University of Hawai`i at Mānoa

Hawai`i Natural Energy Institute

School of Ocean & Earth Science & Technology

Overview on Fuel Cell Technology
An Introductory Lecture

Fuel cells are electrochemical devices that convert the chemical energy of a fuel directly into electrical energy. A fuel cell may be described as a battery to which the reactants are continuously fed and from which reaction products are removed. The fuel cell is, therefore, able to maintain continuous operation as long as the fuel and oxidant are supplied to the electrodes. In reality, degradation (primarily corrosion) or malfunction of components limit the practical operating life of fuel cells. This presentation will give a detailed introduction into proton exchange membrane fuel cell technology, including the operating principal of fuel cells, a comparison to batteries, fuel cell applications, and the challenges fuel cells have to face.

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