

A rigorous electrochemical ammonia synthesis protocol measurements

Nature

570, 504-508

DOI: [10.1038/s41586-019-1260-x](https://doi.org/10.1038/s41586-019-1260-x)

Citation Report

#	ARTICLE	IF	CITATIONS
4	<i>In situ</i> nano Au triggered by a metal boron organic polymer: efficient electrochemical N ₂ fixation to NH ₃ under ambient conditions. Journal of Materials Chemistry A, 2019, 7, 20945-20951.	5.2	46
5	Interfacial Engineering of SeO Ligands on Tellurium Featuring Synergistic Functionalities of Bond Activation and Chemical States Buffering toward Electrocatalytic Conversion of Nitrogen to Ammonia. Advanced Science, 2019, 6, 1901627.	5.6	32
6	Photocatalytic ammonia synthesis: Recent progress and future. EnergyChem, 2019, 1, 100013.	10.1	204
7	Electrochemical Nitrogen Reduction: Identification and Elimination of Contamination in Electrolyte. ACS Energy Letters, 2019, 4, 2111-2116.	8.8	167
8	Amorphous Sn/Crystalline SnS ₂ Nanosheets via In Situ Electrochemical Reduction Methodology for Highly Efficient Ambient N ₂ Fixation. Small, 2019, 15, e1902535.	5.2	80
9	True or False in Electrochemical Nitrogen Reduction. Joule, 2019, 3, 1573-1575.	11.7	38
10	Facile, cost-effective plasma synthesis of self-supportive FeS _x on Fe foam for efficient electrochemical reduction of N ₂ under ambient conditions. Journal of Materials Chemistry A, 2019, 7, 19977-19983.	5.2	50
11	Monodisperse nanoparticles for catalysis and nanomedicine. Nanoscale, 2019, 11, 18946-18967.	2.8	61
12	Quantification of Active Sites and Elucidation of the Reaction Mechanism of the Electrochemical Nitrogen Reduction Reaction on Vanadium Nitride. Angewandte Chemie, 2019, 131, 13906-13910.	1.6	24
13	Quantification of Active Sites and Elucidation of the Reaction Mechanism of the Electrochemical Nitrogen Reduction Reaction on Vanadium Nitride. Angewandte Chemie - International Edition, 2019, 58, 13768-13772.	7.2	86
14	Enhanced Electrocatalytic N ₂ Reduction via Partial Anion Substitution in Titanium Oxide@Carbon Composites. Angewandte Chemie, 2019, 131, 13235-13240.	1.6	24
15	Strategies toward Selective Electrochemical Ammonia Synthesis. ACS Catalysis, 2019, 9, 8316-8324.	5.5	145
16	Enhanced Electrocatalytic N ₂ Reduction via Partial Anion Substitution in Titanium Oxide@Carbon Composites. Angewandte Chemie - International Edition, 2019, 58, 13101-13106.	7.2	152
17	Elucidating the Mechanism of Electrochemical N ₂ Reduction at the Ru(0001) Electrode. ACS Catalysis, 2019, 9, 11137-11145.	5.5	78
18	High Efficiency Electrochemical Nitrogen Fixation Achieved with a Lower Pressure Reaction System by Changing the Chemical Equilibrium. Angewandte Chemie - International Edition, 2019, 58, 15541-15547.	7.2	164
19	Carbon@Nanoplated CoS@TiO ₂ Nanofibrous Membrane: An Interface-Engineered Heterojunction for High-Efficiency Electrocatalytic Nitrogen Reduction. Angewandte Chemie - International Edition, 2019, 58, 18903-18907.	7.2	119
20	Selectivity of Chemical Conversions: Do Light-Driven Photoelectrocatalytic Processes Hold Special Promise?. Angewandte Chemie, 2019, 131, 16878-16883.	1.6	5
21	Carbon@Nanoplated CoS@TiO ₂ Nanofibrous Membrane: An Interface-Engineered Heterojunction for High-Efficiency Electrocatalytic Nitrogen Reduction. Angewandte Chemie, 2019, 131, 19079-19083.	1.6	22

#	ARTICLE	IF	CITATIONS
22	Selectivity of Chemical Conversions: Do Light-Driven Photoelectrocatalytic Processes Hold Special Promise?. <i>Angewandte Chemie - International Edition</i> , 2019, 58, 16724-16729.	7.2	32
23	Electrosynthesis of Hydrogen Peroxide by Phase-Transfer Catalysis. <i>Joule</i> , 2019, 3, 2942-2954.	11.7	89
24	High Efficiency Electrochemical Nitrogen Fixation Achieved with a Lower Pressure Reaction System by Changing the Chemical Equilibrium. <i>Angewandte Chemie</i> , 2019, 131, 15687-15693.	1.6	34
25	Stable Confinement of Black Phosphorus Quantum Dots on Black Tin Oxide Nanotubes: A Robust, Double-Active Electrocatalyst toward Efficient Nitrogen Fixation. <i>Angewandte Chemie - International Edition</i> , 2019, 58, 16439-16444.	7.2	112
26	Cobalt-Modulated Molybdenum-Dinitrogen Interaction in MoS ₂ for Catalyzing Ammonia Synthesis. <i>Journal of the American Chemical Society</i> , 2019, 141, 19269-19275.	6.6	189
27	Electrochemical Fixation of Nitrogen and Its Coupling with Biomass Valorization with a Strongly Adsorbing and Defect Optimized Boron-Carbon Nitrogen Catalyst. <i>ACS Applied Energy Materials</i> , 2019, 2, 8359-8365.	2.5	43
28	Operando Oxygen Vacancies for Enhanced Activity and Stability toward Nitrogen Photofixation. <i>Advanced Energy Materials</i> , 2019, 9, 1902319.	10.2	88
29	Stable Confinement of Black Phosphorus Quantum Dots on Black Tin Oxide Nanotubes: A Robust, Double-Active Electrocatalyst toward Efficient Nitrogen Fixation. <i>Angewandte Chemie</i> , 2019, 131, 16591-16596.	1.6	42
30	Is It Appropriate to Use the Nafion Membrane in Electrocatalytic N ₂ Reduction?. <i>Small Methods</i> , 2019, 3, 1900474.	4.6	56
31	The hydrogen evolution reaction: from material to interfacial descriptors. <i>Chemical Science</i> , 2019, 10, 9165-9181.	3.7	560
32	Theoretical Investigation on the Single Transition-Metal Atom-Decorated Defective MoS ₂ for Electrocatalytic Ammonia Synthesis. <i>ACS Applied Materials & Interfaces</i> , 2019, 11, 36506-36514.	4.0	88
33	Electrochemical Reduction of N ₂ into NH ₃ by Donor-Acceptor Couples of Ni and Au Nanoparticles with a 67.8% Faradaic Efficiency. <i>Journal of the American Chemical Society</i> , 2019, 141, 14976-14980.	6.6	290
34	Defect Engineering in Photocatalytic Nitrogen Fixation. <i>ACS Catalysis</i> , 2019, 9, 9739-9750.	5.5	286
35	Recent Developments in Polymeric Carbon Nitride-Derived Photocatalysts and Electrocatalysts for Nitrogen Fixation. <i>ACS Catalysis</i> , 2019, 9, 10260-10278.	5.5	116
36	Ambient dinitrogen electrocatalytic reduction for ammonia synthesis. <i>Journal of Materials Chemistry A</i> , 2019, 7, 23416-23431.	5.2	54
37	Lithium-mediated ammonia synthesis from water and nitrogen: a membrane-free approach enabled by an immiscible aqueous/organic hybrid electrolyte system. <i>Green Chemistry</i> , 2019, 21, 3839-3845.	4.6	30
38	A Versatile Method for Ammonia Detection in a Range of Relevant Electrolytes via Direct Nuclear Magnetic Resonance Techniques. <i>ACS Catalysis</i> , 2019, 9, 5797-5802.	5.5	97
39	2020 Roadmap on gas-involved photo- and electro- catalysis. <i>Chinese Chemical Letters</i> , 2019, 30, 2089-2109.	4.8	71

#	ARTICLE	IF	CITATIONS
40	The Difficulty of Proving Electrochemical Ammonia Synthesis. ACS Energy Letters, 2019, 4, 2986-2988.	8.8	122
41	Self-organized growth of flower-like SnS ₂ and forest-like ZnS nanoarrays on nickel foam for synergistic superiority in electrochemical ammonia synthesis. Journal of Materials Chemistry A, 2019, 7, 22235-22241.	5.2	66
42	Sb ₂ S ₃ nanoparticles anchored on SnO ₂ nanofibers: a high-performance hybrid electrocatalyst toward ammonia synthesis under ambient conditions. Chemical Communications, 2019, 55, 13892-13895.	2.2	13
43	Freestanding ultrathin bismuth-based materials for diversified photocatalytic applications. Journal of Materials Chemistry A, 2019, 7, 25203-25226.	5.2	90
44	Electrochemical reduction of N ₂ to ammonia on Co single atom embedded N-doped porous carbon under ambient conditions. Journal of Materials Chemistry A, 2019, 7, 26358-26363.	5.2	51
45	Dissociation, Dissolution, and Diffusion of Nitrogen on V _x Fe _y and V _x Cr _y Alloy Membranes Studied by First Principles. Journal of Physical Chemistry C, 2019, 123, 30416-30426.	1.5	1
46	Electronic Structural Origin of the Catalytic Activity Trend of Transition Metals for Electrochemical Nitrogen Reduction. Journal of Physical Chemistry C, 2019, 123, 31026-31031.	1.5	16
47	Amorphous Sulfur Decorated Gold Nanowires as Efficient Electrocatalysts toward Ambient Ammonia Synthesis. ACS Sustainable Chemistry and Engineering, 2019, 7, 19969-19974.	3.2	30
48	Electrochemical nitrogen fixation and utilization: theories, advanced catalyst materials and system design. Chemical Society Reviews, 2019, 48, 5658-5716.	18.7	541
49	2D Electrocatalysts for Converting Earth-Abundant Simple Molecules into Value-Added Commodity Chemicals: Recent Progress and Perspectives. Advanced Materials, 2020, 32, e1904870.	11.1	76
50	Recent Advanced Materials for Electrochemical and Photoelectrochemical Synthesis of Ammonia from Dinitrogen: One Step Closer to a Sustainable Energy Future. Advanced Energy Materials, 2020, 10, 1902020.	10.2	113
51	Insight into the Nature of Active Species of Pt/Al ₂ O ₃ Catalysts for low Temperature NH ₃ Oxidation. ChemCatChem, 2020, 12, 867-880.	1.8	38
52	Two-Dimensional Electrocatalysts for Efficient Reduction of Carbon Dioxide. ChemSusChem, 2020, 13, 59-77.	3.6	31
53	Interface engineering in transition metal carbides for electrocatalytic hydrogen generation and nitrogen fixation. Materials Horizons, 2020, 7, 32-53.	6.4	61
54	Self-supported NbSe ₂ nanosheet arrays for highly efficient ammonia electrosynthesis under ambient conditions. Journal of Catalysis, 2020, 381, 78-83.	3.1	53
55	Electrochemical ammonia synthesis through N ₂ and H ₂ O under ambient conditions: Theory, practices, and challenges for catalysts and electrolytes. Nano Energy, 2020, 69, 104469.	8.2	123
56	The elusive photocatalytic water splitting reaction using sunlight on suspended nanoparticles: is there a way forward?. Catalysis Science and Technology, 2020, 10, 304-310.	2.1	42
57	Aqueous electrocatalytic N ₂ reduction for ambient NH ₃ synthesis: recent advances in catalyst development and performance improvement. Journal of Materials Chemistry A, 2020, 8, 1545-1556.	5.2	226

#	ARTICLE	IF	CITATIONS
58	In ₂ O ₃ nanoparticle-reduced graphene oxide hybrid for electrocatalytic nitrogen fixation: Computational and experimental studies. <i>Journal of Materials Science</i> , 2020, 55, 4624-4632.	1.7	41
59	High-performance nitrogen electroreduction at low overpotential by introducing Pb to Pd nanosponges. <i>Applied Catalysis B: Environmental</i> , 2020, 265, 118481.	10.8	62
60	Core@shell structured Au@SnO ₂ nanoparticles with improved N ₂ adsorption/activation and electrical conductivity for efficient N ₂ fixation. <i>Science Bulletin</i> , 2020, 65, 350-358.	4.3	38
61	Mesoporous Au ₃ Pd Film on Ni Foam: A Self-Supported Electrocatalyst for Efficient Synthesis of Ammonia. <i>ACS Applied Materials & Interfaces</i> , 2020, 12, 436-442.	4.0	49
62	Nanoporous Palladium Hydride for Electrocatalytic N ₂ Reduction under Ambient Conditions. <i>Angewandte Chemie - International Edition</i> , 2020, 59, 3511-3516.	7.2	182
63	Multi-functional Mo-doping in MnO ₂ nanoflowers toward efficient and robust electrocatalytic nitrogen fixation. <i>Applied Catalysis B: Environmental</i> , 2020, 264, 118525.	10.8	211
64	Chemically coupled NiCoS/C nanocages as efficient electrocatalysts for nitrogen reduction reactions. <i>Journal of Materials Chemistry A</i> , 2020, 8, 543-547.	5.2	52
65	Materials for hydrogen-based energy storage – past, recent progress and future outlook. <i>Journal of Alloys and Compounds</i> , 2020, 827, 153548.	2.8	518
66	Liquefied Sunshine: Transforming Renewables into Fertilizers and Energy Carriers with Electromaterials. <i>Advanced Materials</i> , 2020, 32, e1904804.	11.1	49
67	Nanoporous Palladium Hydride for Electrocatalytic N ₂ Reduction under Ambient Conditions. <i>Angewandte Chemie</i> , 2020, 132, 3539-3544.	1.6	25
68	Feasibility Study of Plasma-Catalytic Ammonia Synthesis for Energy Storage Applications. <i>Catalysts</i> , 2020, 10, 999.	1.6	28
69	Mechanocatalytic Ammonia Synthesis over TiN in Transient Microenvironments. <i>ACS Energy Letters</i> , 2020, 5, 3362-3367.	8.8	33
70	Scalable synthesis of 2D hydrogen-substituted graphdiyne on Zn substrate for high-yield N ₂ fixation. <i>Nano Energy</i> , 2020, 78, 105283.	8.2	38
71	Electrocatalytic Nitrogen Fixation on Metal Tellurides Boosted by Multiple Promoted-Synergetic Effects of Telluride. <i>Cell Reports Physical Science</i> , 2020, 1, 100232.	2.8	8
72	Prediction of Highly Selective Electrocatalytic Nitrogen Reduction at Low Overpotential on a Mo-Doped g-GaN Monolayer. <i>ACS Catalysis</i> , 2020, 10, 12841-12857.	5.5	92
73	Revisiting amorphous molybdenum sulfide's activity for the electro-driven reduction of dinitrogen and N-containing substrates. <i>Chemical Communications</i> , 2020, 56, 13975-13978.	2.2	2
74	Fast Screening Method for Nitrogen Reduction Reaction (NRR) Electrocatalytic Activity with Rotating Ring-Disc Electrode (RRDE) Analysis in Alkaline Environment. <i>ChemCatChem</i> , 2020, 12, 6205-6213.	1.8	16
75	Towards Experimental Handbooks in Catalysis. <i>Topics in Catalysis</i> , 2020, 63, 1683-1699.	1.3	28

#	ARTICLE	IF	CITATIONS
76	Water electrolyzers with closed and open electrochemical systems. <i>Nature Materials</i> , 2020, 19, 1140-1150.	13.3	326
77	<i>In silico</i> design of novel NRR electrocatalysts: cobalt–molybdenum alloys. <i>Chemical Communications</i> , 2020, 56, 13343-13346.	2.2	20
78	Increasing stability, efficiency, and fundamental understanding of lithium-mediated electrochemical nitrogen reduction. <i>Energy and Environmental Science</i> , 2020, 13, 4291-4300.	15.6	124
79	Activating VS ₂ basal planes for enhanced NRR electrocatalysis: the synergistic role of S-vacancies and B dopants. <i>Journal of Materials Chemistry A</i> , 2020, 8, 16195-16202.	5.2	146
80	The rational design of single-atom catalysts for electrochemical ammonia synthesis <i>via</i> a descriptor-based approach. <i>Journal of Materials Chemistry A</i> , 2020, 8, 17078-17088.	5.2	60
81	In Situ Fragmented Bismuth Nanoparticles for Electrocatalytic Nitrogen Reduction. <i>Advanced Energy Materials</i> , 2020, 10, 2001289.	10.2	184
82	Active Site Engineering in Porous Electrocatalysts. <i>Advanced Materials</i> , 2020, 32, e2002435.	11.1	304
83	Atomic-level active sites steering in ultrathin photocatalysts to trigger high efficiency nitrogen fixation. <i>Chemical Engineering Journal</i> , 2020, 402, 126208.	6.6	40
84	Atom-Pair Catalysts Supported by N-Doped Graphene for the Nitrogen Reduction Reaction: <i>d</i> -Band Center-Based Descriptor. <i>Journal of Physical Chemistry Letters</i> , 2020, 11, 6320-6329.	2.1	82
85	Readily Constructed Glass Piston Pump for Gas Recirculation. <i>ACS Omega</i> , 2020, 5, 16455-16459.	1.6	5
86	Defect engineering for electrochemical nitrogen reduction reaction to ammonia. <i>Nano Energy</i> , 2020, 77, 105126.	8.2	143
87	Nanostructured and Boron-Doped Diamond as an Electrocatalyst for Nitrogen Fixation. <i>ACS Energy Letters</i> , 2020, 5, 2590-2596.	8.8	55
88	Ruddlesden–Popper perovskites in electrocatalysis. <i>Materials Horizons</i> , 2020, 7, 2519-2565.	6.4	139
89	The impact of nitrogen oxides on electrochemical carbon dioxide reduction. <i>Nature Communications</i> , 2020, 11, 5856.	5.8	83
90	Competing Effects of pH, Cation Identity, H ₂ O Saturation, and N ₂ Concentration on the Activity and Selectivity of Electrochemical Reduction of N ₂ to NH ₃ on Electrodeposited Cu at Ambient Conditions. <i>ACS Catalysis</i> , 2020, 10, 14592-14603.	5.5	43
91	Vanadium oxynitrides as stable catalysts for electrochemical reduction of nitrogen to ammonia: the role of oxygen. <i>Journal of Materials Chemistry A</i> , 2020, 8, 24098-24107.	5.2	29
92	Regulating kinetics and thermodynamics of electrochemical nitrogen reduction with metal single-atom catalysts in a pressurized electrolyser. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2020, 117, 29462-29468.	3.3	104
93	Metal–Sulfur Linkages Achieved by Organic Tethering of Ruthenium Nanocrystals for Enhanced Electrochemical Nitrogen Reduction. <i>Angewandte Chemie - International Edition</i> , 2020, 59, 21465-21469.	7.2	52

