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Atomically dispersed manganese catalysts for oxygen reduction in proton-exchange membrane fuel cells

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875	Self-Adjusting Activity Induced by Intrinsic Reaction Intermediate in FeNC Single-Atom Catalysts.		
874	Atomic approaches towards stability. <i>Nature Catalysis</i> , <b>2018</b> , 1, 900-902	36.5	7
873	Resolving Active Sites in Atomically Dispersed Electrocatalysts for Energy Conversion Applications. <b>2019</b> , 25, 2066-2067		1
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868	In Situ and Operando Characterization of Proton Exchange Membrane Fuel Cells. <b>2019</b> , 31, e1901900		60
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701	Microwave-Enabled Incorporation of Single Atomic Cu Catalytic Sites in Holey Graphene: Unifying Structural Requirements of a Carbon Matrix for Simultaneous Achievement of High Activity and Long-Term Durability. <b>2020</b> , 3, 8266-8275	4
700	Advanced Electrocatalysts with Single-Metal-Atom Active Sites. <b>2020</b> , 120, 12217-12314	235

699	Facile Top-Down Strategy for Direct Metal Atomization and Coordination Achieving a High Turnover Number in CO Photoreduction. <b>2020</b> , 142, 19259-19267	37
698	Facile and template-free strategy to construct N, P co-doped porous carbon nanosheets as a highly efficient electrocatalyst towards oxygen reduction reaction. <b>2020</b> , 877, 114732	6
697	Chemical Vapor Deposition for Atomically Dispersed and Nitrogen Coordinated Single Metal Site Catalysts. <b>2020</b> , 132, 21882-21889	6
696	Self-Organized Single-Atom Tungsten Supported on the N-Doped Carbon Matrix for Durable Oxygen Reduction. <b>2020</b> , 12, 43586-43595	19
695	A Review of Carbon-Supported Nonprecious Metals as Energy-Related Electrocatalysts. <b>2020</b> , 4, 2000621	27
694	Atomically Dispersed MnN <sub>4</sub> Catalysts via Environmentally Benign Aqueous Synthesis for Oxygen Reduction: Mechanistic Understanding of Activity and Stability Improvements. <b>2020</b> , 10, 10523-10534	61
693	Revealing Isolated M-N C Active Sites for Efficient Collaborative Oxygen Reduction Catalysis. <b>2020</b> , 59, 23678-23683	30
692	Revealing Isolated Mn <sub>3</sub> C <sub>1</sub> Active Sites for Efficient Collaborative Oxygen Reduction Catalysis. <b>2020</b> , 132, 23886-23891	8
691	Engineering hierarchical MOFs-derived Fe <sub>3</sub> N <sub>4</sub> nanostructure with improved oxygen reduction activity for zinc-air battery: the role of iron oxide. <b>2020</b> , 18, 100500	19
690	Surface Charge and Electrostatic Spin Crossover Effects in CoN <sub>4</sub> Electrocatalysts. <b>2020</b> , 10, 12148-12155	23
689	Recent advances and strategies in the stabilization of single-atom catalysts for electrochemical applications. <b>2020</b> , 2, 488-520	16
688	A Mn-N single-atom catalyst embedded in graphitic carbon nitride for efficient CO electroreduction. <b>2020</b> , 11, 4341	96
687	Theoretical investigation on catalytic mechanisms of oxygen reduction and carbon monoxide oxidation on the MnN <sub>x</sub> system. <b>2020</b> , 44, 15724-15732	5
686	Coexisting Single-Atomic Fe and Ni Sites on Hierarchically Ordered Porous Carbon as a Highly Efficient ORR Electrocatalyst. <b>2020</b> , 32, e2004670	170
