

## عنوان مقاله:

A NEW GAS DIFFUSION ELECTRODE (GDE) WITH A BETTER O<sub>2</sub> REDUCTION ELECTROCATALYSTS WITH VERY LOW PT CONTENTS VIA NANO-SIZED PT-COATED NAFION

## محل انتشار:

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## خلاصه مقاله:

In the present study, a new gas diffusion electrode (GDE) (based on Pt/Nafion membrane) is fabricated. The electrochemical results show that the new GDE has the highest electrochemical activity toward the oxygen reduction reaction (ORR) among the three electrodes. The SEM and XRD findings show that a platinum layer can be attached to Nafion membrane closely and firmly with a strong peak corresponding to (111) crystalline face. The results illustrate that placing a Pt monolayer on a Nafion membrane is an attractive way of designing better O<sub>2</sub> reduction electrocatalysts with very low Pt contents. Under optimum conditions, Tafel slope, exchange current density ( $i_0$ ), and charge transfer resistance (R<sub>ct</sub>) are obtained to be respectively equal to 85 mV dec<sup>-1</sup>, 2×10<sup>-3</sup> A, and 8 Ω. For this electrode, the platinum particle size is 4 nm.

## کلمات کلیدی:

Oxygen Reduction Reaction, Nafion Membrane, Platinum Monolayer, Gas Diffusion Electrode, SEM, XRD

## لینک ثابت مقاله در پایگاه سیویلیکا:

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