#	ARTICLE	IF	CITATIONS
94	Achieving High Activity and Selectivity of Nitrogen Reduction via Fe ^{III} Coordination on Iron Single-Atom Electrocatalysts at Ambient Conditions. ACS Sustainable Chemistry and Engineering, 2020, 8, 12809-12816.	3.2	41
95	Metal-Sulfur Linkages Achieved by Organic Tethering of Ruthenium Nanocrystals for Enhanced Electrochemical Nitrogen Reduction. Angewandte Chemie, 2020, 132, 21649-21653.	1.6	3
96	Molecule template method for precise synthesis of Mo-based alloy clusters and electrocatalytic nitrogen reduction on partially reduced PtMo alloy oxide cluster. Nano Energy, 2020, 78, 105211.	8.2	38
97	Rational Design of Metal-Organic Frameworks towards Efficient Electrocatalysis. , 2020, 2, 1251-1267.		65
98	Boosting Electrocatalytic Nitrogen Fixation with Co ^{III} Site-Decorated Porous Carbon. ACS Sustainable Chemistry and Engineering, 2020, 8, 13430-13439.	3.2	28
99	Rational Design of Two-Dimensional Transition Metal Carbide/Nitride (MXene) Hybrids and Nanocomposites for Catalytic Energy Storage and Conversion. ACS Nano, 2020, 14, 10834-10864.	7.3	349
100	Quantitative isotope measurements in heterogeneous photocatalysis and electrocatalysis. Energy and Environmental Science, 2020, 13, 2602-2617.	15.6	26
101	Regulating surface state of WO ₃ nanosheets by gamma irradiation for suppressing hydrogen evolution reaction in electrochemical N ₂ fixation. Nano Research, 2020, 13, 2784-2790.	5.8	23
102	Boosting Electrocatalytic Ammonia Production through Mimicking "Back-Donation". Chem, 2020, 6, 2690-2702.	5.8	88
103	Opportunities for intermediate temperature renewable ammonia electrosynthesis. Journal of Materials Chemistry A, 2020, 8, 15591-15606.	5.2	22
104	Single Atoms of Iron on MoS ₂ Nanosheets for N ₂ Electroreduction into Ammonia. Angewandte Chemie, 2020, 132, 20591-20596.	1.6	17
105	Single Atoms of Iron on MoS ₂ Nanosheets for N ₂ Electroreduction into Ammonia. Angewandte Chemie - International Edition, 2020, 59, 20411-20416.	7.2	136
106	Single yttrium sites on carbon-coated TiO ₂ for efficient electrocatalytic N ₂ reduction. Chemical Communications, 2020, 56, 10910-10913.	2.2	31
107	Cathodic NH ₄ ⁺ leaching of nitrogen impurities in CoMo thin-film electrodes in aqueous acidic solutions. Sustainable Energy and Fuels, 2020, 4, 5080-5087.	2.5	14
108	Electrochemical reduction of nitrate to ammonia via direct eight-electron transfer using a copper-molecular solid catalyst. Nature Energy, 2020, 5, 605-613.	19.8	722
109	Tuning water reduction through controlled nanoconfinement within an organic liquid matrix. Nature Catalysis, 2020, 3, 656-663.	16.1	91
110	Electrosynthesis of Ammonia Using Porous Bimetallic Pd-Ag Nanocatalysts in Liquid- and Gas-Phase Systems. ACS Catalysis, 2020, 10, 10197-10206.	5.5	33
111	Lithium Iron Oxide (LiFeO ₂) for Electroreduction of Dinitrogen to Ammonia. ACS Applied Materials & Interfaces, 2020, 12, 37258-37264.	4.0	70

#	ARTICLE	IF	CITATIONS
112	Considering Electrocatalytic Ammonia Synthesis via Bimetallic Dinitrogen Cleavage. ACS Catalysis, 2020, 10, 10826-10846.	5.5	60
113	Controlled oxygen vacancy engineering on In ₂ O ₃ /CeO ₂ nanotubes for highly selective and efficient electrocatalytic nitrogen reduction. Inorganic Chemistry Frontiers, 2020, 7, 3609-3619.	3.0	10
114	Advanced Electrocatalysts with Single-Metal-Atom Active Sites. Chemical Reviews, 2020, 120, 12217-12314.	23.0	563
115	Revealing nitrogen-containing species in commercial catalysts used for ammonia electrosynthesis. Nature Catalysis, 2020, 3, 1055-1061.	16.1	73
116	Robust Active Site Design of Single-Atom Catalysts for Electrochemical Ammonia Synthesis. Journal of Physical Chemistry C, 2020, 124, 23164-23176.	1.5	8
117	Exceptional size-dependent activity enhancement in the catalytic electroreduction of N ₂ over Mo nanoparticles. International Journal of Hydrogen Energy, 2020, 45, 31841-31848.	3.8	9
118	Unveiling Electrode-Electrolyte Design-Based NO Reduction for NH ₃ Synthesis. ACS Energy Letters, 2020, 5, 3647-3656.	8.8	97
119	Efficient Ambient Electrocatalytic Ammonia Synthesis by Nanogold Triggered via Boron Clusters Combined with Carbon Nanotubes. ACS Applied Materials & Interfaces, 2020, 12, 42821-42831.	4.0	27
120	Theoretical insights into single-atom catalysts. Chemical Society Reviews, 2020, 49, 8156-8178.	18.7	231
121	Atomically-precise dopant-controlled single cluster catalysis for electrochemical nitrogen reduction. Nature Communications, 2020, 11, 4389.	5.8	110
122	Ambient electrosynthesis of ammonia with efficient denitration. Nano Energy, 2020, 78, 105321.	8.2	110
123	Exploration and Investigation of Periodic Elements for Electrocatalytic Nitrogen Reduction. Small, 2020, 16, e2002885.	5.2	88
124	A spinel ferrite catalyst for efficient electroreduction of dinitrogen to ammonia. Dalton Transactions, 2020, 49, 12559-12564.	1.6	7
125	Preparation of Nafion Membranes for Reproducible Ammonia Quantification in Nitrogen Reduction Reaction Experiments. Angewandte Chemie - International Edition, 2020, 59, 22938-22942.	7.2	31
126	Preparation of Nafion Membranes for Reproducible Ammonia Quantification in Nitrogen Reduction Reaction Experiments. Angewandte Chemie, 2020, 132, 23138-23142.	1.6	16
127	Ruthenium single-atom catalysis for electrocatalytic nitrogen reduction unveiled by grand canonical density functional theory. Journal of Materials Chemistry A, 2020, 8, 20402-20407.	5.2	34
128	Structural evolution of CrN nanocube electrocatalysts during nitrogen reduction reaction. Nanoscale, 2020, 12, 19276-19283.	2.8	24
129	Isoelectric Si Heteroatoms as Electron Traps for N ₂ Fixation and Activation. Advanced Functional Materials, 2020, 30, 2005779.	7.8	26

#	ARTICLE	IF	CITATIONS
130	Plasma-driven catalysis: green ammonia synthesis with intermittent electricity. <i>Green Chemistry</i> , 2020, 22, 6258-6287.	4.6	163
131	Unsaturated p-Metal-Based Metal-Organic Frameworks for Selective Nitrogen Reduction under Ambient Conditions. <i>ACS Applied Materials & Interfaces</i> , 2020, 12, 44830-44839.	4.0	58
132	FeMo ₃ S ₄ for Efficient Nitrogen Reduction Reaction. <i>ACS Sustainable Chemistry and Engineering</i> , 2020, 8, 12733-12740.	3.2	52
133	Polyoxometalate-based metal-organic framework-derived bimetallic hybrid materials for upgraded electrochemical reduction of nitrogen. <i>Green Chemistry</i> , 2020, 22, 6157-6169.	4.6	132
134	Promoting selective electroreduction of nitrates to ammonia over electron-deficient Co modulated by rectifying Schottky contacts. <i>Science China Chemistry</i> , 2020, 63, 1469-1476.	4.2	155
135	Subsurface Nitrogen Dissociation Kinetics in Lithium Metal from Metadynamics. <i>Journal of Physical Chemistry C</i> , 2020, 124, 26368-26378.	1.5	14
136	Designing the future atomic electrocatalyst for efficient energy systems. <i>Engineering Reports</i> , 2020, 2, e12327.	0.9	5
137	Facile All-Optical Method for In Situ Detection of Low Amounts of Ammonia. <i>IScience</i> , 2020, 23, 101757.	1.9	12
138	Are There Any Overlooked Catalysts for Electrochemical NH ₃ Synthesis? New Insights from Analysis of Thermochemical Data. <i>IScience</i> , 2020, 23, 101803.	1.9	36
139	Microtubular Gas Diffusion Electrode Based on Ruthenium-Carbon Nanotubes for Ambient Electrochemical Nitrogen Reduction to Ammonia. <i>ChemElectroChem</i> , 2020, 7, 4679-4684.	1.7	17
140	Recent Progress of Carbon-Supported Single-Atom Catalysts for Energy Conversion and Storage. <i>Matter</i> , 2020, 3, 1442-1476.	5.0	196
141	MXenes: New Horizons in Catalysis. <i>ACS Catalysis</i> , 2020, 10, 13487-13503.	5.5	239
142	Identification and elimination of false positives in electrochemical nitrogen reduction studies. <i>Nature Communications</i> , 2020, 11, 5546.	5.8	264
143	Promoted Electrocatalytic Nitrogen Fixation in Fe-Ni Layered Double Hydroxide Arrays Coupled to Carbon Nanofibers: The Role of Phosphorus Doping. <i>Angewandte Chemie</i> , 2020, 132, 13725-13729.	1.6	14
144	Electrocatalytically Active Fe(O ₂) ₄ Single-Atom Sites for Efficient Reduction of Nitrogen to Ammonia. <i>Angewandte Chemie - International Edition</i> , 2020, 59, 13423-13429.	7.2	161
145	Non-aqueous gas diffusion electrodes for rapid ammonia synthesis from nitrogen and water-splitting-derived hydrogen. <i>Nature Catalysis</i> , 2020, 3, 463-469.	16.1	261
146	Direct Synthesis of Ammonia from N ₂ and H ₂ O on Different Iron Species Supported on Carbon Nanotubes using a Gas-Phase Electrocatalytic Flow Reactor. <i>ChemElectroChem</i> , 2020, 7, 3028-3037.	1.7	12
147	Electrode design for ammonia synthesis. <i>Nature Catalysis</i> , 2020, 3, 420-421.	16.1	28

#	ARTICLE	IF	CITATIONS
148	Across the Board: Federico Bella on Electrochemical Nitrogen Reduction. <i>ChemSusChem</i> , 2020, 13, 3053-3055.	3.6	4
149	Operando identification of site-dependent water oxidation activity on ruthenium dioxide single-crystal surfaces. <i>Nature Catalysis</i> , 2020, 3, 516-525.	16.1	166
150	Fe doped SrWO ₄ with tunable band structure for photocatalytic nitrogen fixation. <i>Nanotechnology</i> , 2020, 31, 375402.	1.3	23
151	Graphdiyne Interface Engineering: Highly Active and Selective Ammonia Synthesis. <i>Angewandte Chemie</i> , 2020, 132, 13121-13127.	1.6	15
152	Electrocatalytically Active Fe(OH) ₂ Single-Atom Sites for Efficient Reduction of Nitrogen to Ammonia. <i>Angewandte Chemie</i> , 2020, 132, 13525-13531.	1.6	23
153	A Roadmap to the Ammonia Economy. <i>Joule</i> , 2020, 4, 1186-1205.	11.7	782
154	Rational Catalyst Design for N ₂ Reduction under Ambient Conditions: Strategies toward Enhanced Conversion Efficiency. <i>ACS Catalysis</i> , 2020, 10, 6870-6899.	5.5	273
155	A Review of Composite/Hybrid Electrocatalysts and Photocatalysts for Nitrogen Reduction Reactions: Advanced Materials, Mechanisms, Challenges and Perspectives. <i>Electrochemical Energy Reviews</i> , 2020, 3, 506-540.	13.1	35
156	A review of the current trends in high-temperature electrocatalytic ammonia production using solid electrolytes. <i>Journal of Catalysis</i> , 2020, 387, 207-216.	3.1	25
157	Recent Advances and Challenges of Electrocatalytic N ₂ Reduction to Ammonia. <i>Chemical Reviews</i> , 2020, 120, 5437-5516.	23.0	718
158	Machine-Learning-Enabled Exploration of Morphology Influence on Wire-Array Electrodes for Electrochemical Nitrogen Fixation. <i>Journal of Physical Chemistry Letters</i> , 2020, 11, 4625-4630.	2.1	23
159	Crystalline Red Phosphorus Nanoribbons: Large-Scale Synthesis and Electrochemical Nitrogen Fixation. <i>Angewandte Chemie</i> , 2020, 132, 14489-14493.	1.6	9
160	Coupling N ₂ and CO ₂ in H ₂ O to synthesize urea under ambient conditions. <i>Nature Chemistry</i> , 2020, 12, 717-724.	6.6	485
161	Semi-biological approaches to solar-to-chemical conversion. <i>Chemical Society Reviews</i> , 2020, 49, 4926-4952.	18.7	157
162	Cu _x Ir _{1-x} Nanoalloy Catalysts Achieve Near 100% Selectivity for Aqueous Nitrite Reduction to NH ₃ . <i>ACS Catalysis</i> , 2020, 10, 7915-7921.	5.5	69
163	BCN-Encapsulated Nano-nickel Synergistically Promotes Ambient Electrochemical Dinitrogen Reduction. <i>ACS Applied Materials & Interfaces</i> , 2020, 12, 31419-31430.	4.0	33
164	Progress and Prospective of Nitrogen-Based Alternative Fuels. <i>Chemical Reviews</i> , 2020, 120, 5352-5436.	23.0	165
165	Highly Efficient Electrochemical Reduction of Nitrogen to Ammonia on Surface Termination Modified Ti ₃ C ₂ T _x MXene Nanosheets. <i>ACS Nano</i> , 2020, 14, 9089-9097.	7.3	137

#	ARTICLE	IF	CITATIONS
166	Of best practice in catalysis. Nature Catalysis, 2020, 3, 471-472.	16.1	9
167	Crystalline Red Phosphorus Nanoribbons: Large-scale Synthesis and Electrochemical Nitrogen Fixation. Angewandte Chemie - International Edition, 2020, 59, 14383-14387.	7.2	58
168	Self-powered electrocatalytic ammonia synthesis directly from air as driven by dual triboelectric nanogenerators. Energy and Environmental Science, 2020, 13, 2450-2458.	15.6	84
169	Electrochemical Oxidation of Nitrogen towards Direct Nitrate Production on Spinel Oxides. Angewandte Chemie - International Edition, 2020, 59, 9418-9422.	7.2	108
170	Defective S/N co-doped carbon cloth via a one-step process for effective electroreduction of nitrogen to ammonia. RSC Advances, 2020, 10, 9814-9823.	1.7	11
171	Crystal-phase and surface-structure engineering of ruthenium nanocrystals. Nature Reviews Materials, 2020, 5, 440-459.	23.3	118
172	Ru-doped, oxygen-vacancy-containing CeO ₂ nanorods toward N ₂ electroreduction. Journal of Materials Chemistry A, 2020, 8, 7229-7234.	5.2	45
173	Direct Electrochemical Ammonia Synthesis from Nitric Oxide. Angewandte Chemie - International Edition, 2020, 59, 9711-9718.	7.2	308
174	Transition Metal Aluminum Boride as a New Candidate for Ambient-Condition Electrochemical Ammonia Synthesis. Nano-Micro Letters, 2020, 12, 65.	14.4	53
175	Electrocatalytic production of ammonia: Biomimetic electrode-electrolyte design for efficient electrocatalytic nitrogen fixation under ambient conditions. Applied Catalysis B: Environmental, 2020, 271, 118919.	10.8	55
176	Urchin-like Al-Doped Co ₃ O ₄ Nanospheres Rich in Surface Oxygen Vacancies Enable Efficient Ammonia Electrosynthesis. ACS Applied Materials & Interfaces, 2020, 12, 17502-17508.	4.0	76
177	Using waste as resource to realize a circular economy: Circular use of C, N and P. Current Opinion in Green and Sustainable Chemistry, 2020, 23, 61-66.	3.2	15
178	Direct Electrochemical Ammonia Synthesis from Nitric Oxide. Angewandte Chemie, 2020, 132, 9798-9805.	1.6	37
179	Nitrogen-Defective Polymeric Carbon Nitride Nanolayer Enabled Efficient Electrocatalytic Nitrogen Reduction with High Faradaic Efficiency. Nano Letters, 2020, 20, 2879-2885.	4.5	92
180	Low-coordinate Step Atoms via Plasma-Assisted Calcinations to Enhance Electrochemical Reduction of Nitrogen to Ammonia. Small, 2020, 16, e2000421.	5.2	24
181	Biomass-Derived Nitrogen-Doped Porous Carbon for Highly Efficient Ambient Electro-Synthesis of NH ₃ . Catalysts, 2020, 10, 353.	1.6	7
182	Engineering pristine 2D metal-organic framework nanosheets for electrocatalysis. Journal of Materials Chemistry A, 2020, 8, 8143-8170.	5.2	180
183	Electrocatalysis as the Nexus for Sustainable Renewable Energy: The Gordian Knot of Activity, Stability, and Selectivity. Angewandte Chemie - International Edition, 2020, 59, 15298-15312.	7.2	140

#	ARTICLE	IF	CITATIONS
184	Laser Irradiation in Liquid to Release Cobalt Single-Atom Sites for Efficient Electrocatalytic N ₂ Reduction. ACS Applied Energy Materials, 2020, 3, 6079-6086.	2.5	19
185	FeMo sub-nanoclusters/single atoms for neutral ammonia electrosynthesis. Nano Energy, 2020, 77, 105078.	8.2	56
186	Advances in electrocatalytic ammonia synthesis under mild conditions. Progress in Energy and Combustion Science, 2020, 81, 100860.	15.8	38
187	Defect and Interface Engineering on Two-Dimensional Nanosheets for the Photocatalytic Nitrogen Reduction Reaction. ChemPhotoChem, 2020, 4, 5322-5336.	1.5	12
188	Rigorous and reliable operations for electrocatalytic nitrogen reduction. Applied Catalysis B: Environmental, 2020, 278, 119325.	10.8	49
189	Unveiling the Essential Nature of Lewis Basicity in Thermodynamically and Dynamically Promoted Nitrogen Fixation. Advanced Functional Materials, 2020, 30, 2001244.	7.8	49
190	Elektrokatalyse als Nexus für nachhaltige erneuerbare Energien – der gordische Knoten aus Aktivität, Stabilität und Selektivität. Angewandte Chemie, 2020, 132, 15410-15426.	1.6	14
191	Ammonia Synthesis via Electrochemical Nitrogen Reduction Reaction on Iron Molybdate under Ambient Conditions. European Journal of Inorganic Chemistry, 2020, 2020, 3236-3241.	1.0	16
192	Synergizing Mo Single Atoms and Mo ₂ C Nanoparticles on CNTs Synchronizes Selectivity and Activity of Electrocatalytic N ₂ Reduction to Ammonia. Advanced Materials, 2020, 32, e2002177.	11.1	190
193	Enabling electrochemical N ₂ reduction to NH ₃ in the low overpotential region using non-noble metal Bi electrodes via surface composition modification. Journal of Materials Chemistry A, 2020, 8, 13842-13851.	5.2	16
194	Trends of epitaxial perovskite oxide films catalyzing the oxygen evolution reaction in alkaline media. JPhys Energy, 2020, 2, 032003.	2.3	37
195	The removal of inevitable NO species in catalysts and the selection of appropriate membrane for measuring electrocatalytic ammonia synthesis accurately. Journal of Energy Chemistry, 2020, 49, 51-58.	7.1	43
196	Refining Universal Procedures for Ammonium Quantification via Rapid ¹ H NMR Analysis for Dinitrogen Reduction Studies. ACS Energy Letters, 2020, 5, 736-741.	8.8	93
197	A two-dimensional Ru@MXene catalyst for highly selective ambient electrocatalytic nitrogen reduction. Nanoscale, 2020, 12, 10933-10938.	2.8	100
198	Long-term electrocatalytic N ₂ fixation by MOF-derived Y-stabilized ZrO ₂ : insight into the deactivation mechanism. Journal of Materials Chemistry A, 2020, 8, 5647-5654.	5.2	54
199	Highly boosted gas diffusion for enhanced electrocatalytic reduction of N ₂ to NH ₃ on 3D hollow Co-MoS ₂ nanostructures. Nanoscale, 2020, 12, 6029-6036.	2.8	30
200	Ru polyoxometalate as a single-atom electrocatalyst for N ₂ reduction to NH ₃ with high selectivity at applied voltage: a perspective from DFT studies. Physical Chemistry Chemical Physics, 2020, 22, 7234-7240.	1.3	30
201	Formation of Bi ₂ Ni ₂ C Coordination to Stabilize the Exposed Active Nitrogen Atoms in g-C ₃ N ₄ for Dramatically Enhanced Photocatalytic Ammonia Synthesis Performance. Small, 2020, 16, e1906880.	5.2	88