685	The synthetic strategies for single atomic site catalysts based on metal-organic frameworks. <b>2020</b> , 12, 20580-20589	5
684	Immobilizing single atom catalytic sites onto highly reduced carbon hosts: Fe <sub>3</sub> N <sub>4</sub> /CNT as a durable oxygen reduction catalyst for Na <sup>+</sup> /Li <sup>+</sup> batteries. <b>2020</b> , 8, 18891-18902	17
683	Iron phthalocyanine with coordination induced electronic localization to boost oxygen reduction reaction. <b>2020</b> , 11, 4173	133
682	Chemical Vapor Deposition for Atomically Dispersed and Nitrogen Coordinated Single Metal Site Catalysts. <b>2020</b> , 59, 21698-21705	55

681	Investigation of hydrogen storage on Sc/Ti-decorated novel B <sub>24</sub> N <sub>24</sub> . <b>2020</b> , 45, 33740-33750	5
680	Recent Advances in the Development of Single-Atom Catalysts for Oxygen Electrocatalysis and Zinc-Air Batteries. <b>2020</b> , 10, 2003018	72
679	Preferentially Engineering FeN Edge Sites onto Graphitic Nanosheets for Highly Active and Durable Oxygen Electrocatalysis in Rechargeable Zn-Air Batteries. <b>2020</b> , 32, e2004900	94
678	Rare-Earth Single-Atom La-N Charge-Transfer Bridge on Carbon Nitride for Highly Efficient and Selective Photocatalytic CO Reduction. <b>2020</b> , 14, 15841-15852	123
677	Ionic Exchange of Metal-Organic Frameworks for Constructing Unsaturated Copper Single-Atom Catalysts for Boosting Oxygen Reduction Reaction. <b>2020</b> , 16, e2001384	31
676	Electron density modulation of GaN nanowires by manganese incorporation for highly high-rate Lithium-ion storage. <b>2020</b> , 350, 136380	12
675	Engineering a metal-organic framework derived Mn-N-C S atomic interface for highly efficient oxygen reduction reaction. <b>2020</b> , 11, 5994-5999	59
674	Single-atom Catalysts for Polymer Electrolyte Membrane Fuel Cells. <b>2020</b> , 36, 320-328	6
673	Controllable synthesis of Fe <sub>N</sub> 4 species for acidic oxygen reduction. <b>2020</b> , 2, 452-460	22
672	Metal Phthalocyanine-Porphyrin-based Conjugated Microporous Polymer-derived Bifunctional Electrocatalysts for Zn-Air Batteries. <b>2020</b> , 15, 1970-1975	8
671	Boosting the bifunctional oxygen electrocatalytic performance of atomically dispersed Fe site via atomic Ni neighboring. <b>2020</b> , 274, 119091	56
670	Fe,N Co-Doped Mesoporous Carbon Nanosheets for Oxygen Reduction. <b>2020</b> , 3, 5637-5644	9
669	Recent Advances in Electrochemical Oxygen Reduction to H <sub>2</sub> O <sub>2</sub> : Catalyst and Cell Design. <b>2020</b> , 5, 1881-1892	74
668	Ordered Nanoporous Nitrogen- and Oxygen-Codoped Carbon Nanospheres as Electrocatalysts for Oxygen-Reduction Reaction in Direct Methanol Fuel Cells. <b>2020</b> , 3, 5139-5148	5
667	Ammonia Thermal Treatment toward Topological Defects in Porous Carbon for Enhanced Carbon Dioxide Electroreduction. <b>2020</b> , 32, e2001300	60
666	Metal-Organic Frameworks as a Good Platform for the Fabrication of Single-Atom Catalysts. <b>2020</b> , 10, 6579-6586	104
665	Atomically dispersed metal sites anchored in N-doped carbon nanosheets with enhanced Li storage performance. <b>2020</b> , 4, 2157-2167	8
664	Hexamine-Coordination-Framework-Derived Co <sub>N</sub> -doped Carbon Nanosheets for Robust Oxygen Reduction Reaction. <b>2020</b> , 8, 9721-9730	13

663	Electrocatalysis of Single-Atom Sites: Impacts of Atomic Coordination. <b>2020</b> , 10, 7584-7618	131
