



Mechanical Engineering
Carnegie Mellon University

Presents

Solutions to Unmet Technological Needs at the Interface between Electrochemistry, Materials and Mechanics

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The coupling between electrochemistry and materials behavior is rich with opportunities for design of devices and systems that can potentially address our most pressing technological and societal needs. This talk will give several examples, including: 1) exploitation of electrochemomechanical coupling for a new class of actuators based on solid-state electrochemistry; 2) designing “electrochemical shock” resistant battery electrodes for long-life batteries; and 3) high energy density, low-cost, passively-driven flow batteries based on electrochemically active non-Newtonian fluids.

Yet-Ming Chiang is Kyocera Professor in the Department of Materials Science and Engineering at Massachusetts Institute of Technology (MIT). His research focuses primarily on advanced materials and their role in energy technologies, and on four occasions has seeded commercial technology development in the form of spin-out companies. Chiang is a member of the U.S. National Academy of Engineering, and a Fellow of the Materials Research Society and the American Ceramic Society. He is currently Lead Scientist for the nonaqueous redox flow thrust within the Joint Center for Energy Storage Research, a DOE-funded Hub. He is a recipient of the The Economist's Innovation Award (Energy and the Environment category), the Electrochemical Society's Battery Division's Battery Technology Award, the Materials Research Society's Plenary Lecturer, an R&D 100 and R&D100 Editor's Choice Award, and the American Ceramic Society's Corporate Achievement, Ross Coffin Purdy, R.M. Fulrath, and F.H. Norton Awards. Chiang serves on numerous government and academic advisory committees and study panels, including recently serving on the outside review committee for the requalification of the Boeing 787 Dreamliner battery.



Friday, October 24, 2014

Doherty Hall 2315 | 1:00 - 2:00pm