

STUDENT NEWS

1998 Student Research Award of the Battery Division



Ian Courtney is a PhD candidate in the Department of Physics at Dalhousie University, Halifax, Nova Scotia, Canada. He received his BSc from the Royal Military College of Canada, Kingston, Ontario in May 1992. He completed an MSc in May 1997, for his thesis entitled "Mechanism for the Reversible Reaction of Lithium with Tin Oxide Composites."

Courtney's PhD research, under the supervision of Dr. Dahn, is a continuation of the work completed in his master's degree. He has employed various experimental techniques, materials synthesis and characterization, electrochemical methods, x-ray diffraction and Mössbauer spectroscopy to investigate the reaction mechanisms in a new type of anode material for lithium ion cells. The research project was prompted by the announcement of Fuji Film Co. of their new generation of lithium ion cell which uses a tin oxide composite glass, and not carbon, as the anode material.

Courtney is a holder of an NSERC Industrial post-graduate scholarship, co-sponsored by the Canadian government and 3M Canada Inc. He also holds a fellowship from the Walter C. Sumner Memorial Trust Fund. Courtney intends to finish his PhD in early 1999 and hopes to commence a career in industrial R&D shortly thereafter.

1998 Morris Cohen Graduate Student Award of the Corrosion Division



Dr. C. Sean Brossia is currently working as a research engineer at the Center for Nuclear Waste Regulatory Analyses (CNWRA) at Southwest Research Institute in San Antonio, Texas. He is presently working on corrosion and materials issues surrounding high level nuclear waste disposal. Prior to that he was an engineer at

Armco, Inc. and was involved in corrosion test method development, new alloy development and metallic coatings. He received his MS (1994) and PhD (1997) in Materials Science and Engineering from the University of Virginia, Center for Electrochemical Sciences and Engineering. He earned his BS in Materials Engineering from the University of Wisconsin-Milwaukee (1992).

He is currently a member of ECS and the National Association of Corrosion Engineers. He has authored over 25 technical publications. His primary interests include localized corrosion, passivity, corrosion in non-aqueous environments, application surface modification technologies and alloy development for improved corrosion resistance, and environmentally assisted cracking.

Call for Nominations



F. M. Becket Memorial Award

Nominations are now being accepted for the 1999 F. M. Becket Memorial Award. This Award commemorates F. M. Becket, a man of great research and administrative ability, and a former President of the Society, whose accomplishments in science and industry were outstanding. The stipend, valued at \$3,500, provides a grant-in-aid toward a summer's (at least two months) research and study overseas in the laboratory of a recognized research institute or institution of higher learning, selected from the approved list maintained by the F. M. Becket Memorial Award Committee.

The objectives of this Award are to stimulate and encourage education and participation in the fields of electrochemical science and technology concerned with specialty materials and processes as follows: (1) materials such as refractory metals and compounds, intermetallics, graphite, fused salts, and rare earth metals; (2) equipment for the utilization of electrical energy in materials synthesis; (3) processes using arcs, vacua, plasmas, and electron and ion beams; and (4) high temperature kinetics and thermodynamic and related phenomena, such as melting, vaporization, reactions, sintering, diffusion or oxidation occurring at high temperatures, high pressures, or vacua involving high-temperature materials.

To be eligible for the award, the applicant must qualify in one of the two following categories. He or she must either: (1) be a graduating senior of demonstrated ability, regularly enrolled in any recognized college, university, or institute of technology in the continental United States or Canada, who intends to seek an advanced degree; or (2) be a graduate student, similarly enrolled, who is seeking an advanced degree.

The award shall be presented on the basis of the following material: (1) a complete transcript of the student's academic record; (2) two copies of a letter, over the signature of the head of the college or department in which the student is enrolled, describing briefly his or her academic work, campus activities, and presenting an estimate of his or her abilities; and (3) two copies of a letter, over the student's signature, containing a brief biographical sketch, a detailed description of the nature and extent of his or her academic work, particularly as

it may relate to the field of the award, and an outline of future plans. The student's letter should also contain a statement signifying willingness to fulfill the further requirements of the award as described in the Award Rules. The student shall indicate, from the list provided by the Award Committee, a choice of a place of residence under the award.

Application forms are available from Marc Cahay, ECECS Dept., 832 Rhodes Hall, ML 30, Univ. of Cincinnati, Cincinnati, OH 45221-0030, tel: (513) 556-4754, fax: (513) 556-7326, e-mail: planck.ececs.edu.

The deadline for receipt of completed applications is January 1, 1999. The Award winner will be announced on March 30, 1999.



