

## عنوان مقاله:

Simulating the fuel cell of polymeric membrane with rectangular obstacles in biphasic mode

## محل انتشار:

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## نویسندگان:

Saman Navkhasi - Department of mechanical Engineering, Hamedan Branch, Islamic Azad University, Hamedan, Iran

Pedram mohammadi - Department of mechanical Engineering, Borujerd Branch, Islamic Azad University, Borujerd, Iran

Mohammad Damous Zandi - U P C Automàtica i Informàtica Industrial, polytechnic university of Catalunya, Barcelona, Spain

## خلاصه مقاله:

The fuel cells are electrochemical devices that are used for direct conversion of fuel into electrical energy. One of the most important types of fuel cells is polymeric fuel cell that has many applications. In this research, the effect of rectangular obstacle, number and dimensions of obstacle on oxygen diffusion into GDL/CL layer, flow production and pressure drop of cathode side in biphasic current mode has been investigated by putting one or many obstacles in cathode channel of fuel cell of polymeric membrane. For this purpose, the equations of conservation of mass, conservation of energy and momentum in cathode side have been numerically solved. The results showed that in biphasic current mode, a channel with rectangular obstacles (number of obstacles=5 and 70% of channel occupied) has most current production (about 533% more than normal channel) and the highest concentration of oxygen in catalyst layer.

## کلمات کلیدی:

polymeric fuel cell, rectangular obstacles, biphasic current

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