662	Evolution of Zn(II) single atom catalyst sites during the pyrolysis-induced transformation of ZIF-8 to N-doped carbons. <b>2020</b> , 65, 1743-1751	47
661	Engineering unsymmetrically coordinated Cu-SN single atom sites with enhanced oxygen reduction activity. <b>2020</b> , 11, 3049	210
660	Fabricating Dual-Atom Iron Catalysts for Efficient Oxygen Evolution Reaction: A Heteroatom Modulator Approach. <b>2020</b> , 59, 16013-16022	60
659	Metal-Nitrogen-Doped Carbon Materials as Highly Efficient Catalysts: Progress and Rational Design. <b>2020</b> , 7, 2001069	91
658	Establishing reactivity descriptors for platinum group metal (PGM)-free Fe <sub>N/C</sub> catalysts for PEM fuel cells. <b>2020</b> , 13, 2480-2500	100
657	Preparation of low cost catalysts for proton exchange membrane fuel cell. <b>2020</b> , 463, 012066	0
656	Rational Design and Synthesis of Hierarchical Porous Mn <sub>N/C</sub> Nanoparticles with Atomically Dispersed Mn <sub>Nx</sub> Moieties for Highly Efficient Oxygen Reduction Reaction. <b>2020</b> , 8, 9367-9376	23
655	A metal and nitrogen doped carbon composite with both oxygen reduction and evolution active sites for rechargeable zinc-air batteries. <b>2020</b> , 8, 15752-15759	16
654	Single-Atom Catalysts for Electrocatalytic Applications. <b>2020</b> , 30, 2000768	173
653	Engineering Isolated Mn-NC Atomic Interface Sites for Efficient Bifunctional Oxygen Reduction and Evolution Reaction. <b>2020</b> , 20, 5443-5450	135
652	Construction of efficient Mn-N-C oxygen reduction electrocatalyst from a Mn(II)-based MOF with N-rich organic linker. <b>2020</b> , 118, 107982	7
651	Unconventional Oxygen Reduction Reaction Mechanism and Scaling Relation on Single-Atom Catalysts. <b>2020</b> , 10, 4313-4318	52
650	Strategies for Engineering High-Performance PGM-Free Catalysts toward Oxygen Reduction and Evolution Reactions. <b>2020</b> , 4, 2000016	37
649	From bulk to porous: Structure transformation of nitrogen and phosphorous co-doped carbon material via sodium chloride assistance and its application in lithium-sulfur batteries. <b>2020</b> , 830, 154638	8
648	Impact of Active Site Density on Oxygen Reduction Reactions Using Monodispersed Fe-N-C Single-Atom Catalysts. <b>2020</b> , 12, 15271-15278	28
647	Mechanistic Insight into the Oxygen Reduction Reaction on the Mn <sub>N/C</sub> Single-Atom Catalyst: The Role of the Solvent Environment. <b>2020</b> , 124, 7287-7294	22
646	PGM-Free Fe/N/C and Ultralow Loading Pt/C Hybrid Cathode Catalysts with Enhanced Stability and Activity in PEM Fuel Cells. <b>2020</b> , 12, 13739-13749	27

645	Single-Atom Catalytic Materials for Advanced Battery Systems. <b>2020</b> , 32, e1906548	96
644	Novel Heteroatom-Doped Fe/N/C Electrocatalysts With Superior Activities for Oxygen Reduction Reaction in Both Acid and Alkaline Solutions. <b>2020</b> , 8, 78	3
643	Sulphur-induced electrochemical synthesis of manganese nanoflakes from choline chloride/ethylene glycol-based deep eutectic solvent. <b>2020</b> , 341, 136017	2
642	Unravelling the Role of Fe-Mn Binary Active Sites Electrocatalyst for Efficient Oxygen Reduction Reaction and Rechargeable Zn-Air Batteries. <b>2020</b> , 59, 5194-5205	27
641	Supported and coordinated single metal site electrocatalysts. <b>2020</b> , 37, 93-111	42
640	Identifying Iron-Nitrogen/Carbon Active Structures for Oxygen Reduction Reaction under the Effect of Electrode Potential. <b>2020</b> , 11, 2896-2901	16