#	ARTICLE	IF	CITATIONS
202	Boosting Selective Nitrate Electroreduction to Ammonium by Constructing Oxygen Vacancies in TiO ₂ . ACS Catalysis, 2020, 10, 3533-3540.	5.5	481
203	Efficient Electrocatalytic Nitrogen Fixation on FeMoO ₄ Nanorods. ACS Applied Materials & Interfaces, 2020, 12, 11789-11796.	4.0	107
204	Ambient Ammonia Electrosynthesis from Nitrogen and Water by Incorporating Palladium in Bimetallic Gold-Silver Nanocages. Journal of the Electrochemical Society, 2020, 167, 054511.	1.3	30
205	Synergistic boron-dopants and boron-induced oxygen vacancies in MnO ₂ nanosheets to promote electrocatalytic nitrogen reduction. Journal of Materials Chemistry A, 2020, 8, 5200-5208.	5.2	157
206	Sulfur Atomically Doped Bismuth Nanobelt Driven by Electrochemical Self-Reconstruction for Boosted Electrocatalysis. Journal of Physical Chemistry Letters, 2020, 11, 1746-1752.	2.1	23
207	Electrolyte Engineering for Efficient Electrochemical Nitrate Reduction to Ammonia on a Titanium Electrode. ACS Sustainable Chemistry and Engineering, 2020, 8, 2672-2681.	3.2	217
208	Fe doping promoted electrocatalytic N ₂ reduction reaction of 2H MoS ₂ . Chinese Chemical Letters, 2020, 31, 2487-2490.	4.8	39
209	Can Electrification of Ammonia Synthesis Decrease Its Carbon Footprint?. Joule, 2020, 4, 12-14.	11.7	14
210	Overcoming Chemical Inertness under Ambient Conditions: A Critical View on Recent Developments in Ammonia Synthesis via Electrochemical N ₂ Reduction by Asking Five Questions. ChemElectroChem, 2020, 7, 878-889.	1.7	32
211	The Crucial Role of Charge Accumulation and Spin Polarization in Activating Carbon-Based Catalysts for Electrocatalytic Nitrogen Reduction. Angewandte Chemie, 2020, 132, 4555-4561.	1.6	8
212	The Crucial Role of Charge Accumulation and Spin Polarization in Activating Carbon-Based Catalysts for Electrocatalytic Nitrogen Reduction. Angewandte Chemie - International Edition, 2020, 59, 4525-4531.	7.2	149
213	Minimizing energy demand and environmental impact for sustainable NH ₃ and H ₂ O ₂ production—A perspective on contributions from thermal, electro-, and photo-catalysis. Applied Catalysis A: General, 2020, 594, 117419.	2.2	32
214	Single-Atom Pt-N ₃ Sites on the Stable Covalent Triazine Framework Nanosheets for Photocatalytic N ₂ Fixation. ACS Catalysis, 2020, 10, 2431-2442.	5.5	171
215	Electron Transfer in Nitrogenase. Chemical Reviews, 2020, 120, 5158-5193.	23.0	150
216	Unveiling the Activity Origin of a Copper-Based Electrocatalyst for Selective Nitrate Reduction to Ammonia. Angewandte Chemie - International Edition, 2020, 59, 5350-5354.	7.2	760
217	Phosphorus-doping activates carbon nanotubes for efficient electroreduction of nitrogen to ammonia. Nano Research, 2020, 13, 1376-1382.	5.8	61
218	Understanding the Electrocatalytic Interface for Ambient Ammonia Synthesis. ACS Energy Letters, 2020, 5, 430-436.	8.8	127
219	Rare Earth Single-Atom Catalysts for Nitrogen and Carbon Dioxide Reduction. ACS Nano, 2020, 14, 1093-1101.	7.3	198

#	ARTICLE	IF	CITATIONS
220	Unveiling the Activity Origin of a Copper-based Electrocatalyst for Selective Nitrate Reduction to Ammonia. <i>Angewandte Chemie</i> , 2020, 132, 5388-5392.	1.6	92
221	Artificial nitrogen fixation over bismuth-based photocatalysts: fundamentals and future perspectives. <i>Journal of Materials Chemistry A</i> , 2020, 8, 4978-4995.	5.2	97
222	Filling the nitrogen vacancies with sulphur dopants in graphitic C ₃ N ₄ for efficient and robust electrocatalytic nitrogen reduction. <i>Applied Catalysis B: Environmental</i> , 2020, 267, 118693.	10.8	177
223	Metal-Tuned WO ₃ for Efficient Electrocatalytic N ₂ Reduction. <i>ACS Sustainable Chemistry and Engineering</i> , 2020, 8, 2957-2963.	3.2	39
224	Promoted Electrocatalytic Nitrogen Fixation in Fe-Ni Layered Double Hydroxide Arrays Coupled to Carbon Nanofibers: The Role of Phosphorus Doping. <i>Angewandte Chemie - International Edition</i> , 2020, 59, 13623-13627.	7.2	61
225	Single-atom catalysts boost nitrogen electroreduction reaction. <i>Materials Today</i> , 2020, 38, 99-113.	8.3	52
226	Strain induced rich planar defects in heterogeneous WS ₂ /WO ₂ enable efficient nitrogen fixation at low overpotential. <i>Journal of Materials Chemistry A</i> , 2020, 8, 12996-13003.	5.2	45
227	Recent Advances in Noble-Metal-Free Catalysts for Electrocatalytic Synthesis of Ammonia under Ambient Conditions. <i>Chemistry - an Asian Journal</i> , 2020, 15, 1791-1807.	1.7	8
228	Catalytic N ₂ -to-NH ₃ (or -N ₂ H ₄) Conversion by Well-Defined Molecular Coordination Complexes. <i>Chemical Reviews</i> , 2020, 120, 5582-5636.	23.0	234
229	Electrochemical Oxidation of Nitrogen towards Direct Nitrate Production on Spinel Oxides. <i>Angewandte Chemie</i> , 2020, 132, 9504-9508.	1.6	31
230	Alternative Strategies Toward Sustainable Ammonia Synthesis. <i>Transactions of Tianjin University</i> , 2020, 26, 67-91.	3.3	51
231	Bionic Design of a Mo(IV)-Doped FeS ₂ Catalyst for Electroreduction of Dinitrogen to Ammonia. <i>ACS Catalysis</i> , 2020, 10, 4914-4921.	5.5	80
232	Graphdiyne Interface Engineering: Highly Active and Selective Ammonia Synthesis. <i>Angewandte Chemie - International Edition</i> , 2020, 59, 13021-13027.	7.2	154
233	Efficient Electrochemical Nitrogen Fixation over Isolated Pt Sites. <i>Small</i> , 2020, 16, e2000015.	5.2	63
234	CuCo ₂ S ₄ integrated multiwalled carbon nanotube as high-performance electrocatalyst for electroreduction of nitrogen to ammonia. <i>International Journal of Hydrogen Energy</i> , 2020, 45, 14640-14647.	3.8	17
235	Updates on the Roadmap for Photocatalysis. <i>ACS Catalysis</i> , 2020, 10, 5493-5501.	5.5	293
236	Isotopically Selective Quantification by UPLC-MS of Aqueous Ammonia at Submicromolar Concentrations Using Dansyl Chloride Derivatization. <i>ACS Energy Letters</i> , 2020, 5, 1532-1536.	8.8	34
237	Tuning the electronic structure of transition metals embedded in nitrogen-doped graphene for electrocatalytic nitrogen reduction: a first-principles study. <i>Nanoscale</i> , 2020, 12, 9696-9707.	2.8	50

#	ARTICLE	IF	CITATIONS
238	Bimetallic Moâ€“Co nanoparticles anchored on nitrogen-doped carbon for enhanced electrochemical nitrogen fixation. <i>Journal of Materials Chemistry A</i> , 2020, 8, 9091-9098.	5.2	62
239	The Journey toward Low Temperature, Low Pressure Catalytic Nitrogen Fixation. <i>Advanced Energy Materials</i> , 2020, 10, 2000659.	10.2	127
240	Surface stability of perovskite oxides under OER operating conditions: a first principles approach. <i>Faraday Discussions</i> , 2021, 229, 75-88.	1.6	19
241	Construction of 2D/2D Z-scheme MnO ₂ -x/g-C ₃ N ₄ photocatalyst for efficient nitrogen fixation to ammonia. <i>Green Energy and Environment</i> , 2021, 6, 538-545.	4.7	38
242	Altering the rate-determining step over cobalt single clusters leading to highly efficient ammonia synthesis. <i>National Science Review</i> , 2021, 8, nwaal36.	4.6	64
243	Amorphization activated FeB ₂ porous nanosheets enable efficient electrocatalytic N ₂ fixation. <i>Journal of Energy Chemistry</i> , 2021, 53, 82-89.	7.1	89
244	FeTe ₂ as an earth-abundant metal telluride catalyst for electrocatalytic nitrogen fixation. <i>Journal of Energy Chemistry</i> , 2021, 56, 259-263.	7.1	41
245	Progress and challenges in photocatalytic ammonia synthesis. <i>Materials Advances</i> , 2021, 2, 564-581.	2.6	32
246	Establishing a Theoretical Landscape for Identifying Basal Plane Active 2D Metal Borides (MBenes) toward Nitrogen Electroreduction. <i>Advanced Functional Materials</i> , 2021, 31, 2008056.	7.8	97
247	Ammonia Production Technologies. , 2021, , 41-83.		28
248	Zn nanosheets: An earth-abundant metallic catalyst for efficient electrochemical ammonia synthesis. <i>Journal of Energy Chemistry</i> , 2021, 54, 318-322.	7.1	36
249	Advanced Electrocatalysis for Energy and Environmental Sustainability via Water and Nitrogen Reactions. <i>Advanced Materials</i> , 2021, 33, e2000381.	11.1	231
250	Recent advances in non-noble metal electrocatalysts for nitrate reduction. <i>Chemical Engineering Journal</i> , 2021, 403, 126269.	6.6	375
251	Electrochemical disinfection of irrigation water with a graphite electrode flow cell. <i>Water Environment Research</i> , 2021, 93, 535-548.	1.3	11
252	Electrocatalytic reduction of nitrogen on FeAg/Si for ammonia synthesis: A simple strategy for continuous regulation of faradaic efficiency by controlling H ⁺ ions transfer rate. <i>Applied Catalysis B: Environmental</i> , 2021, 283, 119606.	10.8	21
253	Fundamentals and Recent Progress of Photocatalytic Nitrogenâ€“Fixation Reaction over Semiconductors. <i>Solar Rrl</i> , 2021, 5, 2000487.	3.1	90
254	<i>In Situ</i>/<i>Operando</i> Electrocatalyst Characterization by X-ray Absorption Spectroscopy. <i>Chemical Reviews</i> , 2021, 121, 882-961.	23.0	358
255	Modulating Singleâ€“Atom Palladium Sites with Copper for Enhanced Ambient Ammonia Electrosynthesis. <i>Angewandte Chemie</i> , 2021, 133, 349-354.	1.6	44

#	ARTICLE	IF	CITATIONS
256	Integrated selective nitrite reduction to ammonia with tetrahydroisoquinoline semi-dehydrogenation over a vacancy-rich Ni bifunctional electrode. <i>Journal of Materials Chemistry A</i> , 2021, 9, 239-243.	5.2	65
257	Multi-Site Electrocatalysts Boost pH-Universal Nitrogen Reduction by High-Entropy Alloys. <i>Advanced Functional Materials</i> , 2021, 31, 2006939.	7.8	99
258	Boosting Faradic efficiency of dinitrogen reduction on the negatively charged Mo sites modulated via interstitial Fe doping into a Mo ₂ C nanowall catalyst. <i>Chemical Engineering Journal</i> , 2021, 417, 127924.	6.6	8
259	Molecular single iron site catalysts for electrochemical nitrogen fixation under ambient conditions. <i>Applied Catalysis B: Environmental</i> , 2021, 285, 119794.	10.8	58
260	Nanoscale engineering of catalytic materials for sustainable technologies. <i>Nature Nanotechnology</i> , 2021, 16, 129-139.	15.6	210
261	WO ₃ Rich in Oxygen Vacancies Through Ion-Exchange Reaction for Enhanced Electrocatalytic N ₂ Reduction to NH ₃ . <i>ChemCatChem</i> , 2021, 13, 1146-1151.	1.8	8
262	Structural insight into [Fe-S ₂ -Mo] motif in electrochemical reduction of N ₂ over Fe ₁ -supported molecular MoS ₂ . <i>Chemical Science</i> , 2021, 12, 688-695.	3.7	20
263	Ammonia as an effective hydrogen carrier and a clean fuel for solid oxide fuel cells. <i>Energy Conversion and Management</i> , 2021, 228, 113729.	4.4	214
264	Recent progress in electrochemical synthesis of ammonia from nitrogen: strategies to improve the catalytic activity and selectivity. <i>Energy and Environmental Science</i> , 2021, 14, 672-687.	15.6	188
265	A shape-memory V ₃ O ₇ -H ₂ O electrocatalyst for foldable N ₂ fixation. <i>Journal of Materials Chemistry A</i> , 2021, 9, 1603-1609.	5.2	16
266	Enhanced N ₂ affinity of 1T-MoS ₂ with a unique pseudo-six-membered ring consisting of Na-Li-S-Mo for high ambient ammonia electrosynthesis performance. <i>Journal of Materials Chemistry A</i> , 2021, 9, 1230-1239.	5.2	44
267	A high-pressure artificial photosynthetic device: pumping carbon dioxide as well as achieving selectivity. <i>Journal of Materials Chemistry A</i> , 2021, 9, 3961-3967.	5.2	16
268	Mechanochemistry for ammonia synthesis under mild conditions. <i>Nature Nanotechnology</i> , 2021, 16, 325-330.	15.6	141
269	Graphene Derivatives and Graphene Composite Electrocatalysts for N ₂ Reduction Reaction. <i>Small Structures</i> , 2021, 2, 2000075.	6.9	36
270	A technological roadmap to the ammonia energy economy: Current state and missing technologies. <i>Chemical Engineering Journal</i> , 2021, 408, 127310.	6.6	117
271	Electrochemical synthesis of ammonia: Progress and challenges. <i>Materials Today Physics</i> , 2021, 16, 100310.	2.9	50
272	Computational Design of Single Mo Atom Anchored Defective Boron Phosphide Monolayer as a High-Performance Electrocatalyst for the Nitrogen Reduction Reaction. <i>Energy and Environmental Materials</i> , 2021, 4, 255-262.	7.3	35
273	Modulating Single-Atom Palladium Sites with Copper for Enhanced Ambient Ammonia Electrosynthesis. <i>Angewandte Chemie - International Edition</i> , 2021, 60, 345-350.	7.2	150

#	ARTICLE	IF	CITATIONS
274	Computational Study of Transition-Metal Substitutions in Rutile TiO ₂ (110) for Photoelectrocatalytic Ammonia Synthesis. <i>Catalysis Letters</i> , 2021, 151, 1142-1154.	1.4	4
275	Elongated heterometal double-sites promote nitrogen reduction on two-dimensional MM ₂ B ₇ monolayers. <i>Journal of Materials Chemistry A</i> , 2021, 9, 10855-10868.	5.2	16
276	Achieving ultrahigh electrocatalytic NH ₃ yield rate on Fe-doped Bi ₂ WO ₆ electrocatalyst. <i>Nano Research</i> , 2021, 14, 2711-2716.	5.8	34
277	Two-dimensional layered double hydroxide based photocatalysts for environmental clean-up and renewable energy production. , 2021, , 485-503.		0
278	Iron-doped titanium dioxide hollow nanospheres for efficient nitrogen fixation and Zn ²⁺ aqueous batteries. <i>Journal of Materials Chemistry A</i> , 2021, 9, 4026-4035.	5.2	36
279	Recent advances on electrocatalytic fixation of nitrogen under ambient conditions. <i>Materials Chemistry Frontiers</i> , 2021, 5, 5516-5533.	3.2	14
280	Nitrate electroreduction: mechanism insight, <i>in situ</i> characterization, performance evaluation, and challenges. <i>Chemical Society Reviews</i> , 2021, 50, 6720-6733.	18.7	481
281	Multi-scale Design of Metal-Organic Framework-Derived Materials for Energy Electrocatalysis. <i>Advanced Energy Materials</i> , 2022, 12, 2003410.	10.2	81
282	Efficient electrocatalytic nitrogen reduction to ammonia with aqueous silver nanodots. <i>Communications Chemistry</i> , 2021, 4, .	2.0	36
283	Efficient nitrogen reduction to ammonia by fluorine vacancies with a multi-step promoting effect. <i>Journal of Materials Chemistry A</i> , 2021, 9, 894-899.	5.2	18
284	Defect induced nitrogen reduction reaction of carbon nanomaterials. <i>Sustainable Energy and Fuels</i> , 2021, 5, 3765-3790.	2.5	9
285	A comparative study of Bi, Sb, and BiSb for electrochemical nitrogen reduction leading to a new catalyst design strategy. <i>Journal of Materials Chemistry A</i> , 2021, 9, 20453-20465.	5.2	15
286	Recent Progress in 2D Catalysts for Photocatalytic and Electrocatalytic Artificial Nitrogen Reduction to Ammonia. <i>Advanced Energy Materials</i> , 2021, 11, 2003294.	10.2	73
287	Electrochemical synthesis of ammonia from nitrogen catalyzed by CoMoO ₄ nanorods under ambient conditions. <i>Journal of Materials Chemistry A</i> , 2021, 9, 5060-5066.	5.2	23
288	Electrocatalytic activity of CoFe _{1.9} Mo _{0.1} O ₄ -Ce _{0.8} Gd _{0.18} Ca _{0.02} O ₂ -I ⁻ composite cathode for ammonia synthesis from water and nitrogen. <i>World Journal of Engineering</i> , 2021, 18, 490-496.	1.0	2
289	Research progress of two-dimensional layered and related derived materials for nitrogen reduction reaction. <i>Sustainable Energy and Fuels</i> , 2021, 5, 3260-3277.	2.5	10
290	Phase-selective active sites on ordered/disordered titanium dioxide enable exceptional photocatalytic ammonia synthesis. <i>Chemical Science</i> , 2021, 12, 9619-9629.	3.7	25
291	Understanding the lattice nitrogen stability and deactivation pathways of cubic CrN nanoparticles in the electrochemical nitrogen reduction reaction. <i>Journal of Materials Chemistry A</i> , 2021, 9, 8568-8575.	5.2	12

#	ARTICLE	IF	CITATIONS
292	Recent discoveries in the reaction mechanism of heterogeneous electrocatalytic nitrate reduction. <i>Catalysis Science and Technology</i> , 2021, 11, 705-725.	2.1	114
293	Solar-driven electrochemical synthesis of ammonia using nitrate with 11% solar-to-fuel efficiency at ambient conditions. <i>Energy and Environmental Science</i> , 2021, 14, 6349-6359.	15.6	70
294	Grand challenges in the nitrogen cycle. <i>Chemical Society Reviews</i> , 2021, 50, 3640-3646.	18.7	64
295	The application and improvement of TiO ₂ (titanate) based nanomaterials for the photoelectrochemical conversion of CO ₂ and N ₂ into useful products. <i>Catalysis Science and Technology</i> , 2021, 11, 768-778.	2.1	18
296	Metal (Co/Mo)-N bond anchor-doped N in porous carbon for electrochemical nitrogen reduction. <i>Inorganic Chemistry Frontiers</i> , 2021, 8, 1476-1481.	3.0	15
297	A hybrid plasma electrocatalytic process for sustainable ammonia production. <i>Energy and Environmental Science</i> , 2021, 14, 865-872.	15.6	164
298	Towards understanding of electrolyte degradation in lithium-mediated non-aqueous electrochemical ammonia synthesis with gas chromatography-mass spectrometry. <i>RSC Advances</i> , 2021, 11, 31487-31498.	1.7	30
299	Self-powered ammonia synthesis under ambient conditions via N ₂ discharge driven by Tesla turbine triboelectric nanogenerators. <i>Microsystems and Nanoengineering</i> , 2021, 7, 7.	3.4	24
300	Heterojunction-based photocatalytic nitrogen fixation: principles and current progress. <i>Nanoscale Advances</i> , 2021, 3, 6358-6372.	2.2	27
301	The Role of Defects in Metal-Organic Frameworks for Nitrogen Reduction Reaction: When Defects Switch to Features. <i>Advanced Functional Materials</i> , 2021, 31, 2010052.	7.8	92
302	Recent development of high-performance photocatalysts for N ₂ fixation: A review. <i>Journal of Environmental Chemical Engineering</i> , 2021, 9, 104997.	3.3	33
303	Electrocatalytic Nitrate Reduction for Sustainable Ammonia Production. <i>Joule</i> , 2021, 5, 290-294.	11.7	497
304	Double-Phase Heterostructure within Fe-Doped Cu ₂ S Quantum Dots with Boosted Electrocatalytic Nitrogen Reduction. <i>ACS Sustainable Chemistry and Engineering</i> , 2021, 9, 2844-2853.	3.2	29
305	Amorphous MoS ₃ enriched with sulfur vacancies for efficient electrocatalytic nitrogen reduction. <i>Journal of Energy Chemistry</i> , 2021, 53, 132-138.	7.1	98
306	Efficiency Accreditation and Testing Protocols for Particulate Photocatalysts toward Solar Fuel Production. <i>Joule</i> , 2021, 5, 344-359.	11.7	165
307	Single Nb or W Atom-Embedded BP Monolayers as Highly Selective and Stable Electrocatalysts for Nitrogen Fixation with Low-Onset Potentials. <i>ACS Applied Materials & Interfaces</i> , 2021, 13, 10026-10036.	4.0	74
308	Advances in Materials and Applications of Inorganic Electrides. <i>Chemical Reviews</i> , 2021, 121, 3121-3185.	23.0	125
309	Accelerating ¹ H NMR Detection of Aqueous Ammonia. <i>ACS Omega</i> , 2021, 6, 5698-5704.	1.6	16

