Canadian Section News

The fall 2004 symposium of the Canadian Section was held this past November at the University of Guelph. Abdelaziz Houmam organized the symposium entitled "Chemistry at Electrodes," which was attended by 82 participants. The symposium consisted of nine invited speakers including Dan Wayner, president of the Steacie Institute of Molecular Sciences at the National Research Council in Ottawa; Jacek Lipkowski from the University of Guelph; Mark Workentin and Zhefing Ding from the University of Western Ontario; Sylvie Morin from York University; Mark Pritzker from the University of Waterloo; Aicheng Chen from Lakehead University; and Sankara Papavinasam from CANMET in Ottawa. In addition Amy Lloyd, from Kinectrics Inc. in Toronto, received the 2004 Student Award of the Canadian Section for work carried out at the University of Western Ontario. Amy Lloyd presented the work in a talk entitled, "The Effects of Potential and Temperature on the Passive Corrosion Properties of Ni-Cr-Mo Alloys."

A poster session and a wine and cheese reception followed the oral presentations. Twenty-nine posters were presented at this event. Two Student Poster Awards (of $100 each) were presented to Xiaomin Bin from the University of Guelph and to Jared Smith from the University of Western Ontario. Two Student Poster Awards (of $50 each) were presented to Thamara Laredo and Andre D'Olembert from the University of Guelph. Honorable Mentions were awarded to Emad Hamed and Ming Li from the University of Guelph and to Susan Zheng from York University. ■

Above pictures from left to right: E. Hamed and S. McDowell explaining their work to Dr. A. Chen and Dr. D. Wayner respectively; Poster Session; Dr. Z. Ding, S. Papvinasam, A. Houmam, and Dominic Rochefort; Amy Lloyd (center) receives the 2004 Student Award of the Canadian Section from R. Menini (left) and M. Odziemkowski (right).

John L. Hudson Receives National Capital Section Award

During a National Capital Section banquet in November 2004, **John L. Hudson** was awarded the 2004 William Blum Award of the National Capital section for contributions to the science and technology of electrochemistry.

John L. Hudson received a BS degree in chemical engineering in 1959 from the University of Illinois, an MSE degree from Princeton University in 1960, and a PhD from Northwestern University in 1962. From 1963-1969, Dr. Hudson was an assistant professor at the University of Illinois-Urbana in the Chemical Engineering Department and from 1969-1975 was an associate professor there. From 1974-1975 Dr. Hudson was manager of Air Pollution Control for the Illinois Environmental Protection Agency. Since 1975, Dr. Hudson has been at the University of Virginia as professor, chairman, and member of the Center for Advanced Studies, and since 1988 the Wills Johnson Professor.

The Hudson Group studies temporal and spatial patterns that arise and can be produced in chemically reacting systems. When a reaction occurs on a surface, local conditions and the rate of reaction often vary with time. Furthermore, the behavior also depends on position and the sites are coupled through transport and electric fields. As a result spatiotemporal patterns develop. The group's work is oriented toward nonlinear dynamic behavior including stability and chaotic or periodic oscillations and spatial variations in electrochemical systems. They investigate both electrocatalytic reactions and metal dissolution. They explore the fundamental nature of the patterns and the effects on overall reaction rate. The group also investigates how control and forcing of the reactions can lead to desired conditions such as optimization of reaction rate.

The Hudson Group's work involves both experiments and mathematical modeling. Fundamental studies are applied to several areas including fuel cells, nanoscale patterning of metals, and localized corrosion of metals. They also investigate interacting oscillatory cells in biological applications including circadian rhythms and epilepsy and Parkinson's disease. Several active investigations are underway with groups at the University of Virginia and also at universities and laboratories in the U.S. and overseas.

Professor Hudson is involved in professional societies including The Electrochemical Society, American Institute of Chemical Engineers (AIChE), American Chemical Society, and American Society for Engineering Education. His honors include Honorary Professor at the East China University of Science and Technology (1975), R. H. Wilhelm Award of the AIChE (1991), Alexander von Humboldt Senior Scientist Prize (1989), Fulbright Fellowships in France (1962-1963) and Germany (1982-1983), and Diplomate within the American Academy of Environmental Engineers. ■

Brazilian Section

Aiming to encourage student participation in national meetings, the ECS Brazilian Section granted award certificates for the best student presentations at XIV SIBEE (Simpósio Brasileiro de Eletroquímica e Eletroanalítica), held August 8-12, 2004, in Teresópolis in the state of Rio de Janeiro. The SIBEE is a well-attended national symposium devoted to electrochemistry and electroanalytical chemistry, organized every two years in Brazil. Almost 300 papers were presented and students presented approximately 130 posters in different areas of solid-state, electrochemical science and technology, and electroanalytical chemistry.

