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Effects of gas humidification in cell performance of proton exchange membrane fuel cell by numerical simulation

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Summary

The water management in Proton Exchange Membrane (PEMFC) is crucial in operating PEMFC system concerning water balance between electrode and membrane. Improper cell humidification might lead to drying or flooding of the electrodes, which degrades cell performance. In this research, effects of gas humidification are studied to aid a system designer in achieving the optimal condition of fuel cell system. The investigation takes into account the conservation of mass, momentum, energy and species as well as the water transport equations including electro-osmotic drag and back diffusion through numerical simulation.

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