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Simulation of PEMFC by Using ANSYS Fluent for Isothermal and Non-isothermal Models

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Proton exchange membrane fuel cells (PEMFC) are attractive alternative source of electricity. The current study involves the computational fluid dynamics simulations of PEMFC under isothermal and non-isothermal conditions to investigate the performance of fuel cell. Effect of pressure and temperature on fuel cell performance has been studied under non-isothermal conditions. PEMFC has been modeled at 323 K and 1 atm under isothermal conditions whereas under non-isothermal conditions, the simulation has been run on 353 K and 3 atm. The results show that the current density increases with increase in operating pressure of PEMFC whereas the current density decreases with operating temperature.

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