

ABSTRACT

The present disclosure relates to a catalyst layer for a fuel cell and a preparation method for a membrane electrode. The catalyst layer includes an anode catalyst and a cathode catalyst, and the anode catalyst layer includes: a Pt-C catalyst, a high-dielectric small-molecule alcohol, sulfonated lignin-doped conductive polymer nanoparticles, a hydrophilic binder, an ionomer solution, and deionized water; the cathode catalyst layer includes a catalyst, an ionomer solution, a high-dielectric small-molecule alcohol, polytetrafluoroethylene, and deionized water. The preparation process for the membrane electrode includes: a preparation of an anode-side adhesive layer: dispensing a conductive polymer-sulfonated lignin hydrogel onto a peripheral area of a surface of the anode catalyst layer, thereby forming the anode-side adhesive layer configured for bonding the anode catalyst layer; a preparation of the cathode-side adhesive layer: dispensing the ionomer solution onto a peripheral area of a surface of the cathode catalyst layer, thereby forming the cathode-side adhesive layer configured for bonding a cathode diffusion layer, wherein the ionomer solution is a Nafion-PEDOT conductive polymer, and the membrane electrode assembly employs a frame-like encapsulation.

[FIG. 1]