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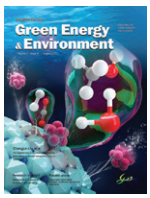

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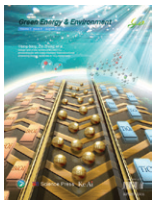

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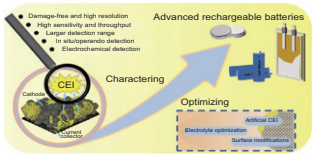
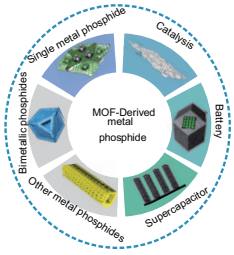
CONTENTS

In order to promote the benign development of battery field, we put forward the idea from characterization to optimization in view of the challenges faced by the research of the CEI.



Metal-organic frameworks-derived metal phosphides for electrochemistry application

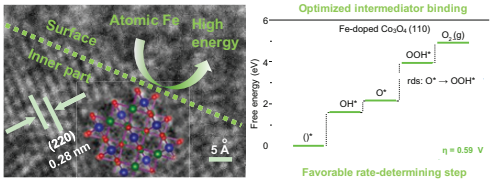
In this review, we discuss the classification of MOF-derived metal phosphides materials, and introduce their applications in the field of electrochemistry, including catalysis, batteries and supercapacitors.



Research papers

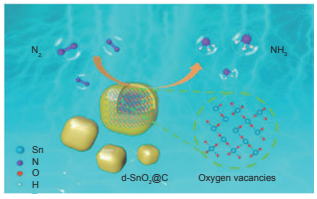
Surface-mediated iron on porous cobalt oxide with high energy state for efficient water oxidation electrocatalysis

A surface-mediated incorporation strategy is designed to realize desired energy state and coordination environment for spinel Co_3O_4, enabling optimized intermediator binding and favorably changing the rate-determining step for enhanced oxygen evolution electrocatalysis.



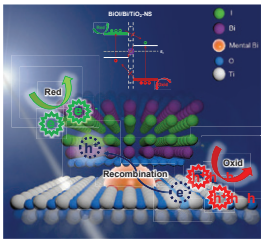
Oxygen-deficient SnO_2 nanoparticles with ultrathin carbon shell for efficient electrocatalytic N_2 reduction

Oxygen-deficient SnO_2 nanoparticles with ultrathin carbon shell are constructed for N_2-to-NH_3 catalysis with NH_3 Faradic efficiency as high as 12.7% at -0.15 V vs. RHE in 0.1 mol L^{-1} HCl.

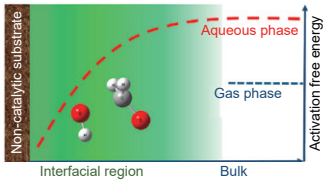


Design and in-situ construct BiOI/Bi/TiO_2 photocatalysts with metal-mediated heterostructures employing oxygen vacancies in TiO_2 nanosheets

The BiOI/Bi/TiO_2-NS photocatalyst possesses the merits of the p-n junction for energy band manipulating, and that of the Z-scheme photocatalyst for photogenerated charge carrier separation and high redox capability, thus exhibiting much improved photocatalytic performance.

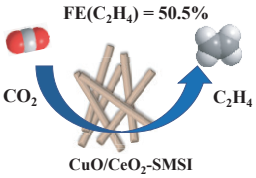


When the reaction core of the OH^- + HCHO reaction is closed to the graphene-like wall, the activation free energy is lower than the barrier energy in bulk aqueous solution, but it recovers to the bulk value when the reaction core is far away from the wall.



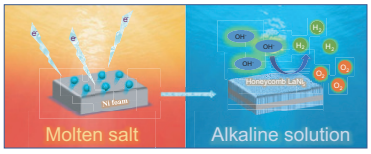
Enhanced CO_2 electroreduction to ethylene via strong metal-support interaction

The CuO/CeO_2-SMSI with strong metal-support interaction could efficiently electroreduction of CO_2 to C_2H_4. The strong metal-support interaction could not only enhance the adsorption and activation of CO_2, but also can stablize the CuO.



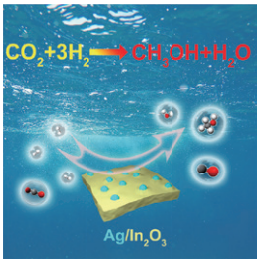
Hierarchical and self-supporting honeycomb $LaNi_5$ alloy on nickel foam for overall water splitting in alkaline media

Hierarchical honeycomb $LaNi_5$ alloy on Ni foam was obtained by depositing high reactive element La directly on Ni foam in molten salt, which could simultaneously realize hydrogen evolution reaction and oxygen evolution reaction efficiently.



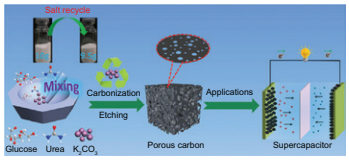
The feasibility study of the indium oxide supported silver catalyst for selective hydrogenation of CO_2 to methanol

The feasibility of selective hydrogenation of carbon dioxide to methanol on Ag/In_2O_3 has been confirmed theoretically and experimentally. The intense Ag- In_2O_3 interaction promotes the formation of oxygen vacancy, causing the enhanced activation and dissociation of CO_2. The enhanced CO_2 dissociation leads to the methanol synthesis via the CO hydrogenation route.



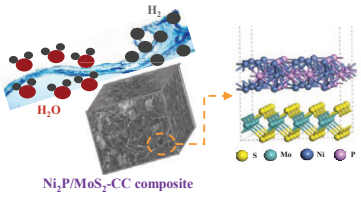
One-pot green mass production of hierarchically porous carbon via a recyclable salt-templating strategy

Hierarchically porous carbon has been prepared via a recyclable salt-templating strategy, and the prepared porous carbon exhibited excellent electrochemical performance when used as electrode material in supercapacitors.



Ni_2P/MoS_2 interfacial structures loading on N-doped carbon matrix for highly efficient hydrogen evolution

The N-doped porous carbon matrix loaded with Ni_2P/MoS_2 was prepared through a simple hydrothermal-phosphorization method. The synergetic interfacial effect between Ni_2P and MoS_2 provided good electrocatalytic performance and high stability for hydrogen evolution.



Increasing the greenness of an organic acid through deep eutectic solvation and further polymerization

The toxicity of acrylic acid as an important industrial chemical can be decreased through deep eutectic solvation and further polymerisation.