Morris Cohen Graduate Student Award

Nominations are now being accepted for the 1999 Morris Cohen Graduate Student Award of the Corrosion Division. Named in honor of the late Dr. Morris Cohen, a renowned expert in the field of electrochemistry and corrosion science, this award was established in 1992 to recognize and reward outstanding graduate research in the field of corrosion science and/or engineering. Such early recognition of highly qualified corrosion scientists/ engineers is intended to encourage especially promising researchers to remain active in the field after their graduate research is completed.

This award, for outstanding Master's or PhD work, is open to graduate students who have successfully completed all the requirements for their degrees. Candidates remain eligible for two years, and those eligible for the 1999 award must have completed all requirements for their degree between January 1, 1997 and December 31, 1998. The successful candidate is expected to present a lecture on their research work at a Corrosion Division symposium held at the Fall 1999 Meeting of the Society. The award consists of a certificate plus \$1,000. Assistance for unreimbursed travel expenses, up to an additional \$1,000, can also be provided for travel expenses incurred in attending the Society Meeting at which the award is presented.

Nominations may be made by the nominee's research supervisor or anyone familiar with the nominee's research work. In the latter case, the nomination must also include a letter from the research supervisor. In addition, the following are required: (1) a summary of the nominee's Master's or PhD research

work outlining, in two or three double-spaced pages, the most important aspects of the work and the resultant contributions to corrosion science and technology; the candidate's promise as a future corrosion scientist/ engineer should be considered in light of the student's contributions to the research programs as distinct from those of the professor; (2) a list of the nominee's publications, reports, memberships, and involvement in scientific societies, awards received, etc.; (3) a copy of the candidate's academic record, and reprints or preprints of publications; (4) any other pertinent information which might assist the members of the Award Committee in assessing the candidate; and (5) the dates on which the oral or final examination was successfully taken and/or the degree was granted by the University. In the event that the degree has not yet been conferred, an explanation should be given along with the anticipated date on which the degree will be granted.

Further information about this Award may be obtained directly from the Chairman of the Award Committee: G. S. Frankel, Department of Materials, Science and Engineering - 477 Watts, Ohio State University, 2041 North College Rd, Columbus, OH 43210-1124.

Nominations for the 1999 award must be received by the Award Committee Chairman no later than December 15, 1998.

Awarded Memberships Available

The Society's Corrosion, Electronics, High Temperature Materials, and Industrial Electrolysis and Electrochemical Engineering Divisions are offering Awarded Student Memberships to qualified full-time students. To be eligible, students must be in their final two years of an undergraduate program or enrolled in a graduate program in science, engineering, or education (with a science or engineering degree). Postdoctoral students are not eligible. Awarded memberships are renewable for up to four years; applicants must reapply each year. Awarded memberships begin on January 1 of the calendar year following receipt of the application. Memberships include subscriptions to both the **Journal of The Electrochemical Society** and **Interface**.

To apply for an Awarded Student Membership, use the application form on the page 52. Deadline for submission is October 15, 1998.

(continued on next page)

Student Travel Grants

Several of the Society's Divisions offer travel assistance to students presenting papers at Society Meetings. These travel grants are intended to aid students in attending the Meeting. To be eligible for a grant, applicants must be scheduled to present a paper in a symposium or session sponsored or cosponsored by the Division to which the application is made. To apply for a travel grant, use the application form on page 52.

Applications for the Boston Meeting in November must be received no later than one month prior to the start of the Meeting. The following Divisions are currently offering grants:

Electrodeposition—In commemoration of Abner Brenner's pioneering contributions to the field of electrodeposition, the Division offers up to three \$750 travel grants per year to graduate students who present papers in symposia sponsored or cosponsored by the Division. In addition, the Division also offers up to two \$450 travel grants per year to students making a presentation

of interest to the Division in the General Society Student Poster Session.

Interested students should apply using the Student Travel Grant Application form on page 52. A recommendation letter from the student's graduate research advisor and a copy of the student's Meeting Abstract are also required. Optional supporting documents such as article reprints, transcripts, or reports are also invited.

Electronics—The Electronics Division is offering travel grants of up to \$600 each to students presenting papers at the Society's 194th Meeting in Boston, November 1-6, 1998. Eligible students must be scheduled to present a paper in a symposium sponsored or cosponsored by the Electronics Division.

Applicants must submit the Student Travel Grant Application on page 52, a copy of their Meeting Abstract, and a letter of recommendation from their faculty advisor.

Energy Technology—Starting with the Boston Meeting, the Energy Technology Division will be offering travel grants up to \$300 to students attending ECS

Meetings. To be eligible for travel support, students must be presenting a paper in a symposium sponsored or cosponsored by the Energy Technology Division.

To apply for the travel support, please complete the Student Travel Grant Application on the facing page 52, and return it with a letter from a faculty advisor and a copy of the Meeting Abstract. Other supporting documents are also invited.