#	ARTICLE	IF	CITATIONS
310	Electrochemical Routes for the Valorization of Biomass-Derived Feedstocks: From Chemistry to Application. ACS Energy Letters, 0, , 1205-1270.	8.8	130
311	Dual Interface-Engineered Tin Heterostructure for Enhanced Ambient Ammonia Electrosynthesis. ACS Applied Materials & Interfaces, 2021, 13, 15270-15278.	4.0	19
312	Electrochemically Induced Generation of Extraneous Nitrite and Ammonia in Organic Electrolyte Solutions During Nitrogen Reduction Experiments. ChemElectroChem, 2021, 8, 1596-1604.	1.7	17
314	An Experimentally Verified LC-MS Protocol toward an Economical, Reliable, and Quantitative Isotopic Analysis in Nitrogen Reduction Reactions. Small Methods, 2021, 5, e2000694.	4.6	16
315	Scalable Production of Cobalt Phthalocyanine Nanotubes: Efficient and Robust Hollow Electrocatalyst for Ammonia Synthesis at Room Temperature. ACS Nano, 2021, 15, 5230-5239.	7.3	76
316	Metal-Organic Fragments with Adhesive Excipient and Their Utilization to Stabilize Multimetallic Electrocatalysts for High Activity and Robust Durability in Oxygen Evolution Reaction. Advanced Science, 2021, 8, e2100044.	5.6	8
317	Anionic Biopolymer Assisted Preparation of MoO ₂ @C Heterostructure Nanoparticles with Oxygen Vacancies for Ambient Electrocatalytic Ammonia Synthesis. Inorganic Chemistry, 2021, 60, 4116-4123.	1.9	20
318	Boosting Electroreduction Kinetics of Nitrogen to Ammonia via Tuning Electron Distribution of Single-Atomic Iron Sites. Angewandte Chemie, 2021, 133, 9160-9167.	1.6	26
319	Seven steps to reliable cyclic voltammetry measurements for the determination of double layer capacitance. JPhys Energy, 2021, 3, 034013.	2.3	70
320	Interfacial Engineering Promoting Electrosynthesis of Ammonia over Mo/Phosphotungstic Acid with High Performance. Advanced Functional Materials, 2021, 31, 2009151.	7.8	47
321	Engineering of electrocatalyst/electrolyte interface for ambient ammonia synthesis. SusMat, 2021, 1, 150-173.	7.8	47
322	Boosting Electroreduction Kinetics of Nitrogen to Ammonia via Tuning Electron Distribution of Single-Atomic Iron Sites. Angewandte Chemie - International Edition, 2021, 60, 9078-9085.	7.2	157
323	Theoretical Exploration of Electrochemical Nitrate Reduction Reaction Activities on Transition-Metal-Doped <i>h</i> -BP. Journal of Physical Chemistry Letters, 2021, 12, 3968-3975.	2.1	68
324	From inert gas to fertilizer, fuel and fine chemicals: N ₂ reduction and fixation. Catalysis Today, 2022, 387, 186-196.	2.2	4
325	Engineering electrocatalyst for low-temperature N ₂ reduction to ammonia. Materials Today, 2021, 44, 136-167.	8.3	37
326	Vacancy Engineering in Semiconductor Photocatalysts: Implications in Hydrogen Evolution and Nitrogen Fixation Applications. Advanced Functional Materials, 2021, 31, 2009807.	7.8	166
327	2021 Roadmap: electrocatalysts for green catalytic processes. JPhys Materials, 2021, 4, 022004.	1.8	57
328	Aggrandizing the Photoactivity of ZnO Nanorods toward N ₂ Reduction and H ₂ Evolution through Facile <i>In Situ</i> Coupling with Ni _x P _y . ACS Sustainable Chemistry and Engineering, 2021, 9, 6305-6317.	3.2	35

#	ARTICLE	IF	CITATIONS
329	Preliminary economics for green ammonia synthesis via lithium mediated pathway. International Journal of Energy Research, 2021, 45, 13461-13470.	2.2	7
330	Proton-filtering covalent organic frameworks with superior nitrogen penetration flux promote ambient ammonia synthesis. Nature Catalysis, 2021, 4, 322-331.	16.1	216
331	Zinc doped Fe ₂ O ₃ for boosting Electrocatalytic Nitrogen Fixation to ammonia under mild conditions. International Journal of Hydrogen Energy, 2021, 46, 14331-14337.	3.8	14
332	Nanoporous Intermetallic Pd ₃ Bi for Efficient Electrochemical Nitrogen Reduction. Advanced Materials, 2021, 33, e2007733.	11.1	98
333	Emerging Materials and Methods toward Ammonia-Based Energy Storage and Conversion. Advanced Materials, 2021, 33, e2005721.	11.1	137
334	Efficient Electrocatalytic N ₂ Reduction on Three-Phase Interface Coupled in a Three-Compartment Flow Reactor for the Ambient NH ₃ Synthesis. ACS Applied Materials & Interfaces, 2021, 13, 21411-21425.	4.0	29
335	Understanding the Factors Determining the Faradaic Efficiency and Rate of the Lithium Redox-Mediated N ₂ Reduction to Ammonia. Journal of Physical Chemistry C, 2021, 125, 11402-11410.	1.5	26
336	In Situ Detection of Low Amounts of Ammonia. Trends in Chemistry, 2021, 3, 339-341.	4.4	7
337	Bioinspired Activation of N ₂ on Asymmetrical Coordinated Fe Grafted 1T MoS ₂ at Room Temperature. Chinese Journal of Chemistry, 2021, 39, 1898-1904.	2.6	7
338	Efficient Nitrogen Fixation to Ammonia through Integration of Plasma Oxidation with Electrocatalytic Reduction. Angewandte Chemie - International Edition, 2021, 60, 14131-14137.	7.2	190
339	Indirect electrosynthesis of ammonia from nitrogen and water by a magnesium chloride cycle at atmospheric pressure. Cell Reports Physical Science, 2021, 2, 100425.	2.8	3
340	Dual-Metal Sites Boosting Polarization of Nitrogen Molecules for Efficient Nitrogen Photofixation. Advanced Science, 2021, 8, 2100302.	5.6	32
341	Transition Metal Chalcogenides as a Versatile and Tunable Platform for Catalytic CO ₂ and N ₂ Electroreduction. ACS Materials Au, 2021, 1, 6-36.	2.6	55
342	BiVO ₄ /TiO ₂ heterojunction with rich oxygen vacancies for enhanced electrocatalytic nitrogen reduction reaction. Frontiers of Physics, 2021, 16, 1.	2.4	14
343	Boosting Selective Nitrogen Reduction via Geometric Coordination Engineering on Single-Tungsten-Atom Catalysts. Advanced Materials, 2021, 33, e2100429.	11.1	128
344	In-Situ Generated High-Valent Iron Single-Atom Catalyst for Efficient Oxygen Evolution. Nano Letters, 2021, 21, 4795-4801.	4.5	47
345	Green Synthesis of Nitrogen-Based Ammonia Fixation: Past, Present, and Future. Energy and Environmental Materials, 2022, 5, 452-457.	7.3	51
346	Role of Catalyst in Controlling N ₂ Reduction Selectivity: A Unified View of Nitrogenase and Solid Electrodes. ACS Catalysis, 2021, 11, 6596-6601.	5.5	25

#	ARTICLE	IF	CITATIONS
347	Electrochemical ammonia synthesis via nitrate reduction on Fe single atom catalyst. Nature Communications, 2021, 12, 2870.	5.8	605
348	Metal-Organic Frameworks for Photo/Electrocatalysis. Advanced Energy and Sustainability Research, 2021, 2, 2100033.	2.8	123
349	Efficient Nitrogen Fixation to Ammonia through Integration of Plasma Oxidation with Electrocatalytic Reduction. Angewandte Chemie, 2021, 133, 14250-14256.	1.6	44
350	Oxidation State Modulation of Bismuth for Efficient Electrocatalytic Nitrogen Reduction to Ammonia. Advanced Functional Materials, 2021, 31, 2100300.	7.8	90
351	Salting-out effect promoting highly efficient ambient ammonia synthesis. Nature Communications, 2021, 12, 3198.	5.8	105
352	Subgroup Discovery Points to the Prominent Role of Charge Transfer in Breaking Nitrogen Scaling Relations at Single-Atom Catalysts on VS ₂ . ACS Catalysis, 2021, 11, 7906-7914.	5.5	34
353	Toward a mechanistic understanding of electrocatalytic nanocarbon. Nature Communications, 2021, 12, 3288.	5.8	35
354	Catalyst-Support interactions enhanced electrochemical nitrogen reduction on Au/ZrO ₂ . Electrochimica Acta, 2021, 381, 138222.	2.6	6
355	Fe on molecular-layer MoS ₂ as inorganic Fe-S ₂ -Mo motifs for light-driven nitrogen fixation to ammonia at elevated temperatures. Chem Catalysis, 2021, 1, 162-182.	2.9	32
356	Is lithium the key for nitrogen electroreduction?. Science, 2021, 372, 1149-1150.	6.0	37
357	Enhanced Photofixation of Dinitrogen to Ammonia over a Biomimetic Metal (Fe,Mo)-Doped Mesoporous MCM-41 Zeolite Catalyst under Ambient Conditions. ACS Sustainable Chemistry and Engineering, 2021, 9, 8748-8758.	3.2	17
358	Unravelling the Reaction Mechanisms of N ₂ Fixation on Molybdenum Nitride: A Full DFT Study from the Pristine Surface to Heteroatom Anchoring. ChemSusChem, 2021, 14, 3257-3266.	3.6	22
359	Regulating the Catalytic Performance of a Dual-Atom Iron Species Deposited on Graphitic Carbon Nitride for Electrochemical Nitrogen Reduction. Journal of Physical Chemistry C, 2021, 125, 14253-14262.	1.5	18
361	Molybdenum-based materials for electrocatalytic nitrogen reduction reaction. Cell Reports Physical Science, 2021, 2, 100447.	2.8	30
362	Emerging artificial nitrogen cycle processes through novel electrochemical and photochemical synthesis. Materials Today, 2021, 46, 212-233.	8.3	104
363	Electrocatalyst design strategies for ammonia production via N ₂ reduction. Catalysis Today, 2022, 388-389, 12-25.	2.2	17
364	Beyond Haber-Bosch: The renaissance of the Claude process. International Journal of Hydrogen Energy, 2021, 46, 21566-21579.	3.8	37
365	Understanding Degradation Mechanisms in SrIrO ₃ Oxygen Evolution Electrocatalysts: Chemical and Structural Microscopy at the Nanoscale. Advanced Functional Materials, 2021, 31, 2101542.	7.8	16

#	ARTICLE	IF	CITATIONS
366	Sulfur-doped graphene anchoring of ultrafine Au ₂₅ nanoclusters for electrocatalysis. Nano Research, 2021, 14, 3509-3513.	5.8	26
367	Rational design of nanocatalysts for ambient ammonia electrosynthesis. Pure and Applied Chemistry, 2021, 93, 777-797.	0.9	7
368	Disinfection of Irrigation Water Using Titanium Electrodes. Journal of the Electrochemical Society, 2021, 168, 063502.	1.3	4
369	Boosting electrocatalytic nitrogen reduction to ammonia in alkaline media. International Journal of Energy Research, 2021, 45, 19634-19644.	2.2	3
370	Nitrogen reduction to ammonia at high efficiency and rates based on a phosphonium proton shuttle. Science, 2021, 372, 1187-1191.	6.0	289
371	Strengthening nitrogen affinity on CuAu@Cu core-shell nanoparticles with ultrathin Cu skin via strain engineering and ligand effect for boosting nitrogen reduction reaction. Applied Catalysis B: Environmental, 2021, 288, 119999.	10.8	35
372	Recent progress towards solar energy integration into low-pressure green ammonia production technologies. International Journal of Hydrogen Energy, 2021, 46, 25121-25136.	3.8	20
373	Promoting nitric oxide electroreduction to ammonia over electron-rich Cu modulated by Ru doping. Science China Chemistry, 2021, 64, 1493-1497.	4.2	83
374	Redox-Mediated Ambient Electrolytic Nitrogen Reduction for Hydrazine and Ammonia Generation. Angewandte Chemie, 2021, 133, 18869-18875.	1.6	3
375	Achieving industrial ammonia synthesis rates at near-ambient conditions through modified scaling relations on a confined dual site. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	3.3	34
376	Electrochemical ammonia synthesis: Mechanistic understanding and catalyst design. Chem, 2021, 7, 1708-1754.	5.8	253
377	Intrinsic Electron Localization of Metastable MoS ₂ Boosts Electrocatalytic Nitrogen Reduction to Ammonia. Advanced Materials, 2021, 33, e2007509.	11.1	96
378	Judicious selection, validation, and use of reference electrodes for in situ and operando electrocatalysis studies. Chem Catalysis, 2021, 1, 997-1013.	2.9	9
379	Planetary Boundaries Analysis of Low-Carbon Ammonia Production Routes. ACS Sustainable Chemistry and Engineering, 2021, 9, 9740-9749.	3.2	30
380	Redox-Mediated Ambient Electrolytic Nitrogen Reduction for Hydrazine and Ammonia Generation. Angewandte Chemie - International Edition, 2021, 60, 18721-18727.	7.2	35
381	Boron Nitride Quantum Dots/Ti ₃ C ₂ T _x -MXene Heterostructure For Efficient Electrocatalytic Nitrogen Fixation. Energy and Environmental Materials, 2022, 5, 1303-1309.	7.3	48
382	Comprehensive Understanding of the Thriving Ambient Electrochemical Nitrogen Reduction Reaction. Advanced Materials, 2021, 33, e2007650.	11.1	229
383	Interaction of Ammonia with Nafion and Electrolyte in Electrocatalytic Nitrogen Reduction Study. Journal of Physical Chemistry Letters, 2021, 12, 6861-6866.	2.1	15

#	ARTICLE	IF	CITATIONS
384	Ammonia-fed reversible protonic ceramic fuel cells with Ru-based catalyst. <i>Communications Chemistry</i> , 2021, 4, .	2.0	22
385	On the assessment of electrocatalysts for nitrate reduction. <i>Current Opinion in Electrochemistry</i> , 2021, 28, 100721.	2.5	24
386	Hollow InVO ₄ Nanocuboid Assemblies toward Promoting Photocatalytic N ₂ Conversion Performance. <i>Advanced Materials</i> , 2021, 33, e2006780.	11.1	38
387	Facile synthesis of bimetallic N-doped carbon hybrid material for electrochemical nitrogen reduction. <i>Journal of Energy Chemistry</i> , 2021, 59, 715-720.	7.1	10
388	Identification of Mâ€NH ₂ â€NH ₂ Intermediate and Rate Determining Step for Nitrogen Reduction with Bioinspired Sulfurâ€Bonded FeW Catalyst. <i>Angewandte Chemie</i> , 2021, 133, 20494-20504.	1.6	11
389	Regulating nitrogenous adsorption and desorption on Pd clusters by the acetylene linkages of hydrogen substituted graphdiyne for efficient electrocatalytic ammonia synthesis. <i>Nano Energy</i> , 2021, 86, 106099.	8.2	34
390	Methods for nitrogen activation by reduction and oxidation. <i>Nature Reviews Methods Primers</i> , 2021, 1, .	11.8	107
391	Self-Activated Ni Cathode for Electrocatalytic Nitrate Reduction to Ammonia: From Fundamentals to Scale-Up for Treatment of Industrial Wastewater. <i>Environmental Science & Technology</i> , 2021, 55, 13231-13243.	4.6	16
392	Revealing Ammonia Quantification Minefield in Photo/Electrocatalysis. <i>Angewandte Chemie - International Edition</i> , 2021, 60, 21728-21731.	7.2	63
393	Molecular Crowding Effect in Aqueous Electrolytes to Suppress Hydrogen Reduction Reaction and Enhance Electrochemical Nitrogen Reduction. <i>Advanced Energy Materials</i> , 2021, 11, 2101699.	10.2	73
394	Regulating Electronic Spin Moments of Single-Atom Catalyst Sites via Single-Atom Promoter Tuning on S-Vacancy MoS ₂ for Efficient Nitrogen Fixation. <i>Journal of Physical Chemistry Letters</i> , 2021, 12, 8355-8362.	2.1	63
395	Rational design of photocatalysts for ammonia production from water and nitrogen gas. <i>Nano Convergence</i> , 2021, 8, 22.	6.3	18
396	Atomic-level insights into the activation of nitrogen via hydrogen-bond interaction toward nitrogen photofixation. <i>Chem</i> , 2021, 7, 2118-2136.	5.8	33
397	Plasma Catalyst-Integrated System for Ammonia Production from H ₂ O and N ₂ at Atmospheric Pressure. <i>ACS Energy Letters</i> , 2021, 6, 3004-3010.	8.8	29
398	Revealing Ammonia Quantification Minefield in Photo/Electrocatalysis. <i>Angewandte Chemie</i> , 2021, 133, 21896-21899.	1.6	8
399	Identification of Mâ€NH ₂ â€NH ₂ Intermediate and Rate Determining Step for Nitrogen Reduction with Bioinspired Sulfurâ€Bonded FeW Catalyst. <i>Angewandte Chemie - International Edition</i> , 2021, 60, 20331-20341.	7.2	65
400	Electrochemical N ₂ reduction at ambient condition â€“ Overcoming the selectivity issue via control of reactantsâ€™ availabilities. <i>International Journal of Hydrogen Energy</i> , 2021, 46, 30366-30372.	3.8	4
401	Electrochemical catalysts to meet the challenge for sustainable fuel production from renewable energy. <i>Current Opinion in Green and Sustainable Chemistry</i> , 2021, 30, 100492.	3.2	4

#	ARTICLE	IF	CITATIONS
402	Advances in Electrochemical Ammonia Synthesis Beyond the Use of Nitrogen Gas as a Source. ChemPlusChem, 2021, 86, 1211-1224.	1.3	43
403	Large-scale synthesis of metal nanosheets as highly active catalysts: Combining accumulative roll-bonding and etching process. Frontiers of Materials Science, 2021, 15, 456-464.	1.1	1
404	Photocatalytic nitrogen reduction to ammonia: Insights into the role of defect engineering in photocatalysts. Nano Research, 2022, 15, 2773-2809.	5.8	69
405	Recent Advances and Perspective on Electrochemical Ammonia Synthesis under Ambient Conditions. Small Methods, 2021, 5, e2100460.	4.6	33
406	In-situ formation of bismuth nanoparticles on nickel foam for ambient ammonia synthesis via electrocatalytic nitrogen reduction. Journal of Alloys and Compounds, 2021, 875, 160006.	2.8	10
407	Nanoporous NiSb to Enhance Nitrogen Electroreduction via Tailoring Competitive Adsorption Sites. Advanced Materials, 2021, 33, e2101126.	11.1	64
408	The impact of alkali and alkaline earth metals on green ammonia synthesis. Chem, 2021, 7, 3203-3220.	5.8	19
409	Lithium/bismuth co-functionalized phosphotungstic acid catalyst for promoting dinitrogen electroreduction with high Faradaic efficiency. Cell Reports Physical Science, 2021, 2, 100557.	2.8	11
410	Oxygen and Titanium Vacancies in a BiOBr/MXene-Ti ₃ C ₂ Composite for Boosting Photocatalytic N ₂ Fixation. ACS Applied Materials & Interfaces, 2021, 13, 42624-42634.	4.0	47
411	Novel Design Strategy of High Activity Electrocatalysts toward Nitrogen Reduction Reaction via Boron-Transition-Metal Hybrid Double-Atom Catalysts. ACS Applied Materials & Interfaces, 2021, 13, 47520-47529.	4.0	76
412	Cerium Zirconium Solid Solution with High Faradaic Efficiency for Electrochemical Nitrogen Reduction Reaction under Ambient Condition. ChemElectroChem, 2021, 8, 3875.	1.7	1
413	Optimization of the salicylate method for ammonia quantification from nitrogen electroreduction. Journal of Electroanalytical Chemistry, 2021, 896, 115250.	1.9	11
414	Boosting Nitrogen Reduction to Ammonia on FeN ₄ Sites by Atomic Spin Regulation. Advanced Science, 2021, 8, e2102915.	5.6	64
415	Ammonia and Nitric Acid Demands for Fertilizer Use in 2050. ACS Energy Letters, 2021, 6, 3676-3685.	8.8	157
416	The pitfalls in electrocatalytic nitrogen reduction for ammonia synthesis. Journal of Energy Chemistry, 2021, 61, 149-154.	7.1	32
417	Lithium-mediated electrochemical nitrogen reduction: Mechanistic insights to enhance performance. IScience, 2021, 24, 103105.	1.9	50
418	Advances in molecular electrochemical activation of dinitrogen. Current Opinion in Electrochemistry, 2021, 29, 100834.	2.5	12
419	Electrochemical reduction of nitrogen to ammonia: Progress, challenges and future outlook. Current Opinion in Electrochemistry, 2021, 29, 100808.	2.5	11

