

Electrocatalytic Materials and Design: towards Hydrogen Energy Sustainability

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Abstract

Fuel cell and electrolysis technologies are key solutions to future energy sustainability. Our research efforts at UC Merced are focusing on low-temperature PEM and AEM fuel cell and fundamental electrolysis researches. In my presentation, I will introduce our research activities at UC Merced, which include the following four areas: 1) Electrocatalytic Materials and Design, 2) Fuel Cell Testing and Characterization, 3) Electrochemical Cell Diagnostics and Modeling, and 4) MEA Design, Processing, and Integration.

Biography



Dr. Po-Ya Abel Chuang is an Associate Professor in School of Engineering at University of California, Merced. His research interests include PEMFC, AEMFC, water electrolysis, thermal management, loop heat pipe, two-phase heat transfer and fluid flow, and porous material. Prof. Chuang received his B.S. and M.S. degrees in Aerospace Engineering from National Cheng-Kung University in Taiwan. In 2003, he received his doctoral degree in Mechanical Engineering from Penn State University. In 2004, Prof. Chuang led research projects at Penn

State as a Postdoctoral Scholar to study water distribution in a PEM fuel cell using neutron radiography sponsored by General Motors and Toyota Motors. Between 2005 and 2011, Prof. Chuang worked at the fuel cell laboratory in General Motors leading efforts in material development, cell integration, and stack diagnostic. Between 2007 and 2011, Prof. Chuang was the team leader at GM responsible for diffusion media and membrane electrode assembly development. In 2009, he finished Executive MBA degree from Rochester Institute of Technology. After 2011, Prof. Chuang has been dedicated his fuel cell research work in the academia. Prof. Chuang has more than 50 combined journal publications and international patents. He has also given more than 35 invited talks in international workshops and conferences including Gordon Fuel Cell Conference in Rhode Island, Tianda International Fuel Cell Workshop in Tianjin, Canada-US Fuel Cell Modeling and Characterization Workshop in Canada, etc. Prof. Chuang has also received multiple awards including Hellman Fellow, Distinguished Undergraduate Teaching award, UC Merced; Discovery Park Research Fellowship, Purdue University; Honorary Member of Beta Gamma Sigma Honor Society, etc.