639	Chemical Synthesis of Single Atomic Site Catalysts. <b>2020</b> , 120, 11900-11955	368
638	Atomically Dispersed Manganese on a Carbon-Based Material for the Capture of Gaseous Mercury: Mechanisms and Environmental Applications. <b>2020</b> , 54, 5249-5257	17
637	Defect Engineering for Fuel-Cell Electrocatalysts. <b>2020</b> , 32, e1907879	170
636	Atomic site electrocatalysts for water splitting, oxygen reduction and selective oxidation. <b>2020</b> , 49, 2215-2264	309
635	Construction and Application of Interfacial Inorganic Nanostructures. <b>2020</b> , 38, 772-786	7
634	Ternary PtIrNi Catalysts for Efficient Electrochemical Ammonia Oxidation. <b>2020</b> , 10, 3945-3957	44
633	In-situ polymerization induced atomically dispersed manganese sites as cocatalyst for CO <sub>2</sub> photoreduction into synthesis gas. <b>2020</b> , 76, 105059	35
632	Vanadium oxides anchored on nitrogen-incorporated carbon: An efficient heterogeneous catalyst for the selective oxidation of sulfide to sulfoxide. <b>2020</b> , 145, 106101	8
631	Nitrogen-doped carbon nanoflowers with in situ generated Fe <sub>3</sub> C embedded carbon nanotubes for efficient oxygen reduction electrocatalysts. <b>2020</b> , 529, 147174	11
630	Iron, Copper and Nitrogen Co-doped Carbon with Enhanced Electrocatalytic Activity towards Oxygen Reduction. <b>2020</b> , 7, 3116-3122	0
629	Fabricating Dual-Atom Iron Catalysts for Efficient Oxygen Evolution Reaction: A Heteroatom Modulator Approach. <b>2020</b> , 132, 16147-16156	11
628	pH Effect on the H <sub>2</sub> O <sub>2</sub> -Induced Deactivation of Fe-N-C Catalysts. <b>2020</b> , 10, 8485-8495	37



627	Zeolitic imidazolate framework-67 derived ultra-small CoP particles incorporated into N-doped carbon nanofiber as efficient bifunctional catalysts for oxygen reaction. <b>2020</b> , 452, 227837	47
626	N-Coordinated Dual-Metal Single-Site Catalyst for Low-Temperature CO Oxidation. <b>2020</b> , 10, 2754-2761	66
625	A cascade surface immobilization strategy to access high-density and closely distanced atomic Pt sites for enhancing alkaline hydrogen evolution reaction. <b>2020</b> , 8, 5255-5262	14
624	Molecular Design of Single-Atom Catalysts for Oxygen Reduction Reaction. <b>2020</b> , 10, 1903815	139
623	Co loaded on graphene with interfacial structure as high performance catalyst for 4e <sup>-</sup> ORR: a DFT study. <b>2020</b> , 26, 3483-3490	6
622	Seeded growth of branched iron/nitrogen-doped carbon nanotubes as a high performance and durable non-precious fuel cell cathode. <b>2020</b> , 162, 300-307	14
621	Covalent organic polymers derived carbon incorporated with cobalt oxides as a robust oxygen reduction reaction catalyst for fuel cells. <b>2020</b> , 390, 124581	7
620	A derivative of mesoporous oxygen reduction reaction electrocatalysts from citric acid and dicyandiamide. <b>2020</b> , 45, 6563-6572	1
619	Advanced Electrocatalysts for the Oxygen Reduction Reaction in Energy Conversion Technologies. <b>2020</b> , 4, 45-68	288
618	Atomic-level tuning of Co-N-C catalyst for high-performance electrochemical HO <sub>2</sub> production. <b>2020</b> , 19, 436-442	315
617	Zinc-Mediated Template Synthesis of Fe-N-C Electrocatalysts with Densely Accessible Fe-N Active Sites for Efficient Oxygen Reduction. <b>2020</b> , 32, e1907399	183
