



**Society of Naval Architects and Marine Engineers
2009 Annual Meeting and Expo**

Title: Fuel Cell-Hybrid Systems to Generate Shipboard Electrical Power

SNAME PS#: 032.R2

Authors: William Sembler, S. Kumar

Contact: semblerw@usmma.edu

Abstract: The reduction of shipboard airborne emissions has been receiving increased attention due to the desire to improve air quality and reduce the generation of greenhouse gases. The use of a fuel cell could represent an environmentally friendly way for a ship to generate in-port electrical power that would eliminate the need to operate diesel-driven generators or use shore power. This paper includes a brief description of the various types of fuel cells in use today, together with a review of the history of fuel cells in marine applications. In addition, the results of a feasibility study conducted to evaluate the use of a hybrid fuel-cell system to produce shipboard electrical power are presented.

Keywords: fuel cell, hybrid system, SOFC, shipboard power