

Thermal Analysis of 20 W PEMFC Stack

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Abstract. Fuel cells are devices that can represent a modern green source of electricity from chemical energy. However, their operation is accompanied by several coupled physical processes that are not so simple to intercept. This work deals specifically with the thermal domain. Its understanding is essential for the proper operation, as it is directly affecting the fuel cell and heat is continuously produced during electrochemical reactions. In addition to using the calculated heat sources and heat transfers for a FEM simulations in ANSYS Mechanical for a particular 20 W PEMFC, the simulation results are also compared with the spatial temperature distribution of this very fuel cell during experiments in the laboratory.

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