

# Fuel Cell and Hydrogen Energy Seminar



中電科技研究院  
CLP Research Institute

Venue : ElectriCity (Auditorium)  
Address : Castle Peak Power Station  
Lung Yiu Street, Tuen Mun  
Date : 15<sup>th</sup> December, 2004  
Time : 9:30 – 14:00

Time	Programme
9:30 – 10:00	Refreshment and Electricity Museum
10:00 – 10:15	<b>Dr. Gail Kendall</b> Managing Director of CLP Research Institute “Welcome and Introduction”  <b>Mr. Roger Lai</b> Director of Electrical and Mechanical Services Department “Opening Remarks”
10:15 – 10:55	<b>Dr. I-Ming Hsing</b> Associate Professor, Department of Chemical Engineering The Hong Kong University of Science and Technology  “Feasibility Study of Utilizing Fuel Cell in Hong Kong”
10:55 – 11:35	<b>Mr. Jeffery Serfass</b> President of the National Hydrogen Association, U.S.  “The Hydrogen-Electric Economy: The Drivers, the Status and the Opportunities”
11:35 – 11:50	Tea Break
11:50 – 12:30	<b>Dr. Paul Grant</b> EPRI Science Fellow (Retired)  “SuperCities and SuperGrids: Model Scenarios for a Future World Energy Society”
12:30 – 13:00	Panel Discussion
13:00 – 14:00	Lunch

**Prof. I-Ming HSING**

*Associate Professor, Department of Chemical Engineering  
Hong Kong University of Science and Technology  
(PhD, Massachusetts Institute of Technology)*

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Dr. I-Ming Hsing received his B.S degree ('90) at National Taiwan University and MS ('94) and Ph.D. ('97) degrees from the Department of Chemical Engineering at the Massachusetts Institute of Technology (MIT). He has been a faculty member of Chemical Engineering Department at HKUST since 1997 and was promoted to Associate Professor in January 2004. In addition to his academic appointment at UST, Dr. Hsing is an Adjunct Professor of Sichuan University and South China University of Technology.

*Dr. Hsing's group is active in the multidisciplinary research of bioanalytical microsystems and fuel cells. By bringing together the knowledge of reaction engineering, electrochemistry and microfabrication, he is interested in the research and development of bioanalytical microsystems and fuel cells, in order to provide a detailed understanding of these systems at the fundamental level.*

He has published more than 40 peer review papers in the last 5 years and is a regular reviewer of 15+ scientific journals. He has been the Principal Investigator of three fuel cell related projects (UIM/15, ITS/176/01A, ITS/069/02) supported by the Innovation and Technology Commission of Hong Kong SAR Government with a total funding of more than 9 Million. He was a technical consultant of a few local companies and is now leading a research group of 7 graduate students and 3 postdoctoral fellows.

Dr. Hsing's fuel cell research emphasizes on the understanding and controlling of the reactive and transport processes in fuel cells that will lead to the improvement of fuel cell performance. His group has five active projects in this area including 1) Electrochemical Impedance Based Diagnostics and Investigation, 2) Computational Analysis of Water Transport and Membrane Resistance in Polymer Electrolyte Fuel Cells, 3) Synthesis of Well-Dispersed Nanoscale Pt Alloy Electrocatalysts, 4) Modified Nafion Membranes for Low Methanol Crossover and High Temperature Operation and 5) Si-based Microfabricated Fuel Cells.

In conjunction to his fuel cell research initiatives, his group has been leading the research effort at HKUST in developing microsystems for biological applications. His research interest in this area is to develop a point-of-use bioanalytical microsystem with emphases on the fundamental understanding of biological reactions in a microenvironment as well as the realization of novel, microfabrication-compatible techniques, enabling quantitative analyses of biological events in the microscale. His bio group has 3 active projects in this area including 1) Microfabricated Flow Fractionation Device Assisted by a Pulsed Electric Field for the Separation of DNA Molecules 2) Integrated PCR-Electrochemical Device for Simultaneous DNA Amplification and Detection and 3) DNA-based Bioaerosol Detection. His group plans to complete the development of a full working prototype of a communication enabled bioanalytical microdevice in a few years.

## **Jeffrey A. Serfass, President of the National Hydrogen Association**

Jeff Serfass is the founding President of the National Hydrogen Association (NHA), formed in 1989 to promote the development and commercialization of hydrogen-related pathways and technologies in aerospace, ground transportation, electric power generation, and other energy applications. To this organization of nearly 100 automotive, energy, fuel cell, small business and university members, he provides leadership in the development of new association projects and business ventures, as well as strategic planning and management of the association. Within the NHA, Mr. Serfass is working on developing renewable energy feedstock strategies for the hydrogen future.

In development of the National Hydrogen Roadmap with the U.S. Department of Energy, Mr. Serfass contributed expertise and leadership to the steering committee and chaired the Education & Outreach Working Group. For his role in this project, Mr. Serfass was presented an award for "Outstanding Contribution" by U.S. Secretary of Energy, Spencer Abraham.

Mr. Serfass is President of Technology Transition Corporation, a company that manages the NHA, and the United States Advanced Ceramics Association. He is no stranger to renewable energy, having founded and managed over the years four fuel cell, solar and biomass industry organizations, and he is a founding Steering Committee member of the American Council on Renewable Energy. TTC also provides technical and market research services to private clients in hydrogen, fuel cells, solar and electric utility related businesses.

Mr. Serfass's previous experience includes the U.S. Department of Energy's Energy Regulatory Administration, U.S. Energy Research and Development Administration, and Westinghouse Electric Corporation, organization in which he has held electric utility-related positions in product-oriented development and demonstration strategies, as well as market research.

EPRI has been an important partner in Mr. Serfass's hydrogen activities. He has consulted on energy management and storage strategies with EPRI. EPRI supported the original Fuel Cell Users Group of utility companies, provided resources and stimulus to explore developing a U.S. hydrogen strategy which ultimately led to the formation of the NHA, and provided similar support to the formation of the Utility PhotoVoltaic Group in 1992 which Technology Transition Corporation managed. Most recently, Mr. Serfass has helped EPRI develop utility business strategies directed toward a hydrogen energy future.

Mr. Serfass holds B.S. and M.E. degrees in Electrical Engineering from Cornell University, Ithaca, New York.

Paul M. Grant holds a PhD degree in Physics from Harvard University.

Dr. Grant's career includes 40 years at the IBM San Jose Research Laboratory, where he studied the physical properties of magnetic semiconductors, organic and polymer metals, and high temperature superconductors. He also participated in the initial development of laboratory automation software and systems.

Dr. Grant later became Science Fellow at EPRI where he oversaw a variety of exploratory studies on wide bandgap semiconductors and power applications of superconductivity. He retired from EPRI in early 2004.

Dr. Grant has published over 100 papers in scientific peer-reviewed journals. Dr. Grant is a Fellow of the American Physical Society.

.....for more information about Paul Grant, go to [www.w2agz.com](http://www.w2agz.com).