616	Facile Synthesis of Mayenite Electride Nanoparticles Encapsulated in Graphitic Shells Like Carbon Nano Onions: Non-noble-metal Electrocatalysts for Oxygen Reduction Reaction (ORR). <b>2019</b> , 7, 934	16
615	1D MOF-Derived N-Doped Porous Carbon Nanofibers Encapsulated with Fe <sub>3</sub> C Nanoparticles for Efficient Bifunctional Electrocatalysis. <b>2020</b> , 2020, 581-589	14
614	Enhancing syngas-to-aromatics performance of ZnO/H-ZSM-5 composite catalyst via Mn modulation. <b>2020</b> , 383, 97-102	17
613	Cobalt/zinc dual-sites coordinated with nitrogen in nanofibers enabling efficient and durable oxygen reduction reaction in acidic fuel cells. <b>2020</b> , 8, 3686-3691	42
612	Nanoporous bimetallic Zn/Fe-N-C for efficient oxygen reduction in acidic and alkaline media. <b>2020</b> , 8, 7145-7157	47
611	Metal-organic framework-derived mesoporous carbon nanoframes embedded with atomically dispersed Fe-N active sites for efficient bifunctional oxygen and carbon dioxide electroreduction. <b>2020</b> , 267, 118720	78
610	Applications of metal-organic framework-derived materials in fuel cells and metal-air batteries. <b>2020</b> , 409, 213214	97



609	Recent Advances on Metal Organic FrameworkDerived Catalysts for Electrochemical Oxygen Reduction Reaction. <b>2020</b> , 231-278	5
608	Turning on electrocatalytic oxygen reduction by creating robust Fe-N species in hollow carbon frameworks via in situ growth of Fe doped ZIFs on g-CN. <b>2020</b> , 12, 5601-5611	18
607	Atomically Dispersed Single Ni Site Catalysts for Nitrogen Reduction toward Electrochemical Ammonia Synthesis Using N <sub>2</sub> and H <sub>2</sub> O. <b>2020</b> , 4, 1900821	88
606	Gas-phase synthesis of metal (M=Co, Cu, Mn, Ni, Fe) nanoparticles on N-doped carbon nanofibers as excellent oxygen electrocatalyst. <b>2020</b> , 337, 135848	10
605	First-Principles Study of the Ligand Substituent Effect on ORR Catalysis by Metalloporphyrins. <b>2020</b> , 124, 11275-11283	9
604	Metal-Organic Framework-Based Catalysts with Single Metal Sites. <b>2020</b> , 120, 12089-12174	291
603	An efficient Co-N/C electrocatalyst for oxygen reduction facilely prepared by tuning cobalt species content. <b>2020</b> , 45, 16105-16113	8
602	Atomic rhodium catalysts for hydrogen evolution and oxygen reduction reactions. <b>2020</b> , 164, 121-128	28
601	Facile synthesis of synergistic Pt/(Co-N)@C composites as alternative oxygen-reduction electrode of PEMFCs with attractive activity and durability. <b>2020</b> , 193, 108012	13
600	Facile preparation of Fe <sub>3</sub> C decorate three-dimensional N-doped porous carbon for efficient oxygen reduction reaction. <b>2020</b> , 45, 13272-13281	5
599	From metalorganic frameworks to single/dual-atom and cluster metal catalysts for energy applications. <b>2020</b> , 13, 1658-1693	156
598	Urea-assisted synthesis of a Fe nanoparticle modified N-doped three-dimensional porous carbon framework for a highly efficient oxygen reduction reaction. <b>2020</b> , 44, 6932-6939	4
597	A strategy to unlock the potential of CrN as a highly active oxygen reduction reaction catalyst. <b>2020</b> , 8, 8575-8585	16
596	Atomically dispersed metal-nitrogen-carbon catalysts for fuel cells: advances in catalyst design, electrode performance, and durability improvement. <b>2020</b> , 49, 3484-3524	230
