



MECHANICAL
ENGINEERING

SEMINAR:
ENERGY SERIES

“Electrochemical Energy Storage: Chemicals and/or Batteries”

Alan C. West

Department of Chemical Engineering
Columbia University, New York, NY 10028

Abstract: Electrochemical systems are a type of a chemical system, with characteristics that make them ideal for several important technologies, including electrochemical energy storage devices such as batteries, with which we are all familiar. On a larger scale demanded by grid-level applications, batteries that work well in a laptop computer may be uneconomical. Thus the emergence of renewables, where storage will become an increasingly vital component of a robust technology, has created opportunities for alternative batteries and alternative means of storage. We have on-going research in battery systems and in an electrofuel process, where electricity is converted into a liquid fuel. The electrofuel process couples an electrolysis system to a bioreactor that exploits a chemolithoautrophic bacterium to convert CO_2 into fuels. We discuss the operation and prospects of the electrofuels process, and we provide a very brief overview of some battery related research, focusing on the sodium metal/halide battery.

Bio: Alan West received his PhD in Chemical Engineering from the University of California and his BS from Case Western Reserve University. He is the past chair of the Department of Chemical Engineering at Columbia University and is the Samuel Ruben-Peter G. Viele Professor of Electrochemistry. His research interests include electrochemical microfabrication methods, electrochemical sensors, batteries, bioelectrochemical synthesis, and fuel cells.

Wednesday, February 11th, 2015
11:00 am Seminar in 214 Mudd
12:00 pm Lunch in ME Lobby