

Abstract Submitted
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Polymer Electrolyte Membrane Fuel Cell with Vertically Aligned Carbon Nanotube Electrode¹ ANN CALL, GABRIEL GOENAGA, JUNBING YANG, DI-JIA LIU, Argonne National Laboratory — Carbon nanotubes (CNTs) have been considered a promising material for various applications. Electro-catalyst support for polymer electrolyte membrane fuel cells (PEMFCs) is one of them. There have been a number of reports on CNT based membrane electrode assembly (MEA) in PEMFC, but CNTs in these electrodes are oriented randomly and the advantages associated with the structural properties of CNTs were not fully utilized. We report here our progress in fabricating and evaluating MEA made of catalyst decorated, vertically aligned carbon nanotube (ACNT) layers. For comparison, a commercial MEA prepared through the ink-based process was also tested under similar conditions. Improved performance was observed for ACNT-based MEA, particularly at high current region, suggesting enhancement in mass transport and improved water management.

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