

Abstract Submitted
for the OSS10 Meeting of
The American Physical Society

Polymer Electrolyte Membrane Fuel Cell with Vertically Aligned Carbon Nanotube Electrode¹ ANN CALL, Northwestern University, GABRIEL GOENAGA, JUNBING YANG, DI-JIA LIU, Argonne National Laboratory — Carbon nanotubes (CNTs) have been considered a promising material for various applications, including polymer electrolyte membrane fuel cells (PEMFCs). 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 evaluation of MEA made of catalyst decorated, vertically aligned carbon nanotube (ACNT) layers. For comparison, a commercial MEA prepared through conventional ink-based process was 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.

¹Work was completed at Argonne National Laboratory and done in conjunction with the cooperative education program at Kettering University. Kettering University claims no ownership to the work presented.

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Date submitted: 05 Apr 2010

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