595	Bimetallic metal-organic frameworks and their derivatives. <b>2020</b> , 11, 5369-5403	115
594	Facile grafting strategy synthesis of single-atom electrocatalyst with enhanced ORR performance. <b>2020</b> , 13, 1519-1526	34
593	Molten salt BoilingSynthesis of surface decorated bimetallic-nitrogen doped carbon hollow nanospheres: An oxygen reduction catalyst with dense active sites and high stability. <b>2020</b> , 395, 125064	16
592	An innovative synthetic approach for core-shell multiscale hierarchically porous boron and nitrogen codoped carbon nanofibers for the oxygen reduction reaction. <b>2020</b> , 453, 227883	18

591	The Current State of Aqueous Zn-Based Rechargeable Batteries. <b>2020</b> , 5, 1665-1675	127
590	In Situ Phosphatizing of Triphenylphosphine Encapsulated within Metal-Organic Frameworks to Design Atomic Co-PN Interfacial Structure for Promoting Catalytic Performance. <b>2020</b> , 142, 8431-8439	123
589	Intrinsic Electrocatalytic Activity Regulation of M-N-C Single-Atom Catalysts for the Oxygen Reduction Reaction. <b>2021</b> , 60, 4448-4463	145
588	Intrinsische elektrokatalytische Aktivitätssteuerung von M-N-C-Einzelatom-Katalysatoren für die Sauerstoffreduktionsreaktion. <b>2021</b> , 133, 4496-4512	26
587	Low-PGM and PGM-Free Catalysts for Proton Exchange Membrane Fuel Cells: Stability Challenges and Material Solutions. <b>2021</b> , 33, e1908232	83
586	Atomic Level Dispersed Metal-Nitrogen-Carbon Catalyst toward Oxygen Reduction Reaction: Synthesis Strategies and Chemical Environmental Regulation. <b>2021</b> , 4, 5-18	25
585	Recent advances in defect electrocatalysts: Preparation and characterization. <b>2021</b> , 53, 208-225	40
584	Rational design of CoNi alloy and atomic Co/Ni composite as an efficient electrocatalyst. <b>2021</b> , 9, 37-48	19
583	Selective H <sub>2</sub> O <sub>2</sub> production on surface-oxidized metal-nitrogen-carbon electrocatalysts. <b>2021</b> , 359, 99-105	14
582	3D N-doped ordered mesoporous carbon supported single-atom Fe-N-C catalysts with superior performance for oxygen reduction reaction and zinc-air battery. <b>2021</b> , 280, 119411	127
581	Understanding the Catalytic Sites of Metal-Nitrogen-Carbon Oxygen Reduction Electrocatalysts. <b>2021</b> , 27, 145-157	12
580	Advanced Electrocatalysis for Energy and Environmental Sustainability via Water and Nitrogen Reactions. <b>2021</b> , 33, e2000381	108
579	A highly efficient Fenton-like catalyst based on isolated diatomic Fe-Co anchored on N-doped porous carbon. <b>2021</b> , 404, 126376	52
578	Identifying the Zn-Co binary as a robust bifunctional electrocatalyst in oxygen reduction and evolution reactions via shifting the apexes of the volcano plot. <b>2021</b> , 55, 162-168	14
577	Turning on Zn 4s Electrons in a N <sub>2</sub> -Zn-B <sub>2</sub> Configuration to Stimulate Remarkable ORR Performance. <b>2021</b> , 133, 183-187	24
576	Engineering Atomically Dispersed FeN <sub>4</sub> Active Sites for CO <sub>2</sub> Electroreduction. <b>2021</b> , 133, 1035-1045	13
575	Two-for-one strategy: Three-dimensional porous Fe-doped CoO cathode and N-doped carbon anode derived from a single bimetallic metal-organic framework for enhanced hybrid supercapacitor. <b>2021</b> , 583, 299-309	27
574	Environmental Materials beyond and below the Nanoscale: Single-Atom Catalysts. <b>2021</b> , 1, 157-172	27

