عنوان مقاله:

Numerical Predictions of Oxygen Transport Enhancement in a PEM Fuel Cell with Flow Field Designs

محل انتشار:

فصلنامه انرژی و محیط زیست ایران, دوره 4, شماره 4 (سال: 1392)

تعداد صفحات اصل مقاله: 8

نویسندگان:

Nasser Baharlou Houreh - *Department of Mechanical Engineering, Faculty of Engineering,University of Isfahan, Isfahan, Iran*

Ebrahim Afshari - *Department of Mechanical Engineering, Faculty of Engineering,University of Isfahan, Isfahan, Iran*

خلاصه مقاله:

Present study investigates the cathode gas channel of proton exchange membrane fuel cell that is partially blocked by one or more baffle plates. In order to investigate the effects of the selected shape, size andthe number of baffles on oxygen transport in the gas diffusion layer a numerical modeling is carried out in27 cases. With consideration of both maximum oxygen concentration in the gas diffusion layerand reasonable pressure drop, the results indicate that in all cases, an increase in baffle height is more effective than an increase in number of baffle plates. Also, installing three large rectangular baffles seem quite appropriate, but when there is restriction in securing pressure in fuel cell, .installing the semicircle baffle is better than the rectangular one

کلمات کلیدی:

PEMfuel cell; Baffles Oxygen transport Pressure drop Channel blocking