#	ARTICLE	IF	CITATIONS
420	Effect on electrochemical reduction of nitrogen to ammonia under ambient conditions: Challenges and opportunities for chemical fuels. <i>Journal of Energy Chemistry</i> , 2021, 61, 304-318.	7.1	50
421	Monatomic Ti doped on defective monolayer boron nitride as an electrocatalyst for the synthesis of ammonia: A DFT study. <i>Applied Surface Science</i> , 2021, 563, 150277.	3.1	26
422	Microwave-enhanced catalytic ammonia synthesis under moderate pressure and temperature. <i>Catalysis Communications</i> , 2021, 159, 106344.	1.6	14
423	Precise location and regulation of active sites for highly efficient photocatalytic synthesis of ammonia by facet-dependent BiVO ₄ single crystals. <i>Applied Catalysis B: Environmental</i> , 2021, 296, 120379.	10.8	77
424	Hydrogen pressure-assisted rapid recombination of oxygen vacancies in WO ₃ nanosheets for enhanced N ₂ photofixation. <i>Journal of Solid State Chemistry</i> , 2021, 303, 122520.	1.4	8
425	Porous graphdiyne loading CoO _x quantum dots for fixation nitrogen reaction. <i>Nano Energy</i> , 2021, 89, 106333.	8.2	47
426	Triggering in-plane defect cluster on MoS ₂ for accelerated dinitrogen electroreduction to ammonia. <i>Journal of Energy Chemistry</i> , 2021, 62, 359-366.	7.1	40
427	Electrifying the nitrogen cycle: An electrochemical endeavor. <i>Current Opinion in Electrochemistry</i> , 2021, 30, 100790.	2.5	16
428	Building of sub-monolayer MoS ₂ -x structure to circumvent the scaling relations in N ₂ -to-NH ₃ electrocatalysis. <i>Applied Catalysis B: Environmental</i> , 2021, 298, 120615.	10.8	20
429	Theory-guided design of nanoporous CuMn alloy for efficient electrocatalytic nitrogen reduction to ammonia. <i>Chemical Engineering Journal</i> , 2021, 426, 131843.	6.6	27
430	Effects of support and promoter on Ru catalyst activity in microwave-assisted ammonia synthesis. <i>Chemical Engineering Journal</i> , 2021, 425, 130546.	6.6	11
431	Sulfur vacancy engineering of MoS ₂ via phosphorus incorporation for improved electrocatalytic N ₂ reduction to NH ₃ . <i>Applied Catalysis B: Environmental</i> , 2022, 300, 120733.	10.8	85
432	A tuned Lewis acidic catalyst guided by hard-soft acid-base theory to promote N ₂ electroreduction. <i>Journal of Materials Chemistry A</i> , 2021, 9, 13036-13043.	5.2	19
433	Kinetic and deuterium isotope analyses of ammonia electrochemical synthesis. <i>RSC Advances</i> , 2021, 11, 17891-17900.	1.7	3
434	Recent Progress on Electrocatalytic Synthesis of Ammonia Under Amibent Conditions. <i>Acta Chimica Sinica</i> , 2021, 79, 146.	0.5	8
435	Unveiling the genesis of the high catalytic activity in nickel phthalocyanine for electrochemical ammonia synthesis. <i>Journal of Materials Chemistry A</i> , 2021, 9, 14477-14484.	5.2	46
436	A highly active defect engineered Cl-doped carbon catalyst for the N ₂ reduction reaction. <i>Journal of Materials Chemistry A</i> , 2021, 9, 5807-5814.	5.2	12
437	Highly efficient and selective nitrate electroreduction to ammonia catalyzed by molecular copper catalyst@Ti ₃ C ₂ MXene. <i>Journal of Materials Chemistry A</i> , 2021, 9, 21771-21778.	5.2	53

#	ARTICLE	IF	CITATIONS
438	Strategies to suppress hydrogen evolution for highly selective electrocatalytic nitrogen reduction: challenges and perspectives. <i>Energy and Environmental Science</i> , 2021, 14, 1176-1193.	15.6	275
439	Reaction mechanism on Ni-C ₂ -NS single-atom catalysis for the efficient CO ₂ reduction reaction. <i>Journal of Experimental Nanoscience</i> , 2021, 16, 255-264.	1.3	10
440	The twinned Pd nanocatalyst exhibits sustainable NRR electrocatalytic performance by promoting the desorption of NH ₃ . <i>Journal of Materials Chemistry A</i> , 2021, 9, 13483-13489.	5.2	48
441	Can sustainable ammonia synthesis pathways compete with fossil-fuel based Haber-Bosch processes?. <i>Energy and Environmental Science</i> , 2021, 14, 2535-2548.	15.6	162
442	Development of Electrocatalysts for Efficient Nitrogen Reduction Reaction under Ambient Condition. <i>Advanced Functional Materials</i> , 2021, 31, 2008983.	7.8	124
443	A General Strategy to Glassy M ₂ (M = Ru, Rh, Ir) Porous Nanorods for Efficient Electrochemical N ₂ Fixation. <i>Advanced Materials</i> , 2020, 32, e1907112.	11.1	111
444	Recent Advances in Electrochemical Synthesis of Ammonia through Nitrogen Reduction under Ambient Conditions. <i>ChemElectroChem</i> , 2020, 7, 1067-1079.	1.7	56
445	Vanadium carbide with periodic anionic vacancies for effective electrocatalytic nitrogen reduction. <i>Materials Today</i> , 2020, 40, 18-25.	8.3	34
446	Local Modulation of Single-Atomic Mn Sites for Enhanced Ambient Ammonia Electrosynthesis. <i>ACS Catalysis</i> , 2021, 11, 509-516.	5.5	93
447	Electroreduction of Nitrates, Nitrites, and Gaseous Nitrogen Oxides: A Potential Source of Ammonia in Dinitrogen Reduction Studies. <i>ACS Energy Letters</i> , 2020, 5, 2095-2097.	8.8	170
448	Photocatalytic N ₂ Reduction: Uncertainties in the Determination of Ammonia Production. <i>ACS Sustainable Chemistry and Engineering</i> , 2021, 9, 560-568.	3.2	20
449	Molybdenum Carbide Electrocatalysts for Electrochemical Synthesis of Ammonia from Nitrogen: Activity and Stability. <i>Journal of the Electrochemical Society</i> , 2020, 167, 044506.	1.3	15
450	Salicylate Method for Ammonia Quantification in Nitrogen Electroreduction Experiments: The Correction of Iron III Interference. <i>Journal of the Electrochemical Society</i> , 2020, 167, 134519.	1.3	13
451	Is Molybdenum Disulfide Modified with Molybdenum Metal Catalytically Active for the Nitrogen Reduction Reaction?. <i>Journal of the Electrochemical Society</i> , 2020, 167, 146507.	1.3	16
452	Selective Electrochemical Reduction of Nitrogen to Ammonia by Adjusting the Three-Phase Interface. <i>Research</i> , 2019, 2019, 1401209.	2.8	29
453	Methanol-Mediated Electrosynthesis of Ammonia. <i>ACS Energy Letters</i> , 2021, 6, 3844-3850.	8.8	50
454	Computational examination of the kinetics of electrochemical nitrogen reduction and hydrogen evolution on a tungsten electrode. <i>Journal of Catalysis</i> , 2021, 404, 362-370.	3.1	12
455	Superaerophobic copper-based nanowires array for efficient nitrogen reduction. <i>Journal of Colloid and Interface Science</i> , 2022, 608, 1489-1496.	5.0	14

#	ARTICLE	IF	CITATIONS
456	Mechanocatalytic Room-Temperature Synthesis of Ammonia from Its Elements Down to Atmospheric Pressure. <i>Angewandte Chemie - International Edition</i> , 2021, 60, 26385-26389.	7.2	34
457	A General Strategy toward Metal Sulfide Nanoparticles Confined in a Sulfur-Doped Ti ₃ C ₂ T _x MXene 3D Porous Aerogel for Efficient Ambient N ₂ Electroreduction. <i>Small</i> , 2021, 17, e2103305.	5.2	42
458	Preparation and functionalization of free-standing nitrogen-doped carbon-based catalyst electrodes for electrocatalytic N ₂ fixation. <i>Molecular Catalysis</i> , 2021, 515, 111935.	1.0	5
459	Synergistic Multisites Fe ₂ Mo ₆ S ₈ Electrocatalysts for Ambient Nitrogen Conversion to Ammonia. <i>ACS Nano</i> , 2021, 15, 16887-16895.	7.3	27
460	Electrochemistry-Assisted Photoelectrochemical Reduction of Nitrogen to Ammonia. <i>Journal of Physical Chemistry C</i> , 2021, 125, 23041-23049.	1.5	18
461	Electrochemical Reduction of N ₂ into NH ₃ under Ambient Conditions Using Ag-doped TiO ₂ Nanofibers. <i>ACS Applied Nano Materials</i> , 2021, 4, 10370-10377.	2.4	4
462	Elemental 2D Materials: Solution-Processed Synthesis and Applications in Electrochemical Ammonia Production. <i>Advanced Functional Materials</i> , 2022, 32, 2107280.	7.8	20
463	Mechanocatalytic Room-Temperature Synthesis of Ammonia from Its Elements Down to Atmospheric Pressure. <i>Angewandte Chemie</i> , 2021, 133, 26589.	1.6	5
464	Tuning metal catalysts via nitrogen-doped nanocarbons for energy chemistry: From metal nanoparticles to single metal sites. <i>EnergyChem</i> , 2021, 3, 100066.	10.1	31
465	Managing the Nitrogen Cycle via Plasmonic (Photo)Electrocatalysis: Toward Circular Economy. <i>Accounts of Chemical Research</i> , 2021, 54, 4294-4304.	7.6	22
466	Toward reliable and accessible ammonia quantification in the electrocatalytic reduction of nitrogen. <i>Chem Catalysis</i> , 2021, 1, 1505-1518.	2.9	20
467	Ammonia electrosynthesis on single-atom catalysts: Mechanistic understanding and recent progress. <i>Chemical Physics Reviews</i> , 2021, 2, .	2.6	17
468	Carbon dioxide and nitrogen reduction reactions using 2D transition metal dichalcogenide (TMDC) and carbide/nitride (MXene) catalysts. <i>Energy and Environmental Science</i> , 2021, 14, 6242-6286.	15.6	69
469	Dinitrogen Binding and Functionalization. , 2022, , 521-554.		5
470	High-loading metal atoms on graphdiyne for efficient nitrogen fixation to ammonia. <i>Journal of Materials Chemistry A</i> , 2022, 10, 6073-6077.	5.2	18
471	Stable Ti ³⁺ Sites Derived from the Ti _x O _y -P _z Layer Boost Cubic Fe ₂ O ₃ for Enhanced Photocatalytic N ₂ Reduction. <i>ACS Sustainable Chemistry and Engineering</i> , 2021, 9, 15331-15343.	3.2	9
472	A comparative analysis of the mechanisms of ammonia synthesis on various catalysts using density functional theory. <i>Royal Society Open Science</i> , 2021, 8, 210952.	1.1	15
473	Graphdiyne-Induced Iron Vacancy for Efficient Nitrogen Conversion. <i>Advanced Science</i> , 2022, 9, e2102721.	5.6	28

#	ARTICLE	IF	CITATIONS
474	Modulation of surface properties on cobalt phosphide for high-performance ambient ammonia electrosynthesis. <i>Applied Catalysis B: Environmental</i> , 2022, 303, 120874.	10.8	31
475	Ru-Doped Pd Nanoparticles for Nitrogen Electrooxidation to Nitrate. <i>ACS Catalysis</i> , 2021, 11, 14032-14037.	5.5	56
476	Renewable Ammonia as an Energy Fuel for Ocean Exploration and Transportation. <i>Marine Technology Society Journal</i> , 2020, 54, 126-136.	0.3	5
477	Interface hydrophobic tunnel engineering: A general strategy to boost electrochemical conversion of N ₂ to NH ₃ . <i>Nano Energy</i> , 2022, 92, 106784.	8.2	33
478	Engineering vacancy and hydrophobicity of two-dimensional TaTe ₂ for efficient and stable electrocatalytic N ₂ reduction. <i>Innovation(China)</i> , 2022, 3, 100190.	5.2	16
479	Facile N≡N Bond Cleavage by Anionic Trimetallic Clusters V ₃ Ta ₃ C ₄ (x=0-3): A DFT Study. <i>ChemPhysChem</i> , 2022, 23, .	1.0	10
480	Investigation into the mechanism of electrochemical nitrogen reduction reaction to ammonia using niobium oxynitride thin-film catalysts. <i>Electrochimica Acta</i> , 2022, 403, 139551.	2.6	19
481	Electrified Conversion of Contaminated Water to Value: Selective Conversion of Aqueous Nitrate to Ammonia in a Polymer Electrolyte Membrane Cell. <i>ChemSusChem</i> , 2022, 15, .	3.6	8
482	Effect of Electrolyte and Electrode Configuration on Cu-Catalyzed Nitric Oxide Reduction to Ammonia. <i>ChemElectroChem</i> , 2022, 9, .	1.7	9
483	Ternary ruthenium complex hydrides for ammonia synthesis via the associative mechanism. <i>Nature Catalysis</i> , 2021, 4, 959-967.	16.1	67
484	Main-group elements boost electrochemical nitrogen fixation. <i>Chem</i> , 2021, 7, 3232-3255.	5.8	123
485	S vacancies act as a bridge to promote electron injection from Z-scheme heterojunction to nitrogen molecule for photocatalytic ammonia synthesis. <i>Chemical Engineering Journal</i> , 2022, 433, 133670.	6.6	24
486	Evaluation of Electrocatalytic Activity of Noble Metal Catalysts Toward Nitrogen Reduction Reaction in Aqueous Solutions under Ambient Conditions. <i>ChemSusChem</i> , 2022, 15, .	3.6	12
487	Communication—Partial Oxidation of MnS for Synergistic Electrocatalysis of N ₂ -to-NH ₃ Fixation at Ambient Conditions. <i>Journal of the Electrochemical Society</i> , 2021, 168, 116518.	1.3	0
488	K ⁺ -Intercalated carbon nitride with electron storage property for high-efficiency visible light driven nitrogen fixation. <i>Chemical Engineering Journal</i> , 2022, 433, 133573.	6.6	19
489	Single-Metal-Atom Dopants Increase the Lewis Acidity of Metal Oxides and Promote Nitrogen Fixation. <i>ACS Energy Letters</i> , 2021, 6, 4299-4308.	8.8	46
490	Increasing Current Density of Li-Mediated Ammonia Synthesis with High Surface Area Copper Electrodes. <i>ACS Energy Letters</i> , 2022, 7, 36-41.	8.8	45
491	Single-Atom Gold Isolated Onto Nanoporous MoSe ₂ for Boosting Electrochemical Nitrogen Reduction. <i>Small</i> , 2022, 18, e2104043.	5.2	54

#	ARTICLE	IF	CITATIONS
492	Closed-Loop Electrolyte Design for Lithium-Mediated Ammonia Synthesis. ACS Central Science, 2021, 7, 2073-2082.	5.3	24
493	All room-temperature synthesis, N ₂ photofixation and reactivation over 2D cobalt oxides. Applied Catalysis B: Environmental, 2022, 304, 121001.	10.8	11
494	In-Situ Construction of ZnO/Sb ₂ MoO ₆ Heterostructure for Efficient Visible-Light Photocatalytic N ₂ Fixation to NH ₃ . SSRN Electronic Journal, 0, , .	0.4	0
495	Dual roles of graphitic carbon nitride in the electrosynthesis of ammonia under ambient conditions. Journal of Materials Chemistry A, 2021, 9, 27518-27528.	5.2	4
496	Design of Porous Core-Shell Manganese Oxides to Boost Electrocatalytic Dinitrogen Reduction. ACS Sustainable Chemistry and Engineering, 2022, 10, 1316-1322.	3.2	14
497	Tailoring Electron-Riched Boron Sites in BCN for Nitrogen Fixation via Alternate Mechanism. Advanced Materials Interfaces, 2022, 9, .	1.9	9
498	Recent advances in MoS ₂ -based materials for electrocatalysis. Chemical Communications, 2022, 58, 2259-2278.	2.2	30
499	Electrochemical Reduction of Gaseous Nitrogen Oxides on Transition Metals at Ambient Conditions. Journal of the American Chemical Society, 2022, 144, 1258-1266.	6.6	110
500	Electrocatalysis enabled transformation of earth-abundant water, nitrogen and carbon dioxide for a sustainable future. Materials Advances, 2022, 3, 1359-1400.	2.6	17
501	Ambient Electrochemical Nitrogen Fixation over a Bifunctional Mo(O-C ₂) ₄ Site Catalyst. Journal of Physical Chemistry C, 2022, 126, 965-973.	1.5	15
502	Theoretical insights into the origin of promoter effect of alkali metals on Au-catalyzed nitrogen electroreduction. Chemical Physics Letters, 2022, 789, 139320.	1.2	3
503	In Situ Loading of Cu ₂ O Active Sites on Island-like Copper for Efficient Electrochemical Reduction of Nitrate to Ammonia. ACS Applied Materials & Interfaces, 2022, 14, 6680-6688.	4.0	62
504	Facilitating green ammonia manufacture under milder conditions: what do heterogeneous catalyst formulations have to offer?. Chemical Science, 2022, 13, 890-908.	3.7	29
505	Emerging interstitial/substitutional modification of Pd-based nanomaterials with nonmetallic elements for electrocatalytic applications. Nanoscale, 2022, 14, 2915-2942.	2.8	11
506	3D Flower-Like Zinc Cobaltite for Electrocatalytic Reduction of Nitrate to Ammonia under Ambient Conditions. ChemSusChem, 2022, 15, .	3.6	21
507	Facts or Artifacts: Pitfalls in Quantifying Sub-ppm Levels of Ammonia Produced from Electrochemical Nitrogen Reduction. ACS Omega, 2022, 7, 1874-1882.	1.6	7
508	Magnetron sputtering tuned σ -back-donation-sites over metal oxides for enhanced electrocatalytic nitrogen reduction. Journal of Materials Chemistry A, 2022, 10, 2800-2806.	5.2	22
509	Single-atom catalyst of TM@D-silicene an effective way to reduce N ₂ into ammonia. Physical Chemistry Chemical Physics, 2022, 24, 3486-3497.	1.3	11