573	Engineering Atomically Dispersed FeN Active Sites for CO Electroreduction. <b>2021</b> , 60, 1022-1032	66
572	Stable confinement of Fe/Fe <sub>3</sub> C in Fe, N-codoped carbon nanotube towards robust zinc-air batteries. <b>2021</b> , 32, 1121-1126	13
571	Single-Atom and Dual-Atom Electrocatalysts Derived from Metal Organic Frameworks: Current Progress and Perspectives. <b>2021</b> , 14, 73-93	27
570	Effect of Transition Metals on the Oxygen Reduction Reaction Activity at Metal-N <sub>3</sub> /C Active Sites. <b>2021</b> , 8, 53-61	4
569	Dynamic Activation of Adsorbed Intermediates via Axial Traction for the Promoted Electrochemical CO Reduction. <b>2021</b> , 60, 4192-4198	75
568	Reconstruction of pH-universal atomic FeNC catalysts towards oxygen reduction reaction. <b>2021</b> , 582, 1033-1040	13
567	Coordination Engineering of Single-Atom Catalysts for the Oxygen Reduction Reaction: A Review. <b>2021</b> , 11, 2002473	74
566	Proof-of-concept fabrication of carbon structure in CuNC catalysts of both high ORR activity and stability. <b>2021</b> , 174, 683-692	9
565	Defect Electrocatalysts and Alkaline Electrolyte Membranes in Solid-State Zinc-Air Batteries: Recent Advances, Challenges, and Future Perspectives.. <b>2021</b> , 5, e2000868	16
564	The assembling principle and strategies of high-density atomically dispersed catalysts. <b>2021</b> , 417, 127917	4
563	An Efficient Bio-inspired Oxygen Reduction Reaction Catalyst: MnO <sub>x</sub> Nanosheets Incorporated Iron Phthalocyanine Functionalized Graphene. <b>2021</b> , 4, 474-480	6
562	Highly active, selective, and stable Pd single-atom catalyst anchored on N-doped hollow carbon sphere for electrochemical H <sub>2</sub> O <sub>2</sub> synthesis under acidic conditions. <b>2021</b> , 393, 313-323	10
561	Dynamic Activation of Adsorbed Intermediates via Axial Traction for the Promoted Electrochemical CO <sub>2</sub> Reduction. <b>2021</b> , 133, 4238-4244	10
560	In-situ synthesis of Co nanoparticles encapsulated in mesoporous Co, N-codoped graphene-like carbon hybrid as an efficient oxygen reduction electrocatalyst. <b>2021</b> , 543, 148714	5
559	Multistage porogen-induced heteroporous Co, N-doped carbon catalyst toward efficient oxygen reduction. <b>2021</b> , 57, 903-906	7
558	Manganese coordinated with nitrogen in aligned hierarchical porous carbon for efficient electrocatalytic oxygen reduction reaction in alkaline and acidic medium. <b>2021</b> , 46, 543-554	3
557	Strategies to enhance the electrochemical performances of Pt-based intermetallic catalysts. <b>2021</b> , 57, 11-26	5
556	Single copper sites dispersed on hierarchically porous carbon for improving oxygen reduction reaction towards zinc-air battery. <b>2021</b> , 14, 998-1003	21

555	Applications of Atomically Dispersed Oxygen Reduction Catalysts in Fuel Cells and Zinc-Air Batteries. <b>2021</b> , 4, 307-335	15
554	Turning on Zn 4s Electrons in a N-Zn-B Configuration to Stimulate Remarkable ORR Performance. <b>2021</b> , 60, 181-185	75
553	Fe containing template derived atomic Fe <sup>II</sup> to boost Fenton-like reaction and charge migration analysis on highly active Fe <sup>II</sup> sites. <b>2021</b> , 9, 14793-14805	15
552	Impact of Fabrication and Testing Parameters on the Performance of a Polymer Electrolyte Fuel Cell with Platinum Group Metal (PGM)-Free Cathode Catalyst. <b>2021</b> , 168, 014503	5
