

Liquid Water Removal From A PEFC

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Liquid water transport and removal from the gas diffusion layer and gas channel of a polymer electrolyte fuel cell (PEFC) is of importance for improving performance and durability. Owing to excess liquid water formation, flooding can be occurred at high current density and even at low current density under certain conditions, such as low temperatures and low gas flow rates, due to faster saturation of the gas phase with water vapor. Either GDL/catalyst layer (CL) flooding or channel flooding and clogging decreases the fuel cell performance and the longevity of PEFC materials and component. Liquid water removal is largely determined by operating condition, the type of GDL, different width of channel of flow field plate. In this work a transparent fuel cell is set up for the observation of liquid water transport during the operation. Water droplet, water film and slug flow along the channel are respectively presented for different gas velocity. Observation of liquid water formation and transport through transparent fuel cell would be helpful for numerical analysis to find out dominant parameters.