#	ARTICLE	IF	CITATIONS
510	Electrochemical Synthesis of Nitric Acid from Nitrogen Oxidation. <i>Angewandte Chemie - International Edition</i> , 2022, 61, .	7.2	47
511	Electrochemical Synthesis of Nitric Acid from Nitrogen Oxidation. <i>Angewandte Chemie</i> , 2022, 134, .	1.6	6
513	Ammonia as a carrier of renewable energy: Recent progress of ammonia synthesis by homogeneous catalysts, heterogeneous catalysts, and electrochemical method. , 2022, , 265-291.		1
514	Semiconducting Polymers for Oxygen Evolution Reaction under Light Illumination. <i>Chemical Reviews</i> , 2022, 122, 4204-4256.	23.0	180
515	Recent advances in electrocatalytic nitrite reduction. <i>Chemical Communications</i> , 2022, 58, 2777-2787.	2.2	83
516	Electrochemically promoted ammonia synthesis on an Fe/BaZr _{0.8} Y _{0.2} O ₃ catalyst at ambient pressure. <i>Sustainable Energy and Fuels</i> , 2022, 6, 458-465.	2.5	1
517	Artificial photocatalytic nitrogen fixation: Where are we now? Where is its future?. <i>Molecular Catalysis</i> , 2022, 518, 112107.	1.0	11
518	Recent progress in the development of electrocatalysts for the electrochemical N ₂ reduction reaction. <i>Materials Advances</i> , 2022, 3, 888-917.	2.6	7
519	Interfacial Microextraction Boosting Nitrogen Feed for Efficient Ambient Ammonia Synthesis in Aqueous Electrolyte. <i>Advanced Functional Materials</i> , 2022, 32, .	7.8	41
520	Ti ₃ C ₂ T _x MXene doped by W atoms for full-spectrum photofixation of nitrogen. <i>Transactions of Nonferrous Metals Society of China</i> , 2022, 32, 233-250.	1.7	3
521	Electrolyte acidification from anode reactions during lithium mediated ammonia synthesis. <i>Electrochemistry Communications</i> , 2022, 134, 107186.	2.3	18
522	Perspectives on electrochemical nitrogen fixation catalyzed by two-dimensional MXenes. <i>Materials Reports Energy</i> , 2022, 2, 100076.	1.7	2
523	Green ammonia synthesis using CeO ₂ /RuO ₂ nanolayers on vertical graphene catalyst via electrochemical route in alkaline electrolyte. <i>Nanoscale</i> , 2022, 14, 1395-1408.	2.8	11
524	The sustainable materials roadmap. <i>JPhys Materials</i> , 2022, 5, 032001.	1.8	24
525	High-ammonia selective metal-organic framework-derived Co-doped Fe/Fe ₂ O ₃ catalysts for electrochemical nitrate reduction. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2022, 119, .	3.3	75
526	Electrochemical nitrogen reduction: an intriguing but challenging quest. <i>Trends in Chemistry</i> , 2022, 4, 142-156.	4.4	24
527	Two-Dimensional WO ₃ -Transition-Metal Dichalcogenide Vertical Heterostructures for Nitrogen Fixation: A Photo(Electro) Catalysis Theoretical Strategy. <i>Journal of Physical Chemistry C</i> , 2022, 126, 3043-3053.	1.5	8
528	Engineering Reductive Iron on a Layered Double Hydroxide Electrocatalyst for Facilitating Nitrogen Reduction Reaction. <i>Advanced Materials Interfaces</i> , 2022, 9, .	1.9	19

#	ARTICLE	IF	CITATIONS
529	3.4% Solar-Driven Ammonia Efficiency from Nitrate Using Fe Single Atomic Catalyst Supported on MoS ₂ Nanosheets. <i>Advanced Functional Materials</i> , 2022, 32, .	7.8	71
530	Insight into the Reactivity of Carbon Structures for Nitrogen Reduction Reaction. <i>Langmuir</i> , 2021, 37, 14657-14667.	1.6	5
531	Electrocatalytic Reduction of Nitrate to Ammonia on Low-Cost Ultrathin CoO _x Nanosheets. <i>ACS Catalysis</i> , 2021, 11, 15135-15140.	5.5	144
532	The Role of Structured Carbon in Downsized Transition Metal-Based Electrocatalysts toward a Green Nitrogen Fixation. <i>Catalysts</i> , 2021, 11, 1529.	1.6	2
533	Engineering Ordered Vacancies and Atomic Arrangement Over the Intermetallic Pd _m /C _n t (M = Pb, Sn). <i>Journal of Materials Chemistry A</i> , 2022, 10, 6927-6949.	0.4	0
534	Competition between metal-catalysed electroreduction of dinitrogen, protons, and nitrogen oxides: a DFT perspective. <i>Catalysis Science and Technology</i> , 2022, 12, 2856-2864.	2.1	8
535	The low overpotential regime of acidic water oxidation part I: the importance of O ₂ detection. <i>Energy and Environmental Science</i> , 2022, 15, 1977-1987.	15.6	23
536	Recent advances in material design and reactor engineering for electrocatalytic ambient nitrogen fixation. <i>Materials Chemistry Frontiers</i> , 2022, 6, 843-879.	3.2	14
537	Defect and interface engineering in metal sulfide catalysts for the electrocatalytic nitrogen reduction reaction: a review. <i>Journal of Materials Chemistry A</i> , 2022, 10, 6927-6949.	5.2	39
538	Significance of density functional theory (DFT) calculations for electrocatalysis of N ₂ and CO ₂ reduction reactions. <i>Physical Chemistry Chemical Physics</i> , 2022, 24, 8591-8603.	1.3	17
539	Electroreduction of NO ₃ ⁻ on tubular porous Ti electrodes. <i>Catalysis Science and Technology</i> , 2022, 12, 3281-3288.	2.1	8
540	Ambient ammonia production via electrocatalytic nitrate reduction catalyzed by flower-like CuCo ₂ O ₄ electrocatalyst. <i>Inorganic Chemistry Frontiers</i> , 2022, 9, .	3.0	8
541	Cu clusters/TiO ₂ with abundant oxygen vacancies for enhanced electrocatalytic nitrate reduction to ammonia. <i>Journal of Materials Chemistry A</i> , 2022, 10, 6448-6453.	5.2	91
542	<i>Operando</i> isotope selective ammonia quantification in nitrogen reduction studies via gas chromatography-mass spectrometry. <i>Sustainable Energy and Fuels</i> , 2022, 6, 1945-1949.	2.5	9
543	Surface Valence State Effect of MoO ₂ on Electrochemical Nitrogen Reduction. <i>Advanced Science</i> , 2022, 9, e2104857.	5.6	23
545	Energy Decarbonization via Green H ₂ or NH ₃ ? <i>ACS Energy Letters</i> , 2022, 7, 1021-1033.	8.8	45
546	Governing Interlayer Strain in Bismuth Nanocrystals for Efficient Ammonia Electrosynthesis from Nitrate Reduction. <i>ACS Nano</i> , 2022, 16, 4795-4804.	7.3	76
547	Insights into Dynamic Surface Bromide Sites in Bi ₄ O ₅ Br ₂ for Sustainable N ₂ Photofixation. <i>Angewandte Chemie</i> , 2022, 134, .	1.6	2

#	ARTICLE	IF	CITATIONS
548	Low-Valence Metal Single Atoms on Graphdiyne Promotes Electrochemical Nitrogen Reduction via π -Backdonation. <i>Advanced Functional Materials</i> , 2022, 32, .	7.8	38
549	Pollution to solution: A universal electrocatalyst for reduction of all NO _x -based species to NH ₃ . <i>Chem Catalysis</i> , 2022, 2, 622-638.	2.9	27
550	Os ₁ B ₁₁ N ₁₂ /C ₂ N as an Efficient Electrocatalyst for Nitrogen Reduction Reaction. <i>ChemSusChem</i> , 2022, 15, e202102648.	3.6	6
551	Highly Active and Selective Electroreduction of N ₂ by the Catalysis of Ga Single Atoms Stabilized on Amorphous TiO ₂ Nanofibers. <i>ACS Nano</i> , 2022, 16, 4186-4196.	7.3	33
552	Insights into Dynamic Surface Bromide Sites in Bi ₄ O ₅ Br ₂ for Sustainable N ₂ Photofixation. <i>Angewandte Chemie - International Edition</i> , 2022, 61, .	7.2	50
553	Challenges and Opportunities for Renewable Ammonia Production via Plasmon-Assisted Photocatalysis. <i>Advanced Energy Materials</i> , 2022, 12, .	10.2	18
554	Interfacial Electron Regulation of Rh Atomic Layer-Decorated SnO ₂ Heterostructures for Enhancing Electrocatalytic Nitrogen Reduction. <i>ACS Applied Materials & Interfaces</i> , 2022, 14, 12304-12313.	4.0	8
555	Atomic Molybdenum for Synthesis of Ammonia with 50% Faradic Efficiency. <i>Small</i> , 2022, 18, e2106327.	5.2	20
556	W/Mo-polyoxometalate-derived electrocatalyst for high-efficiency nitrogen fixation. <i>Chinese Chemical Letters</i> , 2023, 34, 107337.	4.8	9
557	Optimizing Oxidation State of Octahedral Copper for Boosting Electroreduction Nitrate to Ammonia. <i>ACS Applied Energy Materials</i> , 2022, 5, 3339-3345.	2.5	21
558	Quantitative Operando Detection of Electro Synthesized Ammonia Using Mass Spectrometry. <i>ChemElectroChem</i> , 2022, 9, .	1.7	9
559	Highly selective and durable of monodispersed metal atoms in ammonia production. <i>Nano Today</i> , 2022, 43, 101431.	6.2	27
560	How computations accelerate electrocatalyst discovery. <i>CheM</i> , 2022, 8, 1575-1610.	5.8	23
561	Electrochemical synthesis of catalytic materials for energy catalysis. <i>Chinese Journal of Catalysis</i> , 2022, 43, 1001-1016.	6.9	23
562	Coupling of LaFeO ₃ Plasma Catalysis and Cu ⁺ /Cu ⁰ Electrocatalysis for Direct Ammonia Synthesis from Air. <i>Industrial & Engineering Chemistry Research</i> , 2022, 61, 4816-4823.	1.8	9
563	Nitrogen reduction reaction to ammonia at ambient conditions: A short review analysis of the critical factors limiting electrocatalytic performance. <i>Current Opinion in Green and Sustainable Chemistry</i> , 2022, 35, 100604.	3.2	11
564	Layer structured materials for ambient nitrogen fixation. <i>Coordination Chemistry Reviews</i> , 2022, 460, 214468.	9.5	28
565	In-situ construction of ZnO/Sb ₂ MoO ₆ nano-heterostructure for efficient visible-light photocatalytic conversion of N ₂ to NH ₃ . <i>Surfaces and Interfaces</i> , 2022, 30, 101844.	1.5	8

#	ARTICLE	IF	CITATIONS
566	In-situ reconstruction of catalysts in cathodic electrocatalysis: New insights into active-site structures and working mechanisms. <i>Journal of Energy Chemistry</i> , 2022, 70, 414-436.	7.1	28
567	Electrocatalytic nitrate reduction to ammonia on defective Au ₁ Cu (111) single-atom alloys. <i>Applied Catalysis B: Environmental</i> , 2022, 310, 121346.	10.8	113
568	Electrocatalytic upcycling of nitrate and hydrogen sulfide via a nitrogen-doped carbon nanotubes encapsulated iron carbide electrode. <i>Applied Catalysis B: Environmental</i> , 2022, 310, 121291.	10.8	23
569	Enhancing electrocatalytic N_2 reduction via tailoring the electric double layers. <i>AIChE Journal</i> , 2022, 68, .	1.8	17
570	Materials for electrification of everything: Moving toward sustainability. <i>MRS Bulletin</i> , 2021, 46, 1130-1138.	1.7	5
571	Mo ₂ C-MoO ₂ Heterostructure Quantum Dots for Enhanced Electrocatalytic Nitrogen Reduction to Ammonia. <i>ACS Nano</i> , 2022, 16, 643-654.	7.3	55
572	Comparison between Fe ₂ O ₃ /C and Fe ₃ C/Fe ₂ O ₃ /Fe/C Electrocatalysts for N ₂ Reduction in an Alkaline Electrolyte. <i>ACS Applied Materials & Interfaces</i> , 2021, 13, 61316-61323.	4.0	7
573	Enhancement of lithium-mediated ammonia synthesis by addition of oxygen. <i>Science</i> , 2021, 374, 1593-1597.	6.0	123
574	Insights into Tuning of Mo-Based Structures toward Enhanced Electrocatalytic Performance of Nitrogen-to-Ammonia Conversion. <i>Advanced Energy and Sustainability Research</i> , 2022, 3, .	2.8	3
575	Recent advances in constructing heterojunctions of binary semiconductor photocatalysts for visible light responsive CO ₂ reduction to energy efficient fuels: A review. <i>International Journal of Energy Research</i> , 2022, 46, 5523-5584.	2.2	32
576	Dual-Metal Atom Electrocatalysts: Theory, Synthesis, Characterization, and Applications. <i>Advanced Energy Materials</i> , 2022, 12, .	10.2	78
577	Techno-Economic Analysis of a Hybrid Process for Propylene and Ammonia Production. <i>ACS Sustainable Chemistry and Engineering</i> , 2022, 10, 6999-7009.	3.2	7
578	Biochar aerogel decorated with thiophene S manipulated 5-membered rings boosts nitrogen fixation. <i>Applied Catalysis B: Environmental</i> , 2022, 313, 121425.	10.8	5
579	Sulfate-Enabled Nitrate Synthesis from Nitrogen Electrooxidation on a Rhodium Electrocatalyst. <i>Angewandte Chemie</i> , 2022, 134, .	1.6	9
580	How to Minimise Hydrogen Evolution on Carbon Based Materials?. <i>Journal of the Electrochemical Society</i> , 2022, 169, 054516.	1.3	6
581	Sulfate-Enabled Nitrate Synthesis from Nitrogen Electrooxidation on a Rhodium Electrocatalyst. <i>Angewandte Chemie - International Edition</i> , 2022, 61, .	7.2	30
582	Proton Donors Induce a Differential Transport Effect for Selectivity toward Ammonia in Lithium-Mediated Nitrogen Reduction. <i>ACS Catalysis</i> , 2022, 12, 5197-5208.	5.5	46
583	Anion-Exchange Membrane Water Electrolyzers. <i>Chemical Reviews</i> , 2022, 122, 11830-11895.	23.0	177

#	ARTICLE	IF	CITATIONS
584	High-Efficiency Photocatalytic Ammonia Synthesis by Facet Orientation-Supported Heterojunction Cu ₂ O@BiOCl[100] Boosted by Double Built-In Electric Fields. <i>Inorganic Chemistry</i> , 2022, 61, 6045-6055.	1.9	38
585	Atom-dispersed copper and nano-palladium in the boron-carbon-nitrogen matrix cooperate to realize the efficient purification of nitrate wastewater and the electrochemical synthesis of ammonia. <i>Journal of Hazardous Materials</i> , 2022, 434, 128909.	6.5	21
586	Building dual active sites Co ₃ O ₄ /Cu electrode to break scaling relations for enhancement of electrochemical reduction of nitrate to high-value ammonia. <i>Journal of Hazardous Materials</i> , 2022, 434, 128887.	6.5	25
587	Data-Driven Materials Innovation and Applications. <i>Advanced Materials</i> , 2022, 34, e2104113.	11.1	51
588	Structural Reconstruction of Catalysts in Electroreduction Reaction: Identifying, Understanding, and Manipulating. <i>Advanced Materials</i> , 2022, 34, e2110699.	11.1	16
589	Copper Particle-Enhanced Lithium-Mediated Synthesis of Green Ammonia from Water and Nitrogen. <i>ACS Applied Materials & Interfaces</i> , 2022, 14, 19419-19425.	4.0	4
590	High-Efficiency N ₂ Electroreduction Enabled by Se-Vacancy-Rich WSe ₂ in Water-in-Salt Electrolytes. <i>ACS Nano</i> , 2022, 16, 7915-7925.	7.3	128
591	Enhancing Electrochemical Nitrogen Fixation by Mimicking π Back-Donation on Laser-Tuned Lewis Acid Sites in Noble-Metal-Molybdenum Carbide. <i>SSRN Electronic Journal</i> , 0, , .	0.4	0
592	Single Transition Metal Atom Anchored in C ₃ b a Efficient and Selective Electrocatalyst for Nitrogen Reduction Reaction. <i>SSRN Electronic Journal</i> , 0, , .	0.4	0
593	Prospects and challenges for autonomous catalyst discovery viewed from an experimental perspective. <i>Catalysis Science and Technology</i> , 2022, 12, 3650-3669.	2.1	9
594	Strategies to activate inert nitrogen molecules for efficient ammonia electrosynthesis: current status, challenges, and perspectives. <i>Energy and Environmental Science</i> , 2022, 15, 2776-2805.	15.6	48
595	Strategies in cell design and operation for the electrosynthesis of ammonia: status and prospects. <i>Energy and Environmental Science</i> , 2022, 15, 2259-2287.	15.6	22
596	Sustainable nitrate production out of thin air: the photocatalytic oxidation of molecular nitrogen. <i>Catalysis Science and Technology</i> , 2022, 12, 2755-2760.	2.1	3
597	Overcoming Nitrogen Reduction to Ammonia Detection Challenges: The Case for Leapfrogging to Gas Diffusion Electrode Platforms. <i>ACS Catalysis</i> , 2022, 12, 5726-5735.	5.5	24
598	Pd/PdO Electrocatalysts Boost Their Intrinsic Nitrogen Reduction Reaction Activity and Selectivity via Controllably Modulating the Oxygen Level. <i>ACS Applied Materials & Interfaces</i> , 2022, 14, 20988-20996.	4.0	11
599	Sacrificial Dopant to Enhance the Activity and Durability of Electrochemical N ₂ Reduction Catalysis. <i>ACS Catalysis</i> , 2022, 12, 5684-5697.	5.5	12
600	Alkali Metal Salt Interference on the Salicylate Method for Quantifying Ammonia from Nitrogen Reduction. , 0, , .		4
601	Saving the Energy Loss in Lithium-Mediated Nitrogen Fixation by Using a Highly Reactive Li ₃ N Intermediate for C ¹⁵ N Coupling Reactions. <i>Angewandte Chemie - International Edition</i> , 2022, 61, .	7.2	13

#	ARTICLE	IF	CITATIONS
602	PdFe Single-Atom Alloy Metallene for N ₂ Electroreduction. <i>Angewandte Chemie</i> , 2022, 134, .	1.6	69
603	Efficient conversion of low-concentration nitrate sources into ammonia on a Ru-dispersed Cu nanowire electrocatalyst. <i>Nature Nanotechnology</i> , 2022, 17, 759-767.	15.6	318
604	PdFe Single-Atom Alloy Metallene for N ₂ Electroreduction. <i>Angewandte Chemie - International Edition</i> , 2022, 61, e202205923.	7.2	97
605	Saving the Energy Loss in Lithium-Mediated Nitrogen Fixation by Using a Highly Reactive Li ₃ N Intermediate for C-N Coupling Reactions. <i>Angewandte Chemie</i> , 2022, 134, .	1.6	3
606	Boron induced electron-rich single iron sites for boosted N ₂ electroreduction reaction. <i>Chemical Engineering Journal</i> , 2022, 445, 136692.	6.6	10
607	Engineering ordered vacancies and atomic arrangement over the intermetallic PdM/CNT (M = Pb, Sn, In) nanocatalysts for synergistically promoting electrocatalysis N ₂ fixation. <i>Applied Catalysis B: Environmental</i> , 2022, 314, 121465.	10.8	12
608	The 2022 solar fuels roadmap. <i>Journal Physics D: Applied Physics</i> , 2022, 55, 323003.	1.3	58
609	Insight into the surface property modification-enhanced C ₃ N ₄ performance of photocatalytic nitrogen fixation. <i>Chemical Communications</i> , 2022, 58, 6502-6505.	2.2	8
610	Electrocatalytic green ammonia production beyond ambient aqueous nitrogen reduction. <i>Chemical Engineering Science</i> , 2022, 257, 117735.	1.9	41
611	Oxygen-Enhanced Chemical Stability of Lithium-Mediated Electrochemical Ammonia Synthesis. <i>Journal of Physical Chemistry Letters</i> , 2022, 13, 4605-4611.	2.1	18
612	Microscopic-Level Insights into the Mechanism of Enhanced NH ₃ Synthesis in Plasma-Enabled Cascade N ₂ Oxidation-Electroreduction System. <i>Journal of the American Chemical Society</i> , 2022, 144, 10193-10200.	6.6	64
613	<i>in situ</i> reconstruction enhanced dual-site catalysis towards nitrate electroreduction to ammonia. <i>Journal of Materials Chemistry A</i> , 2022, 10, 12669-12678.	5.2	20
614	Photoelectrochemical nitrogen reduction: A step toward achieving sustainable ammonia synthesis. <i>Chinese Journal of Catalysis</i> , 2022, 43, 1761-1773.	6.9	7
615	Bio-inspired NiCoP/CoMoP/Co(Mo ₃ Se ₄) ₄ @C/NF multi-heterojunction nanoflowers' Effective catalytic nitrogen reduction by driving electron transfer. <i>Applied Catalysis B: Environmental</i> , 2022, 314, 121531.	10.8	23
616	Reassessment of the catalytic activity of bismuth for aqueous nitrogen electroreduction. <i>Nature Catalysis</i> , 2022, 5, 382-384.	16.1	14
617	Dual-Active-Sites Cooperation Lead to Both Ultra-High NH ₃ Yield and Faradaic Efficiency: A "Push-Pull" Mechanism for Nitrogen Fixation. <i>SSRN Electronic Journal</i> , 0, , .	0.4	0
618	A Superaerophilic Gas Diffusion Electrode Maximizing Nitrogen Feeding to the Reaction Interface for Efficient Ambient Synthesis of Ammonia. <i>SSRN Electronic Journal</i> , 0, , .	0.4	0
619	Ruthenium/titanium oxide interface promoted electrochemical nitrogen reduction reaction. <i>Chem Catalysis</i> , 2022, 2, 1764-1774.	2.9	6

