolyzers at Industrial Current Densities.	2
132	Isometric Covalent Triazine Frameworks Derived Porous Carbons as Efficient Metal-Free Electrocatalysts for Oxygen Reduction Reactions.	o
131	Metal-Free Carbon-Based Covalent Organic Frameworks with Heteroatom-Free Units Boost Efficient Oxygen Reduction. 2209129	3
130	Electrocatalysts Based on Graphene and Its Composites. 165-199	o
129	Noble Metal-Free Electrocatalysts: Fundamentals and Recent Advances in Electrocatalysts for Energy Applications. Volume 1.	0
128	Nitrogen-doped carbon for selective pseudo-metal-free hydrodeoxygenation of 5-hydroxymethylfurfural to 2,5-dimethylfuran: importance of trace iron impurity. <b>2022</b> ,	O
127	Recent progress in noble-metal-free electrocatalysts for alkaline oxygen evolution reaction. 10,	0
126	Rational design of carbon-based electrocatalysts for enhancing redox reactions in rechargeable metal batteries.	1

125	Single-Atom Iron Catalyst Based on Functionalized Mesophase Pitch Exhibiting Efficient Oxygen Reduction Reaction Activity. <b>2022</b> , 12, 1608	О
124	A Novel Electrode for Value-Generating Anode Reactions in Water Electrolyzers at Industrial Current Densities.	O
123	Solar-light-induced green conversion of amines into imines by lemon derived heteroatoms-doped GQDs as a green photocatalyst. <b>2022</b> , 1-10	О
122	Laser induced graphanized microfluidic devices. <b>2022</b> , 16, 061505	1
121	Editor Biography. 275-275	0
120	Preface. ix-ix	O
119	Nitrogen doped carbonaceous materials as platinum free cathode electrocatalysts for oxygen reduction reaction (ORR).	О
118	Carbon nanotubes supported oxygen reduction reaction catalysts: role of inner tubes. 2023, 6,	1
117	Intrinsic Mechanical Effects on the Activation of Carbon Catalysts.	О
116	Co2P encapsulated in N, O co-doped carbons as bifunctional electrocatalysts for oxygen evolution and reduction reactions. <b>2022</b> ,	O
115	Biomass-Derived Electroactive Carbons with Application in Green Electrochemical Technologies. 129-164	O
114	Covalent Organic Framework-Based Electrocatalysts for CO2 Reduction Reaction. 257-274	O
113	Role of Electrocatalysts in the Performance and Efficiency of MetalAir Batteries. 95-127	О
112	Electrocatalysts Based on Metal Oxides for Hydrogen Evolution Reaction. 201-226	O
111	Recent Advances on Heteroatom-Doped Porous Carbon <b>B</b> ased Electrocatalysts for Oxygen Reduction Reaction. <b>2023</b> , 16, 128	О
110	Waste Lithium Ion Battery Evolves into Heteroatom Doped Carbon as Oxygen Reduction Electrocatalyst for Aqueous Al-Air Batteries. <b>2022</b> , 87,	Ο
109	A Scientometric Review of CO2 Electroreduction Research from 2005 to 2022. <b>2023</b> , 16, 616	1
108	Comparison of the Electrochemical Response of Carbon-Fiber-Reinforced Plastic (CFRP), Glassy Carbon, and Highly Ordered Pyrolytic Graphite (HOPG) in Near-Neutral Aqueous Chloride Media. <b>2023</b> , 9, 7	O

107	Cathode Materials for Secondary Zinc-Air Batteries. <b>2023</b> , 67-156	О
106	FeBIx active sites in FeBIC electrocatalysts synthesized using electron beam irradiation.	O
105	Nitrogen-Doped Carbon Sponge Derived from the Self-Assembly of a Poly(amic acid) for High Performance Oxygen Reduction Reaction.	0
104	ReviewBtudy on Catalyst in Zn-Air Batteries: Bibliometric Method.	O
103	Kinetic-enhanced carbon fiber for rechargeable zinc-air batteries.	0
102	Recent progress in heteroatom-doped carbon electrocatalysts for the two-electron oxygen reduction reaction. <b>2023</b> , 456, 141042	o
