

## عنوان مقاله:

Modeling of Heat and Mass Transfer in the Cathode Channel of PEM Fuel cell

## محل انتشار:

سومین همایش پیل سوختی ایران (سال: 1388)

تعداد صفحات اصل مقاله: 9

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## خلاصه مقاله:

Numerical simulation has been carried out to study the fluid flow, heat and mass transfer in the developing laminar flow in the cathode channel of PEM fuel cell. The flow channel is considered to be composed of two parallel walls, one porous (as the electrode surface) and one non-porous (as the gas distributor plate). Various flow situations have been analyzed, and the average friction coefficient, Nusselt number for heat transfer and Sherwood number for mass transfer are determined for these situations corresponding to different stoichiometric relations, operating current densities and pressures of the cell. The effect of suction wall boundary condition has also been investigated, corresponding to the oxygen consumption in the cathode. Correlations for the average friction coefficient, Nusselt and Sherwood numbers are developed that can be used for proton exchange membrane fuel cell modeling and design calculations.

## کلمات کلیدی:

PEM fuel cell; Developing laminar flow; Mass transfer; Heat transfer; Modeling; Oxygen suction

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/74581>