#	ARTICLE	IF	CITATIONS
620	Highly Durable and Selective Fe- and Mo-Based Atomically Dispersed Electrocatalysts for Nitrate Reduction to Ammonia via Distinct and Synergized NO ₂ ⁺ Pathways. ACS Catalysis, 2022, 12, 6651-6662.	5.5	58
621	Rational Design of Metal Halide Perovskite Nanocrystals for Photocatalytic CO ₂ Reduction: Recent Advances, Challenges, and Prospects. ACS Energy Letters, 2022, 7, 2043-2059.	8.8	89
622	Nitrogen reduction reaction (NRR) modelling: A case that illustrates the challenges of DFT studies in electrocatalysis. Current Opinion in Electrochemistry, 2022, 35, 101073.	2.5	10
623	Carbon-doped boron nitride nanosheets: A high-efficient electrocatalyst for ambient nitrogen reduction. Applied Catalysis B: Environmental, 2022, 315, 121574.	10.8	34
624	Light induced ammonia synthesis by crystalline polyoxometalate-based hybrid frameworks coupled with the Sv-1T MoS ₂ cocatalyst. Inorganic Chemistry Frontiers, 2022, 9, 3828-3838.	3.0	7
625	Transition metal catalyzed cross-coupling and nitrogen reduction reactions: Lessons from computational studies. Advances in Organometallic Chemistry, 2022, , 35-78.	0.5	1
626	Unveiling the critical role of TiO ₂ -supported atomically dispersed Cu species for enhanced photofixation of N ₂ to nitrate. Fundamental Research, 2022, , .	1.6	1
627	Plasmon-Assisted Ammonia Electrosynthesis. Journal of the American Chemical Society, 2022, 144, 10743-10751.	6.6	38
628	Anchoring Mo Single-Atom Sites on B/N Codoped Porous Carbon Nanotubes for Electrochemical Reduction of N ₂ to NH ₃ . ACS Catalysis, 2022, 12, 7655-7663.	5.5	42
629	Simultaneous preparation of sodium borohydride and ammonia gas by ball milling. International Journal of Hydrogen Energy, 2022, 47, 25347-25356.	3.8	6
630	Direct electro-synthesis of valuable C=N compound from NO. Chem Catalysis, 2022, 2, 1807-1818.	2.9	21
631	Fe ₂ S ₂ Electrocatalyst with Organic Matrix-Mediated Electron Transfer for Highly Efficient Nitrogen Fixation. ChemSusChem, 2022, 15, .	3.6	8
632	Ultra-efficient N ₂ electroreduction achieved over a rhodium single-atom catalyst (Rh ₁ /MnO ₂) in water-in-salt electrolyte. Applied Catalysis B: Environmental, 2022, 316, 121651.	10.8	56
633	Enhancing Electrocatalytic Nitrogen Fixation Beyond Coherent Heterointerfacial Boundaries. SSRN Electronic Journal, 0, , .	0.4	0
634	Lattice-strain and Lewis acid sites synergistically promoted nitrate electroreduction to ammonia over PdBP nanothorn arrays. Journal of Materials Chemistry A, 2022, 10, 16290-16296.	5.2	7
635	Mechanisms of electrochemical nitrogen gas reduction to ammonia under ambient conditions: a focused review. Journal of Solid State Electrochemistry, 2022, 26, 1897-1917.	1.2	11
636	A Mean-Field Model for Oxygen Reduction Electrocatalytic Activity on High-Entropy Alloys**. ChemCatChem, 2022, 14, .	1.8	1
637	How the Bioinspired Fe ₂ Mo ₆ S ₈ Chevrel Breaks Electrocatalytic Nitrogen Reduction Scaling Relations. Journal of the American Chemical Society, 2022, 144, 12800-12806.	6.6	29

#	ARTICLE	IF	CITATIONS
638	Progress of Experimental and Computational Catalyst Design for Electrochemical Nitrogen Fixation. ACS Catalysis, 2022, 12, 8936-8975.	5.5	41
639	A Reliable and Precise Protocol for Urea Quantification in Photo/Electrocatalysis. Small Methods, 2022, 6, .	4.6	26
640	Fundamentals and Advances in Emerging Crystalline Porous Materials for Photocatalytic and Electrocatalytic Nitrogen Fixation. ACS Applied Energy Materials, 2022, 5, 9241-9265.	2.5	13
641	Theoretical study on structural properties and mechanism of nitrogen reduction of monatomic Sc and Mo doped Li defect LiH. Chemical Physics Letters, 2022, 803, 139855.	1.2	2
642	The PdHx metallene with vacancies for synergistically enhancing electrocatalytic N2 fixation. Chemical Engineering Journal, 2022, 450, 137951.	6.6	10
643	Electrochemical Nitrogen Reduction to Ammonia Under Ambient Conditions: Stakes and Challenges. Chemical Record, 2022, 22, .	2.9	2
644	Electroreduction of nitrogen with almost 100% current-to-ammonia efficiency. Nature, 2022, 609, 722-727.	13.7	142
645	An integrated Si photocathode with lithiation-activated molybdenum oxide nanosheets for efficient ammonia synthesis. Nano Energy, 2022, 102, 107639.	8.2	11
646	Preparation and immobilisation of Brookite-type Ti3+-TiO2 for photocatalytic ammonia synthesis from N2 and H2O. Applied Surface Science, 2022, 602, 154328.	3.1	2
647	Interfacial engineering of Cu@Fe₂O₃ nanotube arrays with built-in electric field and oxygen vacancies for boosting the electrocatalytic reduction of nitrates. Materials Advances, 2022, 3, 7107-7115.	2.6	5
648	Rational design and modulation strategies of Mo-based electrocatalysts and photo/electrocatalysts towards nitrogen reduction to ammonia (NH3). Chemical Engineering Journal, 2023, 451, 138320.	6.6	29
649	Demonstration of no catalytical activity of Fe@Ni and Nb@Ni electrocatalysts toward nitrogen reduction using in-line quantification. SusMat, 2022, 2, 476-486.	7.8	6
650	Balanced nitrogen and hydrogen chemisorption by [RuH6] catalytic center favors low-temperature NH3 synthesis. Cell Reports Physical Science, 2022, 3, 100970.	2.8	5
651	Mechanochemistry: New Tools to Navigate the Uncharted Territory of "Impossible" Reactions. ChemSusChem, 2022, 15, .	3.6	82
652	Recent progress of photocatalysts based on tungsten and related metals for nitrogen reduction to ammonia. Frontiers in Chemistry, 0, 10, .	1.8	4
653	Electrosynthesis of ammonia with high selectivity and high rates via engineering of the solid-electrolyte interphase. Joule, 2022, 6, 2083-2101.	11.7	71
654	Metal Oxynitrides for the Electrocatalytic Reduction of Nitrogen to Ammonia. Journal of Physical Chemistry C, 2022, 126, 12980-12993.	1.5	9
655	Enhancing electrochemical nitrogen fixation by mimicking π back-donation on laser-tuned Lewis acid sites in noble-metal-molybdenum carbide. Applied Catalysis B: Environmental, 2023, 320, 121777.	10.8	9

#	ARTICLE	IF	CITATIONS
656	Analysis of the Ammonia Production Rates by Nitrogenase. <i>Catalysts</i> , 2022, 12, 844.	1.6	5
657	Atomically Layered Deposited Oxygen-Deficient TiO ₂ on Carbon Cloth: An Efficient Electrocatalyst for Nitrogen Fixation. <i>ChemCatChem</i> , 2022, 14, .	1.8	1
658	A checklist for reproducibility in electrochemical nitrogen fixation. <i>Nature Communications</i> , 2022, 13, .	5.8	5
659	Interface engineering gives enhanced selectivity in electrochemical nitrogen reduction reaction. <i>Chem Catalysis</i> , 2022, 2, 1841-1843.	2.9	0
660	Rational Design of Atomic Site Catalysts for Electrocatalytic Nitrogen Reduction Reaction: One Step Closer to Optimum Activity and Selectivity. <i>Electrochemical Energy Reviews</i> , 2022, 5, .	13.1	22
661	Operando quantification of ammonia produced from computationally-derived transition metal nitride electro-catalysts. <i>Journal of Catalysis</i> , 2022, 413, 956-967.	3.1	6
662	Solid-electrolyte interphases enable efficient Li-mediated ammonia electrosynthesis. <i>Joule</i> , 2022, 6, 1973-1976.	11.7	4
663	Continuous ammonia synthesis using Ru nanoparticles based on Li-N ₂ battery. <i>Materials Today Energy</i> , 2022, 29, 101113.	2.5	3
664	Recent progress in noble metal electrocatalysts for nitrogen-to-ammonia conversion. <i>Renewable and Sustainable Energy Reviews</i> , 2022, 168, 112845.	8.2	14
665	Ammonia synthesis by electrochemical nitrogen reduction reaction - A novel energy storage way. <i>Journal of Energy Storage</i> , 2022, 55, 105684.	3.9	18
666	TiO _{1.8} with lattice H for effective electrocatalytic nitrogen fixation. <i>Applied Catalysis B: Environmental</i> , 2022, 319, 121933.	10.8	13
667	Trimetallic clusters in the sumanene bowl for dinitrogen activation. <i>Physical Chemistry Chemical Physics</i> , 2022, 24, 23265-23278.	1.3	8
668	Status and gaps toward fossil-free sustainable chemical production. <i>Green Chemistry</i> , 2022, 24, 7305-7331.	4.6	24
669	Activation of MoS ₂ monolayer electrocatalysts <i>via</i> reduction and phase control in molten sodium for selective hydrogenation of nitrogen to ammonia. <i>Chemical Science</i> , 2022, 13, 9498-9506.	3.7	11
670	Atomically Dispersed Ferrimagnetic Half Metallic Binary Vanadium/Iron Architecture: Promising Electrocatalysts for the Nrr. <i>SSRN Electronic Journal</i> , 0, , .	0.4	0
671	Atomically dispersed metal catalysts for the electrochemical nitrogen reduction reaction. <i>Journal of Materials Chemistry A</i> , 2022, 10, 22331-22353.	5.2	15
672	Regulating the spin order of transition metal embedded-MXenes for boosting electrocatalytic nitrogen reduction to ammonia. <i>Journal of Materials Chemistry A</i> , 2022, 10, 22760-22770.	5.2	6
673	Solid oxide fuel cells for ammonia synthesis and energy conversion. <i>Sustainable Energy and Fuels</i> , 2022, 6, 4706-4715.	2.5	3

#	ARTICLE	IF	CITATIONS
674	Vanadium defect-engineering in molybdenum disulfide for electrochemical nitrate reduction. <i>Journal of Materials Chemistry A</i> , 2022, 10, 23990-23997.	5.2	10
675	The development of catalysts for electrochemical nitrogen reduction toward ammonia: theoretical and experimental advances. <i>Chemical Communications</i> , 2022, 58, 10290-10302.	2.2	4
676	A self-supported copper/copper oxide heterostructure derived from a copper-MOF for improved electrochemical nitrate reduction. <i>Catalysis Science and Technology</i> , 2022, 12, 6572-6580.	2.1	9
677	High yield selective electrochemical conversion of N_2 to NH_3 via morphology controlled silver phosphate under ambient conditions. <i>Journal of Materials Chemistry A</i> , 2022, 10, 20616-20625.	5.2	10
678	The role of adsorbed hydroxide reduction in hydrogen evolution and nitrogen reduction reactions in aqueous solution. <i>Journal of Materials Chemistry A</i> , 2022, 10, 18609-18615.	5.2	4
679	Electroreduction of nitrate to ammonia on atomically-dispersed Cu-N4 active sites with high efficiency and stability. <i>Fuel</i> , 2023, 332, 126106.	3.4	8
680	Ambient electrochemical nitrogen fixation with aqueous V_2O_5 nanodots in a fluidized electrocatalysis system. <i>Chemical Engineering Journal</i> , 2023, 452, 139494.	6.6	8
681	Regulation of the electrocatalytic nitrogen cycle based on sequential proton-electron transfer. <i>Nature Catalysis</i> , 2022, 5, 798-806.	16.1	24
682	Limitations of Electrochemical Nitrogen Oxidation toward Nitrate. <i>Journal of Physical Chemistry Letters</i> , 2022, 13, 8928-8934.	2.1	13
683	Ammonium Formate as a Safe, Energy-Dense Electrochemical Fuel Ionic Liquid. <i>ACS Energy Letters</i> , 2022, 7, 3260-3267.	8.8	10
684	Recent advances and challenges of electrochemical ammonia synthesis. <i>Chem Catalysis</i> , 2022, 2, 2590-2613.	2.9	39
685	Chemical looping based ammonia production—A promising pathway for production of the noncarbon fuel. <i>Science Bulletin</i> , 2022, 67, 2124-2138.	4.3	23
686	Light-Induced Ammonia Generation over Defective Carbon Nitride Modified with Pyrite. <i>Advanced Energy Materials</i> , 2022, 12, .	10.2	16
687	Theoretical and experimental uncovering of Nb-TiO ₂ single atoms for NRR electrocatalysts. <i>Chem Catalysis</i> , 2022, 2, 2120-2122.	2.9	1
688	Strategies of selective electroreduction of aqueous nitrate to N_2 in chloride-free system: A critical review. <i>Green Energy and Environment</i> , 2024, 9, 198-216.	4.7	2
689	Electrochemical Generation of Catalytically Active Edge Sites in C_2 -Type Carbon Materials for Artificial Nitrogen Fixation. <i>Small</i> , 2022, 18, .	5.2	8
690	Improved Electrocatalytic Selectivity and Activity for Ammonia Synthesis on Diporphyrin Catalysts. <i>Journal of Physical Chemistry C</i> , 2022, 126, 16636-16642.	1.5	3
691	Research Progress on Cu-Based Catalysts for Electrochemical Nitrate Reduction Reaction to Ammonia. <i>Industrial & Engineering Chemistry Research</i> , 2022, 61, 14731-14746.	1.8	35

#	ARTICLE	IF	CITATIONS
692	Sustainable ammonia synthesis: Just around the corner?. <i>Joule</i> , 2022, 6, 1971-1973.	11.7	4
693	Development of a Near-Infrared Photoacoustic System for Selective, Fast, and Fully Automatized Detection of Isotopically Labeled Ammonia. <i>Analytical Chemistry</i> , 0, , .	3.2	0
694	Electrochemical Promotion and Related Phenomena During Ammonia Synthesis. <i>Modern Aspects of Electrochemistry</i> , 2023, , 303-331.	0.2	0
695	Recent Advances in Designing Efficient Electrocatalysts for Electrochemical Nitrate Reduction to Ammonia. <i>Small Structures</i> , 2023, 4, .	6.9	32
696	Role of the Membrane Transport Mechanism in Electrochemical Nitrogen Reduction Experiments. <i>Membranes</i> , 2022, 12, 969.	1.4	3
697	Emerging p-Block-Element-Based Electrocatalysts for Sustainable Nitrogen Conversion. <i>ACS Nano</i> , 2022, 16, 15512-15527.	7.3	42
698	Directing the Surface Atomic Geometry on Copper Sulfide for Enhanced Electrochemical Nitrogen Reduction. <i>ACS Catalysis</i> , 2022, 12, 13638-13648.	5.5	5
699	Defect engineering for advanced electrocatalytic conversion of nitrogen-containing molecules. <i>Science China Chemistry</i> , 2023, 66, 1052-1072.	4.2	14
700	Rational catalyst design and mechanistic evaluation for electrochemical nitrogen reduction at ambient conditions. <i>Green Energy and Environment</i> , 2023, 8, 1567-1595.	4.7	6
701	Rigorous Assessment of Cl ⁻ -Based Anolytes on Electrochemical Ammonia Synthesis. <i>Advanced Science</i> , 2022, 9, .	5.6	12
702	A superaerophilic gas diffusion electrode enabling facilitated nitrogen feeding through hierarchical micro/nano channels for efficient ambient synthesis of ammonia. <i>Chemical Engineering Journal</i> , 2023, 454, 140106.	6.6	22
703	Na ⁺ -gated nanochannel membrane for highly selective ammonia (NH ₃) separation in the Haber-Bosch process. <i>Chemical Engineering Journal</i> , 2023, 454, 139998.	6.6	8
704	Ammonia Synthesis from Nitrogen and Water Using an Electrochemical Hydrogen-Membrane Reactor, Ru Catalyst, and Phosphate Electrolytes. , 2023, , 339-352.		0
705	Insight into the intrinsic driving force of NiCoP/ZnIn ₂ S _{4-x} boosting solar urea synthesis and hydrogen production. <i>Journal of Alloys and Compounds</i> , 2022, , 167884.	2.8	4
706	Promising energy-storage applications by flotation of graphite ores: A review. <i>Chemical Engineering Journal</i> , 2023, 454, 139994.	6.6	16
707	Theoretical investigation of single-atom catalysts anchored on pure carbon substrate for electroreduction of NO to NH ₃ . <i>Physical Chemistry Chemical Physics</i> , 2022, 24, 29112-29119.	1.3	1
708	Atomically dispersed s-block metal calcium site modified mesoporous g-C ₃ N ₄ for boosting photocatalytic N ₂ reduction. <i>Catalysis Science and Technology</i> , 2023, 13, 111-118.	2.1	8
709	A review on catalysts for electrocatalytic and photocatalytic reduction of N ₂ to ammonia. <i>Green Chemistry</i> , 2022, 24, 9003-9026.	4.6	18

#	ARTICLE	IF	CITATIONS
710	A Decade of Electrochemical Ammonia Synthesis. ACS Energy Letters, 2022, 7, 4132-4133.	8.8	10
711	Bioinspired and Bioderived Aqueous Electrocatalysis. Chemical Reviews, 2023, 123, 2311-2348.	23.0	22
712	Identification of Active Sites for Ammonia Electrosynthesis on Ruthenium. ACS Energy Letters, 2022, 7, 4290-4298.	8.8	12
713	Advanced In Situ Characterization Techniques for Direct Observation of Gas-Involved Electrochemical Reactions. Energy and Environmental Materials, 2023, 6, .	7.3	8
714	Atomically dispersed bimetallic Fe-Co electrocatalysts for green production of ammonia. Nature Sustainability, 2023, 6, 169-179.	11.5	30
715	Advancing Critical Chemical Processes for a Sustainable Future: Challenges for Industry and the Max Planck Cardiff Centre on the Fundamentals of Heterogeneous Catalysis (FUNCAT). Angewandte Chemie - International Edition, 2022, 61, .	7.2	8
716	Advancing Critical Chemical Processes for a Sustainable Future: Challenges for Industry and the Max Planck Cardiff Centre on the Fundamentals of Heterogeneous Catalysis (FUNCAT). Angewandte Chemie, 2022, 134, .	1.6	1
717	Bimetallic NiCo boride nanoparticles confined in a MXene network enable efficient ambient ammonia electrosynthesis. Journal of Energy Chemistry, 2023, 77, 469-478.	7.1	9
718	Dual-site collaboration boosts electrochemical nitrogen reduction on Ru-S-C single-atom catalyst. Chinese Journal of Catalysis, 2022, 43, 3177-3186.	6.9	6
719	Single-layer MoS ₂ with adjacent Mo sites for efficient electrocatalytic nitrogen fixation via spin-delocalized electrons effect. Applied Catalysis B: Environmental, 2023, 323, 122186.	10.8	5
720	The origin of overpotential in lithium-mediated nitrogen reduction. Faraday Discussions, 0, 243, 321-338.	1.6	7
721	Why copper catalyzes electrochemical reduction of nitrate to ammonia. Faraday Discussions, 0, 243, 502-519.	1.6	9
722	Excluding false positives: A perspective toward credible ammonia quantification in nitrogen reduction reaction. Chinese Journal of Catalysis, 2023, 44, 50-66.	6.9	9
723	Heterogeneous crystalline-amorphous interface for boosted electrocatalytic nitrogen reduction to ammonia. Journal of Materials Chemistry A, 2023, 11, 818-827.	5.2	9
724	The role of ion solvation in lithium mediated nitrogen reduction. Journal of Materials Chemistry A, 0, , .	5.2	17
725	When nitrogen reduction meets single-atom catalysts. Progress in Materials Science, 2023, 132, 101044.	16.0	14
726	The progresses in electrochemical reverse artificial nitrogen cycle. Current Opinion in Electrochemistry, 2023, 37, 101179.	2.5	6
727	Recent progress in electrocatalytic nitrogen reduction to ammonia (NRR). Coordination Chemistry Reviews, 2023, 478, 214981.	9.5	54

