Proton exchange membrane electrode electrolyte

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Proton exchange membrane fuel cells (PEMFC) require highly efficient oxygen reduction reaction (ORR) electrocatalysts. The intrinsic ORR performance of advanced ORR catalysts (measured in rotating disk electrode, RDE) is often ...

Consistent with proton exchange membranes, the ionic conductivity of alkaline polymer electrolytes is determined by temperature and water content [65]. On the one hand, elevated ...

In this study, a simple two-step method was employed to modify the PTL surface with a Ni nanoparticle layer, yielding a multifunctional porous transport electrode (PTE), termed FeNN ...

A support that ensures robust catalyst anchoring and a stable local microenvironment is essential for proton-exchange-membrane (PEM) electrolyzers to withstand highly oxidative and strongly ...

A membrane electrode assembly for fuel cells is developed, incorporating a polymer electrolyte resin and a fullerene derivative with a specific ratio of 35 wt% to 75 wt% in the catalyst layer, ...

Proton exchange membrane (PEM) electrolyzers are promising devices for hydrogen production. They exhibit the superiorities in high operational current densities exceeding 2 A cm -2, ...

The formation of the core-shell structure represents a promising strategy for the efficient utilization of IrO? in proton exchange membrane water electrolysis (PEMWE). The electrochemical activity toward the oxygen evolution reaction ...

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Proton exchange membranes (PEMs) are also known as polymer electrolyte membranes, typically consist of a thin solid polymer electrolyte. PEMs have a wide variety of application in the fields ...

Alkaline water electrolysis (AWE) and proton exchange membrane water electrolysis (PEMWE) are the most widely used technologies for low-temperature hydrogen production [7, 10]. AWE, ...

The ability to increase the power density of polymer electrolyte fuel cells without a concurrent increase in the

amount of Pt is a crucial issue for expanded fuel-cell use. Reduction of the ...

Membranes tailored for neutral pH operation face distinct challenges compared with acidic or basic environments, including reduced ionic conductivity and heightened contamination risks. ...

This study systematically investigated the physicochemical properties and proton exchange membrane fuel cell (PEMFC) performance of perfluorosulfonic acid (PFSA) membranes with ...

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