101	Morphology Tuning via Linker Modulation: Metal-Free Covalent Organic Nanostructures with Exceptional Chemical Stability for Electrocatalytic Water Splitting. 2209919	0
100	Electrocatalytic Porphyrin/Phthalocyanine-Based Organic Frameworks: Building Blocks, Coordination Microenvironments, Structure-Performance Relationships. 2206239	2
99	Nitrogen-Doped Porous Carbon-Supported PtCo Nanoparticle Electrocatalyst for Oxygen Reduction Reaction Prepared by a Dual-Template Method.	0
98	Cathode Materials for Primary Zinc-Air Battery. <b>2023</b> , 23-66	O
97	Defect Engineering in Carbon Materials for Electrochemical Energy Storage and Catalytic Conversion.	0
96	Carbon-Based Electrocatalysts for Acidic Oxygen Reduction Reaction.	O
95	Graphene Nanosheets Stabilized by P3HT Nanoparticles for Printable Metal-Free Electrocatalysts for Oxygen Reduction.	0
94	A 3D multifunctional host anode from commercial carbon cloth for lithium metal batteries.	O
93	Synthetic porous carbons for clean energy storage and conversion. 2023, 100099	0
92	Electronic Structure and Reaction Mechanism on Nitrogen-doped Carbon Electrode Catalysts and Design of Catalyst Based on the Mechanism. <b>2023</b> , 66, 10-15	O
91	A trifunctional N-doped activated carbonDeria shell, derived from covalent porphyrin polymers for promoting Pt activity in fuel cell cathode performance.	О
90	Acidic oxygen evolution reaction: Mechanism, catalyst classification, and enhancement strategies.	1

89	Pd-PdO Nanodomains on Amorphous Ru Metallene Oxide for High-Performance Multifunctional Electrocatalysis. 2208860	1
88	Carbon-Based Electrocatalysts for Acidic Oxygen Reduction Reaction.	O
87	Biphenylene with doping B/N as promising metal-free single-atom catalysts for electrochemical oxygen reduction reaction. <b>2023</b> , 558, 232613	О
86	Preparation of microfiber composite nitrogen doped carbon nanotube membranes and their degradation properties of phenol in the structured fixed bed. <b>2023</b> , 11, 109255	O
85	Alkaline hydrogen oxidation reaction on Ni-based electrocatalysts: From mechanistic study to material development. <b>2023</b> , 478, 214980	0
84	Insights on rational design and energy storage mechanism of Mn-based cathode materials towards high performance aqueous zinc-ion batteries. <b>2023</b> , 479, 215009	O
83	Metal organic frameworks as self-sacrificing modalities for potential environmental catalysis and energy applications: Challenges and perspectives. <b>2023</b> , 480, 215011	0
82	An atomic/molecular-level strategy for the design of a preferred nitrogen-doped carbon nanotube cathode for Li-O2 batteries. <b>2023</b> , 615, 156367	O
81	Heterostructure-induced enhanced oxygen catalysis behavior based on metal cobalt coupled with compound anchored on N-doped carbon nanofiber for microbial fuel cell. <b>2023</b> , 636, 305-316	О
80	ORR Catalysts Derived from Biopolymers. <b>2023</b> , 13, 80	O
79	Facile Preparation of Cobalt Nanoparticles Encapsulated Nitrogen-Doped Carbon Sponge for Efficient Oxygen Reduction Reaction. <b>2023</b> , 15, 521	1
78	Recent Progress of Non-Pt Catalysts for Oxygen Reduction Reaction in Fuel Cells. <b>2023</b> , 11, 361	O
77	N-Doped Carbon Shells Encapsulated Ru-Ni Nanoalloys for Efficient Hydrogen Evolution Reaction.	О
76	Synthesis and applications of biomass-derived carbonaceous materials. <b>2023</b> , 559-578	O
75	Developing Superior Hydrophobic 3D Hierarchical Electrocatalysts Embedding Abundant Catalytic Species for High Power Density ZnAir Battery. 2206067	0