551	Nano-geometric deformation and synergistic Co nanoparticles <sup>II</sup> -N <sub>4</sub> composite sites for proton exchange membrane fuel cells.	18
550	Magnetron sputtering enabled sustainable synthesis of nanomaterials for energy electrocatalysis. <b>2021</b> , 23, 2834-2867	40
549	Multi-Scale Design of Metal-Organic Framework-Derived Materials for Energy Electrocatalysis. 2003410	21
548	Direct Pyrolysis of a Manganese-Triazolate Metal-Organic Framework into Air-Stable Manganese Nitride Nanoparticles. <b>2021</b> , 8, 2003212	3
547	Electron beam induced modification of ZIF-8 membrane permeation properties. <b>2021</b> , 57, 5250-5253	3
546	Isolated single iron atoms anchored on a N, S-codoped hierarchically ordered porous carbon framework for highly efficient oxygen reduction. <b>2021</b> , 9, 10110-10119	8
545	CO <sub>2</sub> turned into a nitrogen doped carbon catalyst for fuel cells and metal-air battery applications. <b>2021</b> , 23, 4435-4445	6
544	Carbon-supported catalysts with atomically dispersed metal sites for oxygen electroreduction: present and future perspectives. <b>2021</b> , 9, 15919-15936	3
543	Metal-organic framework-based materials for full cell systems: a review. <b>2021</b> , 9, 11030-11058	6
542	Bifunctional single-atomic Mn sites for energy-efficient hydrogen production. <b>2021</b> , 13, 4767-4773	9
541	Diatomite waste derived N-doped porous carbon for applications in the oxygen reduction reaction and supercapacitors.	1
540	In situ atomically dispersed Fe doped metal-organic framework on reduced graphene oxide as bifunctional electrocatalyst for Zn-air batteries. <b>2021</b> , 9, 11252-11260	0
539	In situ self-organization of uniformly dispersed Co <sup>II</sup> centers at moderate temperature without a sacrificial subsidiary metal. <b>2021</b> , 23, 3115-3126	11
538	Establishing structure/property relationships in atomically dispersed Co/Fe dual site Mn <sup>II</sup> catalysts on microporous carbon for the oxygen reduction reaction. <b>2021</b> , 9, 13044-13055	13

537	Highly exposed discrete Co atoms anchored in ultrathin porous N, P-codoped carbon nanosheets for efficient oxygen electrocatalysis and rechargeable aqueous/solid-state Zn  air batteries.	2
536	Breaking the Scaling Relationship of ORR on Carbon-based Single-atom Catalysts Through Building the Local Collaborative Structure.	0
535	Catalytically active sites of MOF-derived electrocatalysts: synthesis, characterization, theoretical calculations, and functional mechanisms. <b>2021</b> , 9, 20320-20344	3
534	Atomically Dispersed Fe  eteroatom (N, S) Bridge Sites Anchored on Carbon Nanosheets for Promoting Oxygen Reduction Reaction. <b>2021</b> , 6, 379-386	49
533	Active site engineering of atomically dispersed transition metal-heteroatom-carbon catalysts for oxygen reduction. <b>2021</b> , 57, 7869-7881	9
532	Electrosynthesized CuO/graphene by a four-electrode electrolysis system for the oxygen reduction reaction to hydrogen peroxide. <b>2021</b> , 57, 4118-4121	3
531	Oxygen Reduction Electrocatalysts toward Practical Fuel Cells: Progress and Perspectives. <b>2021</b> , 60, 17832-17852	67
530	A General Carboxylate-Assisted Approach to Boost the ORR Performance of ZIF-Derived Fe/N/C Catalysts for Proton Exchange Membrane Fuel Cells. <b>2021</b> , 31, 2009645	36
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