The Non-Adiabatic Model of Air-Breathing Micro Direct Methanol Fuel Cells

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A three-dimensional two-phase non-adiabatic model is proposed for air-breathing micro direct methanol fuel cells (DMFC). The coupled heat and mass transport, along with the electrochemical reactions occurring in the air-breathing DMFC are modeled. Based on this new non-adiabatic model, the reactants distribution and concentration distribution, the pressure and flow velocity distribution, the saturation distribution, the potential and current density distribution, the temperature distribution and their effects on the cell performance are carefully examined.

Keywords: air-breathing micro direct methanol fuel cells, model, three-dimensional two-phase

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