74	Heterocyclic Modulated Electronic States of Alkynyl-Containing Conjugated Microporous Polymers for Efficient Oxygen Reduction. 2207298	1
73	Aligned silver nanoparticles anchored on pyrrolic and pyridinic-Nitrogen induced carbon nanotubes for enhanced oxygen reduction reaction. <b>2023</b> , 139710	О
72	Cobalt-doped porous carbon nanofibers with three-dimensional network structures as electrocatalysts for enhancing oxygen reduction reaction. <b>2023</b> ,	O

71	Two-dimensional bimetallic Fe/M- (Ni, Zn, Co and Cu) metal organic framework as efficient and stable electrodes for overall water splitting and supercapacitor applications. <b>2023</b> , 61, 106702	0
70	Surface state engineering of carbon dot/carbon nanotube heterojunctions for boosting oxygen reduction performance. <b>2023</b> , 637, 173-181	2
69	Opportunities and Challenges in Aqueous Nitrate and Nitrite Reduction beyond Electrocatalysis.	O
68	Recent progress in heteroatom doping to modulate the coordination environment of MNC catalysts for the oxygen reduction reaction.	О
67	Fluorine and phosphorus atoms cooperated on an N-doped 3D porous carbon network for enhanced ORR performance toward the zinclir batteries.	О
66	Bamboo fiber-derived bifunctional electrocatalyst for rechargeable Zn- Air batteries.	O
65	Singlet Oxygen Induced Site-Specific Etching Boosts Nitrogen-Carbon Sites for High-Efficiency Oxygen Reduction.	О
64	Highly Active and Durable Metal-Free Carbon Catalysts for Anion-Exchange Membrane Fuel Cells.	O
63	Increasing Accessible Active Site Density of Non-Precious Metal Oxygen Reduction Reaction Catalysts through Ionic Liquid Modification.	О
62	Molten NaCl assisted pyrolysis of ZIF-8/PAN electrospun fibers to synthesis 1D cross-linked mesoporous N-rich carbon as oxygen reduction electrocatalysts. <b>2023</b> , 463, 142174	O
61	Record volumetric activities of oxygen electroreduction in partly packing graphene/AgTCNQ electrodes. <b>2023</b> , 11, 100254	О
60	FeCo alloy entrapped in N-doped graphitic carbon nanotubes-on-nanosheets prepared by coordination-induced pyrolysis for oxygen reduction reaction and rechargeable Zn-air battery. <b>2023</b> , 639, 424-433	О
59	Switching the locus of oxygen reduction and evolution reactions between spinel active phase and carbon carrier upon heteroatoms doping. <b>2023</b> , 418, 114043	О
58	Transforming bio-oil into nitrogen-doped hierarchical porous carbons: Excellent oxygen reduction electrocatalysts for Zn-air batteries. <b>2023</b> , 947, 169584	O
57	Metal-free single atom catalysts towards efficient acetonitrile reduction to ethylamine. 2023, 622, 156891	O
56	Unifying the origin of catalytic activities for carbon-based metal-free electrocatalysts. <b>2023</b> , 418, 114129	O
55	Heterostructured CNT-RuSx nanomaterials for efficient electrochemical hydrogen evolution reaction. <b>2023</b> , 331, 122681	О
54	Vanadium tunning amorphous iron phosphate encapsulated iron phosphide on phosphorous-doped graphene promoted oxygen reactions for flexible zinc air batteries. <b>2023</b> , 331, 122674	O

53	Hydrogen anode/cathode co-productions-coupled anode alcohol selective oxidation and distinctive H/e transfer pathways. <b>2023</b> , 331, 122664	0
52	CoOx-Fe3O4/N-rGO Oxygen Reduction Catalyst for Anion-Exchange Membrane Fuel Cells. <b>2023</b> , 16, 3425	O
51	Ultralow Fe augmented defect-prone porous carbon for highly efficient supercapacitor. 2023, 343, 134331	O