The Student Posters Section winners were: Edgar T. Suzuki Yamamoto, from FCFRP-USP, Riberão Preto (SP), for his work in bioelectrochemistry (co-authors: G. P. Pardo, C. Curti, and Z. Naal); Emerson S. Gonçalves, from CTA, São José dos Campos (SP), for his work in fundamental electrochemistry (co-authors M. C. Rezende and N. G. Ferreira); and Marcus V. David, from COPPE-UFRJ, Rio de Janeiro (RJ), for his work in conducting polymers (co-authors: P. R. Coutinho and R. A. Simão).

All future activities, awards, and news from the Brazilian Section will be available soon on the ECS website. ■

Detroit Section

The Detroit Section has hosted two meetings so far in its 2004-2005 seminar series.

In October, Omar Yaghi of the University of Michigan spoke at the Detroit Section dinner meeting held in Warren, MI. His talk, entitled "Metal-Organic Frameworks (MOFs): New Materials Designed for H_2 Storage," presented Dr. Yaghi's groundbreaking efforts in synthesizing and characterizing crystalline solid-state materials based on the assembly of extended structures of metal-organic frameworks (MOFs). The exceptionally high surface area and pore volumes possible make MOFs ideal candidates for methane and hydrogen storage.

In December, the Detroit Section held a dinner meeting, again in Warren, MI, which featured Frank Feddrix of Energizer. Dr. Feddrix is a Senior Technology Manager at Energizer's Technology Center, where he currently leads their Lithium Technology Program. His talk, entitled "Lithium Iron Disulfide: Energizer AA and AAA Lithium Batteries," detailed the electrochemistry and materials science behind Energizer's $LiFeS_2$ batteries. These high rate/high power primary batteries are in demand for consumer use in power-hungry devices such as digital still cameras. ■

European Section

The Section is sponsoring several European meetings, including the Joint BES/ISE Bioelectrochemistry Meeting to be held in Coimbra, Portugal, June 19-24, 2005; and 11th International Conference on Electroanalysis (ESEAC) to be held in Bordeaux, France, June 11-15, 2006. The Section is a supporter of the 3rd Gerischer Symposium Electrocatalysis: Theory and Experiment, in Berlin, Germany, July 6-8, 2005. The second Heinz Gerischer Award of the European Section of The Electrochemical Society will be presented there to Michael Graetzel. The Section will hold a meeting on Sunday, May 15, 2005, 1800-1900h, at the ECS in Québec City. This informal meeting will provide an opportunity to exchange views on further activity of the European Section. ■

New England Section

The New England Section held its third dinner meeting of 2004-2005 season at Northeastern University, in Boston, MA, this past November. The featured speaker was Ron Latanision of Exponent, Inc.

The featured presentation was "Materials Issues in Supercritical Water Oxidation of Chemical Wastes." The destruction of civilian and military hazardous materials and wastes is of widespread concern. Traditional waste handling procedures are viewed with suspicion. One of the newest and safest alternative technologies is supercritical water oxidation (SCWO). This technology, which takes advantage of the properties of water above its critical point, provides rapid and complete destruction of a wide variety of materials and wastes. A major limitation to the full scale commercialization of SCWO is the corrosion of the materials of construction of these engineering systems. In this presentation, forensic analysis of failures in nickel based alloy preheater tubes exposed to various feeder solutions was shown to provide a basis for understanding the thermodynamic conditions under which SCWO reactors can be operated successfully.

In January, the New England Section held a dinner meeting, again at Northeastern University. The featured speaker was Petr Vanýsek of the Department of Chemistry and Biochemistry, Northern Illinois University, and presently Secretary of The Electrochemical Society.

The topic presented was "Electrochemistry without Redox: Interfaces between Immiscible Electrolytes." This research involved the study of the electrochemical behavior of interfaces between two immiscible electrolytes by X-ray reflectivity and the determination of interfacial widths. Preliminary analyses of these widths indicate that they are consistent with predictions from capillary wave theory. Temperature variation studies were presented and analyses of electrolyte distributions were investigated.

Prof. Vanýsek also presented a picture of current ECS activities and some comments about the Society's future plans. ■

San Francisco Section

The San Francisco Section met this past December, and Keith Kepler, cofounder of Farasis Energy, gave a talk on Writing Successful SBIR Proposals.

Kepler focused on the Small Business Innovative Research (SBIR) grant system but also talked about a similar grant system, Small Business Technology Transfer (STTR). Many topics were discussed. SBIR is particularly attractive to small companies because the company retains its intellectual property. Most small businesses (<500 employees) in the U.S. are qualified, but there are some rules about the principle investigator and research partners. Many government departments have SBIR programs, for example, Department of Commerce (DOC), Department of Defense (DOD), Department of Energy (DOE), Health and Human Services (HHS), National Aeronautical and Space Administration (NASA), and National Science Foundation (NSF). The solicitation for proposal can be found in government websites. The grant starts with phase I, which (if successful) often leads to phase II with a substantially larger grant amount. Kepler gave many practical suggestions in writing and organizing the proposals, using a suitable writing style for each section, and setting a budget. After the talk, Kepler discussed individual SBIR proposals with several people in the audience. ■