#	ARTICLE	IF	CITATIONS
728	Boron-induced electron localization in Cu nanowires promotes efficient nitrate reduction to ammonia in neutral media. <i>Applied Surface Science</i> , 2023, 612, 155872.	3.1	15
729	Highly distributed amorphous copper catalyst for efficient ammonia electrosynthesis from nitrate. <i>Journal of Hazardous Materials</i> , 2023, 445, 130651.	6.5	9
730	Highly selective nitrate reduction to ammonia on CoO/Cu foam via constructing interfacial electric field to tune adsorption of reactants. <i>Applied Catalysis B: Environmental</i> , 2023, 324, 122201.	10.8	21
731	Sustainable ammonia synthesis through electrochemical dinitrogen activation using an Ag ₂ VO ₂ PO ₄ catalyst. <i>Faraday Discussions</i> , 0, 243, 339-353.	1.6	5
732	Swinging Hydrogen Evolution to Nitrate Reduction Activity in Molybdenum Carbide by Ruthenium Doping. <i>ACS Catalysis</i> , 2022, 12, 15045-15055.	5.5	30
733	Recent progress in electrochemical synthesis of carbon-free hydrogen carrier ammonia and ammonia fuel cells: A review. <i>Materials Reports Energy</i> , 2022, 2, 100163.	1.7	0
734	The SURFCAT Summer School 2022: The Science of Sustainable Fuels and Chemicals. <i>ACS Energy Letters</i> , 2023, 8, 236-240.	8.8	0
735	Incorporating Pd into Cu-Coordinated Metal-Organic Frameworks to Promote N ₂ Electrochemical Reduction into Ammonia. <i>ChemCatChem</i> , 2022, 14, .	1.8	2
736	Combining impedance and hydrodynamic methods in electrocatalysis. Characterization of Pt(pc), Pt ₅ Gd, and nanostructured Pd for the hydrogen evolution reaction. <i>JPhys Energy</i> , 2023, 5, 014016.	2.3	1
737	Imaging of nitrogen fixation at lithium solid electrolyte interphases via cryo-electron microscopy. <i>Nature Energy</i> , 2023, 8, 138-148.	19.8	27
738	Ammonia Electrosynthesis with a Stable Metal-Free 2D Silicon Phosphide Catalyst. <i>Small</i> , 2023, 19, .	5.2	11
739	Design principles for transition metal nitride stability and ammonia generation in acid. <i>Joule</i> , 2023, 7, 150-167.	11.7	7
740	Prospects and good experimental practices for photocatalytic ammonia synthesis. <i>Nature Communications</i> , 2022, 13, .	5.8	19
741	Boosting Nitrogen Activation <i>via</i> Ag Nanoneedle Arrays for Efficient Ammonia Synthesis. <i>ACS Nano</i> , 2023, 17, 411-420.	7.3	11
742	Exsolution of Ru Nanoparticles on BaCe _{0.9} Y _{0.1} O ₃ Modifying Geometry and Electronic Structure of Ru for Ammonia Synthesis Reaction Under Mild Conditions. <i>Small</i> , 2023, 19, .	5.2	4
743	Universal Synthesized Strategy for Amorphous Pd-Based Nanosheets Boosting Ambient Ammonia Electrosynthesis. <i>Small Methods</i> , 2023, 7, .	4.6	4
744	Toward Sabatier Optimal for Ammonia Synthesis with Paramagnetic Phase of Ferromagnetic Transition Metal Catalysts. <i>Journal of the American Chemical Society</i> , 2022, 144, 23089-23095.	6.6	26
745	Combinatorial Screening of Bimetallic Electrocatalysts for Nitrogen Reduction to Ammonia Using a High-Throughput Gas Diffusion Electrode Cell Design. <i>Journal of the Electrochemical Society</i> , 2022, 169, 124506.	1.3	2

#	ARTICLE	IF	CITATIONS
746	Highly Dispersed In-situ Grown Bi ₂ O ₃ Nanosheets on Ti ₃ C ₂ T _x MXene for Selective Electroreduction of Nitrate to Ammonia. ChemElectroChem, 2023, 10, .	1.7	6
747	Recent Progress in Electrochemical Nitrogen Reduction on Transition Metal Nitrides. ChemSusChem, 2023, 16, .	3.6	9
748	Ampere-level current density ammonia electrochemical synthesis using CuCo nanosheets simulating nitrite reductase bifunctional nature. Nature Communications, 2022, 13, .	5.8	119
749	Achievements, Challenges, and Perspectives on Nitrogen Electrochemistry for Carbon-Neutral Energy Technologies. Angewandte Chemie, 2023, 135, .	1.6	7
750	Achievements, Challenges, and Perspectives on Nitrogen Electrochemistry for Carbon-Neutral Energy Technologies. Angewandte Chemie - International Edition, 2023, 62, .	7.2	25
751	Dibenzo-15-crown-5-based Tröger's Base membrane for 6Li ⁺ /7Li ⁺ separation. Separation and Purification Technology, 2023, 309, 122990.	3.9	7
752	Recent advances in fluorescence chemosensors for ammonia sensing in the solution and vapor phases. Chemical Communications, 2023, 59, 1728-1743.	2.2	12
753	Selective Electrochemical Conversion of N ₂ to NH ₃ in Neutral Media Using B, N-Containing Carbon with a Nanotubular Morphology. ACS Applied Materials & Interfaces, 2023, 15, 4033-4043.	4.0	7
754	Revisiting the Electrochemical Nitrogen Reduction on Molybdenum and Iron Carbides: Promising Catalysts or False Positives?. ACS Catalysis, 2023, 13, 1649-1661.	5.5	10
755	Rational design of Mo ₂ C nanosheets anchored on hierarchically porous carbon for boosting electrocatalytic N ₂ reduction to NH ₃ . Materials Today Energy, 2023, 32, 101240.	2.5	6
756	The chemistry of proton carriers in high-performance lithium-mediated ammonia electrosynthesis. Energy and Environmental Science, 2023, 16, 1082-1090.	15.6	22
757	Nonaqueous Li-Mediated Nitrogen Reduction: Taking Control of Potentials. ACS Energy Letters, 2023, 8, 1003-1009.	8.8	13
758	Nitrogen Reduction Reaction: Heteronuclear Double-Atom Electrocatalysts. Small Structures, 2023, 4, .	6.9	9
759	The mosaic art of interphases. Nature Energy, 0, , .	19.8	0
760	Protonic Ceramic Electrochemical Cells for Synthesizing Sustainable Chemicals and Fuels. Advanced Science, 2023, 10, .	5.6	25
761	Advances in iron-based electrocatalysts for nitrate reduction. Science of the Total Environment, 2023, 866, 161444.	3.9	16
762	Boosting charge-transfer in tuned Au nanoparticles on defect-rich TiO ₂ nanosheets for enhancing nitrogen electroreduction to ammonia production. Journal of Colloid and Interface Science, 2023, 636, 184-193.	5.0	12
763	A practical FeP nanoarrays electrocatalyst for efficient catalytic reduction of nitrite ions in wastewater to ammonia. Applied Catalysis B: Environmental, 2023, 325, 122353.	10.8	31

#	ARTICLE	IF	CITATIONS
764	Free radicals promote electrocatalytic nitrogen oxidation. <i>Chemical Science</i> , 2023, 14, 1878-1884.	3.7	5
765	Embedding Ru Clusters and Single Atoms into Perovskite Oxide Boosts Nitrogen Fixation and Affords Ultrahigh Ammonia Yield Rate. <i>Small</i> , 2023, 19, .	5.2	10
766	Energy-efficient electrochemical ammonia production from dilute nitrate solution. <i>Energy and Environmental Science</i> , 2023, 16, 663-672.	15.6	41
767	Cobaloximes: selective nitrite reduction catalysts for tandem ammonia synthesis. <i>Energy and Environmental Science</i> , 2023, 16, 1590-1596.	15.6	16
768	Interfacially Engineered Nanoporous Cu/MnO _x Hybrids for Highly Efficient Electrochemical Ammonia Synthesis via Nitrate Reduction. <i>Small</i> , 2023, 19, .	5.2	18
769	The role of overlayers of nitride electro-materials for N ₂ reduction to ammonia. <i>Frontiers in Catalysis</i> , 0, 2, .	1.8	2
770	Complementary Design in Multicomponent Electrocatalysts for Electrochemical Nitrogen Reduction: Beyond the Leverage in Activity and Selectivity. <i>Angewandte Chemie</i> , 0, , .	1.6	0
771	Environmental and economic potential of decentralised electrocatalytic ammonia synthesis powered by solar energy. <i>Energy and Environmental Science</i> , 2023, 16, 3314-3330.	15.6	5
772	Developing a microwave-driven reactor for ammonia synthesis: insights into the unique challenges of microwave catalysis. <i>Catalysis Science and Technology</i> , 0, , .	2.1	0
773	Artificial Leaf for Solar-Driven Ammonia Conversion at Milligram-Scale Using Triple Junction III-V Photoelectrode. <i>Advanced Science</i> , 2023, 10, .	5.6	2
775	Pulsed Nitrate-to-Ammonia Electroreduction Facilitated by Tandem Catalysis of Nitrite Intermediates. <i>Journal of the American Chemical Society</i> , 2023, 145, 6471-6479.	6.6	62
776	Electrocatalyst Microenvironment Engineering for Enhanced Product Selectivity in Carbon Dioxide and Nitrogen Reduction Reactions. <i>ACS Catalysis</i> , 2023, 13, 5375-5396.	5.5	17
777	Recent progress in Pd based electrocatalysts for electrochemical nitrogen reduction to ammonia. <i>Journal of Electroanalytical Chemistry</i> , 2023, 931, 117174.	1.9	5
778	Complementary Design in Multicomponent Electrocatalysts for Electrochemical Nitrogen Reduction: Beyond the Leverage in Activity and Selectivity. <i>Angewandte Chemie - International Edition</i> , 2023, 62, .	7.2	20
779	Water Increases the Faradaic Selectivity of Li-Mediated Nitrogen Reduction. <i>ACS Energy Letters</i> , 2023, 8, 1230-1235.	8.8	9
780	Near ambient N ₂ fixation on solid electrodes versus enzymes and homogeneous catalysts. <i>Nature Reviews Chemistry</i> , 2023, 7, 184-201.	13.8	15
781	Enabled Efficient Ammonia Synthesis and Energy Supply in a Zinc-Nitrate Battery System by Separating Nitrate Reduction Process into Two Stages. <i>Angewandte Chemie</i> , 2023, 135, .	1.6	0
782	Enabled Efficient Ammonia Synthesis and Energy Supply in a Zinc-Nitrate Battery System by Separating Nitrate Reduction Process into Two Stages. <i>Angewandte Chemie - International Edition</i> , 2023, 62, .	7.2	48

#	ARTICLE	IF	CITATIONS
783	Data-Centric Heterogeneous Catalysis: Identifying Rules and Materials Genes of Alkane Selective Oxidation. <i>Journal of the American Chemical Society</i> , 2023, 145, 3427-3442.	6.6	11
784	Co ₂ Mo ₆ S ₈ Catalyzes Nearly Exclusive Electrochemical Nitrate Conversion to Ammonia with Enzyme-like Activity. <i>Nano Letters</i> , 2023, 23, 1459-1466.	4.5	12
785	Activating Bi π orbitals in Dispersed Clusters of Amorphous BiO _x for Electrocatalytic Nitrogen Reduction. <i>Angewandte Chemie</i> , 2023, 135, .	1.6	0
786	Activating Bi π orbitals in Dispersed Clusters of Amorphous BiO _x for Electrocatalytic Nitrogen Reduction. <i>Angewandte Chemie - International Edition</i> , 2023, 62, .	7.2	13
787	Continuous-flow electrosynthesis of ammonia by nitrogen reduction and hydrogen oxidation. <i>Science</i> , 2023, 379, 707-712.	6.0	107
788	Electrochemical Production of Ammonia and Urea from Coreduction of Nitrite and Carbon Dioxide at Iron Phthalocyanine Electrodes and Comparison of Analytical Methods. <i>Journal of the Electrochemical Society</i> , 2023, 170, 026505.	1.3	1
789	Review on Electrochemical Reduction of Nitrogen by Graphdiyne-Based Catalysts: Recent Advances and Outlook. <i>Energy & Fuels</i> , 2023, 37, 3501-3522.	2.5	5
790	Electrochemical C-N coupling of CO ₂ and nitrogenous small molecules for the electrosynthesis of organonitrogen compounds. <i>Chemical Society Reviews</i> , 2023, 52, 2193-2237.	18.7	47
791	Effect of pH on the Electrochemical Behavior and Nitrogen Reduction Reaction Activity of Ti ₂ N Nitride MXene. <i>Advanced Materials Interfaces</i> , 2023, 10, .	1.9	4
792	Electrodriven Chemical Looping Ammonia Synthesis Mediated by Lithium Imide. <i>ACS Energy Letters</i> , 2023, 8, 1567-1574.	8.8	8
793	Reliable reporting of Faradaic efficiencies for electrocatalysis research. <i>Nature Communications</i> , 2023, 14, .	5.8	18
794	A Spectroscopic Study on Nitrogen Electrooxidation to Nitrate. <i>Angewandte Chemie</i> , 2023, 135, .	1.6	0
795	A Spectroscopic Study on Nitrogen Electrooxidation to Nitrate. <i>Angewandte Chemie - International Edition</i> , 2023, 62, .	7.2	8
796	Enhancing the electrocatalytic performance of nitrate reduction to ammonia by in-situ nitrogen leaching. <i>Chinese Chemical Letters</i> , 2024, 35, 108341.	4.8	2
797	Application of Ion Chromatography for the Reliable Quantification of Ammonium in Electrochemical Ammonia Synthesis Experiments: A Practical Guide. <i>ChemSusChem</i> , 2023, 16, .	3.6	4
798	Balancing sub μ reaction activity to boost electrocatalytic urea synthesis using a metal-free electrocatalyst. , 2023, 5, .		13
799	Accelerating ammonia synthesis in a membraneless flow electrolyzer through coupling ambient dinitrogen oxidation and water splitting. <i>IScience</i> , 2023, 26, 106407.	1.9	1
800	A Review of Transition Metal Nitride-Based Catalysts for Electrochemical Nitrogen Reduction to Ammonia. <i>Catalysts</i> , 2023, 13, 639.	1.6	4

#	ARTICLE	IF	CITATIONS
801	Electrochemical ammonia synthesis by reduction of nitrate on Au doped Cu nanowires. RSC Advances, 2023, 13, 9839-9844.	1.7	3
802	Progress of electrochemical synthesis of nitric acid: catalyst design, mechanistic insights, protocol and challenges. Journal of Materials Chemistry A, 2023, 11, 10125-10148.	5.2	12
803	Efficient Electrocatalytic Nitrate Reduction to Ammonia Based on DNA-Templated Copper Nanoclusters. ACS Applied Materials & Interfaces, 2023, 15, 18928-18939.	4.0	10
804	Strategies to improve the catalytic activity of Fe-based catalysts for nitrogen reduction reaction. International Journal of Hydrogen Energy, 2023, 48, 25328-25338.	3.8	4
805	A bioinspired floatable system with a 3D sandwich-type triphase interface for highly efficient nitrogen fixation. Journal of Materials Chemistry A, 2023, 11, 9976-9988.	5.2	3
806	Li ⁺ /N ₂ Battery for Ammonia Synthesis and Computational Insight. ACS Applied Materials & Interfaces, 2023, 15, 19032-19042.	4.0	1
807	Strengthening the Metal Center of Co ⁴⁺ Active Sites in a 1D/2D Heterostructure for Nitrate and Nitrogen Reduction Reaction to Ammonia. ACS Sustainable Chemistry and Engineering, 2023, 11, 6191-6200.	3.2	29
808	In Situ/Operando Methods for Understanding Electrocatalytic Nitrate Reduction Reaction. Small Methods, 2023, 7, .	4.6	19
809	Oxygen-Bridged Vanadium Single-Atom Dimer Catalysts Promoting High Faradaic Efficiency of Ammonia Electrosynthesis. ACS Nano, 2023, 17, 7406-7416.	7.3	8
810	The runt of ammonia production by N ₂ reduction: Electrocatalysis in aqueous media. Current Opinion in Electrochemistry, 2023, 39, 101301.	2.5	2
811	Halogen-induced planar defects in Cu catalysts for ammonia electrosynthesis at an ampere-level current density. Materials Chemistry Frontiers, 2023, 7, 3093-3101.	3.2	3
812	Achieving volatile potassium promoted ammonia synthesis via mechanochemistry. Nature Communications, 2023, 14, .	5.8	5
816	Processing of Chemicals at Scale. , 2021, , 330-414.		0
835	Accelerating the development of electrocatalysts for electrochemical nitrogen fixation through theoretical and computational approaches. Materials Chemistry Frontiers, 2023, 7, 4259-4280.	3.2	1
840	Heterojunction Engineering for Electrocatalytic Applications. ACS Applied Energy Materials, 2023, 6, 7737-7784.	2.5	5
865	Reactivity of nitrogen atoms from Zif-8 structure deposited over Ti ₃ C ₂ MXene in the electrochemical nitrogen reduction reaction. Chemical Communications, 2023, 59, 10133-10136.	2.2	3
874	Separating fiction from fact for photocatalytic CO ₂ reduction. Nature Chemistry, 2023, 15, 1209-1211.	6.6	3
884	A perspective on the future of electrochemical ammonia synthesis: aqueous or non-aqueous?. Journal of Materials Chemistry A, 2023, 11, 22132-22146.	5.2	0

#	ARTICLE	IF	CITATIONS
885	Making chemicals from the air: the new frontier for hybrid electrosyntheses in artificial tree-like devices. <i>Green Chemistry</i> , 0, , .	4.6	0
886	Emerging two-dimensional materials for the electrocatalytic nitrogen reduction reaction to yield ammonia. <i>Journal of Materials Chemistry A</i> , 2023, 11, 22590-22607.	5.2	2
887	Regulating charge distribution of Cu ₃ PdN nanocrystals for nitrate electroreduction to ammonia. <i>Chemical Communications</i> , 2023, 59, 12176-12179.	2.2	1
916	Introduction to Carbon Nanostructures: History, Classifications, and Recent Advances. , 2023, , 1-54.		0
937	Accelerating CO ₂ electrochemical conversion towards industrial implementation. <i>Nature Communications</i> , 2023, 14, .	5.8	2
952	Fewer false positives in electrocatalytic nitrogen reduction by synergizing theory and experiment. <i>Nature Computational Science</i> , 2023, 3, 994-997.	3.8	0
957	The why and how of NO _x electroreduction to ammonia. <i>Nature Catalysis</i> , 2023, 6, 1125-1130.	16.1	1
963	Beyond acceptable limits: intrinsic contamination in commercial ¹⁵ N ₂ impedes reliable N ₂ reduction experiments. <i>Green Chemistry</i> , 2024, 26, 1302-1305.	4.6	0
973	Interfacial Co-O-Cu bonds prompt electrochemical nitrate reduction to ammonia in neutral electrolyte. <i>Chemical Communications</i> , 2024, 60, 2756-2759.	2.2	0
975	Cu-based catalysts for electrocatalytic nitrate reduction to ammonia: fundamentals and recent advances. , 0, , .		0
980	Deciphering the bridge oxygen vacancy-induced cascading charge effect for electrochemical ammonia synthesis. <i>Materials Horizons</i> , 0, , .	6.4	0
981	Ceramic-membrane cells for electrocatalytic ammonia synthesis. , 2024, , 65-109.		0