50	Upgrading of g-C3N4 semiconductor by a Nitrogen-doped carbon material: A photocatalytic degradation application. <b>2023</b> , 11, 109381	1
49	A Review of Bifunctional Catalysts for Zinc-Air Batteries. <b>2023</b> , 3, 13-47	O
48	Synthesis of Highly Active and Stable Carbon by a Soft-Template Hydrothermal Route as Pt Substrate for Oxygen Reduction Reaction. <b>2023</b> , 15,	O
47	Rationally Designed Manganese-Based Metal Drganic Frameworks as Altruistic Metal Oxide Precursors for Noble Metal-Free Oxygen Reduction Reaction. <b>2023</b> , 62, 3026-3035	1
46	Construction of a Co/MnO MottBchottky Heterostructure to Achieve Interfacial Synergy in the Oxygen Reduction Reaction for Aluminum Air Batteries.	O
45	Recent Progress in Surface-Defect Engineering Strategies for Electrocatalysts toward Electrochemical CO2 Reduction: A Review. <b>2023</b> , 13, 393	O
44	MOF-Derived CoNi Nanoalloy Particles Encapsulated in Nitrogen-Doped Carbon as Superdurable Bifunctional Oxygen Electrocatalyst. <b>2023</b> , 13, 715	O
43	Cobalt(ii)-bridged triphenylamine and terpyridine-based donor coordination polymer as an efficient trifunctional electrocatalyst. <b>2023</b> , 11, 8003-8012	О
42	Liquid Nitrogen Sources Assisting Gram-Scale Production of Single-Atom Catalysts for Electrochemical Carbon Dioxide Reduction. <b>2023</b> , 10,	O
41	Scrutinizing Intrinsic Oxygen Reduction Reaction Activity of a FeIMC Catalyst via Scanning Electrochemical Cell Microscopy. <b>2023</b> , 10,	О
40	Cobaltplatinum intermetallic composite loaded on pyridinic N-enriched carbon for acidic hydrogen evolution catalysis with ultralow overpotential. <b>2023</b> , 7, 1607-1616	O
39	Tetrazole-functionalized benzoquinoline-linked covalent organic frameworks with efficient performance for electrocatalytic H2O2 production and LiB batteries. <b>2023</b> , 7, 1650-1658	O
38	WITHDRAWN: Exploring new synthetic methodology toward a predicted carbon allotrope: Carbon schwarzite. <b>2023</b> ,	O
37	Differential Pulse Voltammetric Analysis of Hydrazine in Water Samples by Using Screen-Printed Graphite Electrode Modified with Nitrogen-Doped Hollow Carbon Spheres. <b>2023</b> , 62, 4694-4703	О
36	Ultralow Fe instigated defect engineering of hierarchical NPorous carbon for highly efficient electrocatalysis. <b>2023</b> , 227, 111782	O

35	Direct Oxygen-Oxygen Cleavage through Optimizing Interatomic Distances in Dual Single-atom Electrocatalysts for Efficient Oxygen Reduction Reaction. <b>2023</b> , 62,	О
34	Direct Oxygen-Oxygen Cleavage through Optimizing Interatomic Distances in Dual Single-atom Electrocatalysts for Efficient Oxygen Reduction Reaction. <b>2023</b> , 135,	O
33	Synthesis and characterization of metal-free nanosheets of carbo-catalysts for bifunctional electrocatalyst towards HER and OER application. <b>2023</b> , 539, 113043	0
32	High-energy composite cathode for solid-state lithium-oxygen battery boosted by ultrafine carbon nanotube catalysts and amorphous lithium peroxide. <b>2023</b> , 29, 101430	O
31	Boosting bioelectricity generation using three-dimensional nitrogen-doped macroporous carbons as freestanding anode. <b>2023</b> , 33, 101273	0
30	Asymmetric Coordination of Iridium Single-atom IrN 3 O Boosting Formic Acid Oxidation Catalysis. <b>2023</b> , 62,	O
29	One-step pyrolysis synthesis of ternary (P,S,N)-doped graphene as an efficient metal-free electrocatalyst for the oxygen reduction reaction. <b>2023</b> , 52, 4389-4397	O
28	Asymmetric Coordination of Iridium Single-atom IrN 3 O Boosting Formic Acid Oxidation Catalysis. <b>2023</b> , 135,	O
