Dynamic model simulation of generalized PEM cell system using matlab/simulink

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ABSTRACT

The research for the purpose of establishing a simulation for the dynamics of generalized proton exchange membrane fuel cell (PEMFC) system is performed using Matlab/Simulink software package. The model is developed by using electrochemical, thermodynamic, and zero-dimensional fluid flow principles. Proposed model is implemented in a hierarchical structure and with a user-friendly icon and a dialog box like Simulink block libraries. The generalized PEMFC model is suitable for all kinds of easily simulated and analyzed. Can assist the user to predict the proton exchange membrane fuel cell output voltage and battery efficiency, providing users before the experiment to grasp the performance of fuel cells can also help system developers to quickly understand the development process in the cell performance. This model will enables the PEMFC dynamics to be easily simulated, analyzed, and verified.

Keywords : Generalized model, PEMFC system, Matlab/Simulink

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