27	Emerging electrocatalysts for electrochemical advanced oxidation processes (EAOPs): recent progress and perspectives.	0
26	Fluorination and its Effects on Electrocatalysts for Low-Temperature Fuel Cells. 2023, 13,	O
25	Ti3C2OH MXene supported NiPtP nanoparticles with low noble metal content as hydrazine dehydrogenation catalysts. <b>2023</b> , 146, 104794	0
24	Rotating ring-disc electrode method: Assessing transient chemical interaction of redox intermediate with electrode surface. <b>2023</b> , 117317	O
23	Nitrogen-Doped Graphdiyne Nanotubes for Metal-Free Activation of Peroxymonosulfate and Enhanced Degradation of Recalcitrant Heterocyclic Contaminants.	0
22	ENiO/Ni(OH)2/AgNP/F-Graphene Composite for Energy Storage Application. 2023, 8, 10906-10918	O
21	Microenvironment regulation of M-N-C single-atom catalysts towards oxygen reduction reaction.	1
20	Room-Temperature One-Pot Synthesis of pH-Responsive Pyridine-Functionalized Carbon Surfaces. <b>2023</b> , 8, 10796-10805	O
19	Influence of Nitrogen Doping into Carbon on the Activation Barrier of ORR in Alkaline Medium: An Investigation Based on Eyring Analysis. <b>2023</b> , 39, 4351-4361	0
18	Strengthening oxygen reduction activity based on the cooperation of pyridinic-N and graphitic-N for atomically dispersed Fe sites.	0

17	Potent Charge-Trapping for Boosted Electrocatalytic Oxygen Reduction. 2203963	O
16	Singlet Oxygen Induced Site-Specific Etching Boosts Nitrogen-Carbon Sites for High-Efficiency Oxygen Reduction.	Ο
15	Unveiling inactive sulfur residue and benzoquinone moiety formation in sulfur-doped carbon for water electrooxidation. <b>2023</b> , 47, 129-137	0
14	Carbon-Based Electrodes for Advanced Zinc-Air Batteries: Oxygen-Catalytic Site Regulation and Nanostructure Design. <b>2023</b> , 6,	Ο
13	Modulating In-Plane Defective Density of Carbon Nanotubes by Graphitic Carbon Nitride Quantum Dots for Enhanced Triiodide Reduction. 2212112	0
12	Recent Advances in Microbial Fuel Cells for Sustainable Energy. <b>2023</b> , 183-201	Ο
11	Photocatalytic and Electrocatalytic Generation of Hydrogen Peroxide: Principles, Catalyst Design and Performance. <b>2023</b> , 15,	0
10	Functional Carbon from Nature: Biomass-Derived Carbon Materials and the Recent Progress of Their Applications.	Ο
9	Defects in Carbon-Based Materials for Electrocatalysis: Synthesis, Recognition, and Advances. <b>2023</b> , 56, 948-958	O
8	Modulation of electronic density states of carbon atom via multifaceted Cu doped Co2P particle for robust and efficient electrocatalytic hydrogen evolution reaction in aqueous acidic medium. <b>2023</b> , 455, 142378	Ο
7	Design of material regulatory mechanism for electrocatalytic converting NO/NO 3 Ito NH 3 progress.	0
6	Durable N-doped carbon electrocatalysts derived from NH3-activated coffee waste for the oxygen reduction reaction. <b>2023</b> , 938, 117468	Ο
5	Boosting oxygen evolution electrocatalysis via CeO2 engineering on Fe2N nanoparticles for rechargeable ZnBir batteries.	0
4	Intrinsic Carbon Structural Imperfections for Enhancing Energy Conversion Electrocatalysts. <b>2023</b> , 143060	O
3	Carbon nanostructures for energy generation and storage. <b>2023</b> , 57-94	0
2	Multi-heteroelement-doped porous carbon as an efficient catalyst for alkaline oxygen reduction reaction. <b>2023</b> , 109957	O
1	Concise nanotherapeutic modality for cancer involving graphene oxide dots in conjunction with ascorbic acid.	0