Physical Electrochemistry—The Division will support the travel of students to each ECS Meeting. Eligible students must be a graduate student or upper level undergraduate and must be scheduled to present a talk at a symposium sponsored by the Physical Electrochemistry Division. The maximum amount given for travel support will be up to \$1,000 to be distributed among the awardees.

To apply for travel support, please complete the Student Travel Grant Application on page 52, return it with a letter of recommendation from a faculty advisor, and a copy of the Meeting Abstract. ■

ECS & DOE SUMMER FELLOWSHIP WINNERS

Each year The Electrochemical Society and the U.S. Department of Energy give up to eight Summer Research Fellowships to assist students in continuing their graduate work during the Summer months in a field of interest to the Society. This year's Summer Fellowship recipients are:



The recipient of the Society's Edward G. Weston Summer Research fellowship, **Bradley Bath**, attended St. Olaf College where he earned a BA in Mathematics and Chemistry. After taking a year off and working in Minneapolis he decided to pursue a PhD in Chemistry at the University of Utah. He is currently beginning his fourth year at the University. Bath received the Dow Chemical Co. First Year Scholarship and the Henry Eyring Research Fellowship. His primary research interests are in the field of transdermal drug delivery.



The recipient of the Society's Colin Garfield Fink Summer Research fellowship, **Gyeong Soon Hwang** received his BS (1991, top-honors) and MS (1993, under Professor Sang H. Moon) in Chemical Engineering from Seoul National University in Korea. He then worked on the development of molten carbonate fuel cells and inorganic membranes as a part-time research engineer at the Korea Institute of Science and Technology. In 1994, Mr. Hwang entered the PhD program of Chemical Engineering at the California Institute of Technology. While performing thesis research with Professor Konstantinos P. Giapis on the dynamics of gas-surface interactions and the physics of charging damage during plasma processing in semiconductor chip fabrication, he also earned an MS in Applied Physics (1998). The author or co-author of over 30 publications, Mr. Hwang has received several awards including: the Constantin G. Economou Memorial Prize (Caltech, 1996), Student Travel Award (PSTD, AVS, 1996), Graduate Research Award (AVS, 1997), Graduate Student Award Finalist (MRS, 1998), and Travel Grant (Electronics, ECS, 1998).



The recipient of the Society's Joseph W. Richards Summer Research fellowship, **James J. Sumner** worked for two years at the Bowman Gray School of Medicine (Wake Forest University, Winston-Salem, North Carolina) in the department of Pharmacology and Physiology. He graduated summa cum laude with a BS in Chemistry from High Point University (High Point, North Carolina) in May 1995 and, in August of that same year, he began graduate work at Clemson University (Clemson, SC), where he is currently pursuing a PhD. Mr. Sumner's research is being performed in the laboratory of Dr. S. E. Creager where his studies have included perfluorinated ionomer membranes for fuel cell technology and electron transfer kinetics.

The following are recipients of the U.S. Department of Energy Fellowships:



Mingqi Zhao received his BS in Corrosion and Protection from Zhejiang University of Technology, Hangzhou, P. R. China in 1986 and his MS in Applied Chemistry from Nanjing University of Chemical Technology, Nanjing, P.R.C. in 1989. He served as a research engineer at Jiangsu Province Enterprises Advisory Body Company and as an Assistant Professor at Nanjing Power Institute from 1989 to 1995. He started his PhD studies under the direction of Dr. Richard M. Crooks at Texas A&M University, College Station, TX, in 1996. He is majoring in Analytical and Materials Chemistry. His thesis work involves the synthesis, characterization, and testing of novel organic thin films for use in catalysis, chemical sensors, and corrosion inhibition. Currently, he is focusing on electrocatalysis based on dendrimer-encapsulated noble-metal nanoclusters. He has published about twenty papers on corrosion inhibition, thin organic films, and nanoclusters.



Suresh Sriramulu graduated with a bachelor's degree in Chemical Engineering from the Indian Institute of Technology at Madras, India, in 1992. As a project assistant, he was involved in the design of gas-solid separation systems for a coal based power plant. In 1995, he moved to Wyoming and graduated from the University of Wyoming with an MS in Chemical Engineering.

Mr. Sriramulu is currently pursuing a PhD in Chemical Engineering under the supervision of Professor Eric M. Stuve at the University of Washington, Seattle. His research focuses on obtaining a molecular-level understanding of methanol electrocatalysis on platinum based electrodes; such an understanding is crucial to the design of effective catalysts for the fuel cell reaction.



Jason Ritchie attended the University of California, San Diego, where he received a BS in Chemistry in 1994 under the direction of Professor Michael Sailor. In 1998, he will receive his PhD from the University of Texas at Austin. Ritchie's work focuses on the "Molecular Level Control of the Surface Properties of High- T_c Superconductors" under the direction of Professor John McDevitt. He will begin a postdoctoral appointment at the Department of Chemistry at the University of North Carolina at Chapel Hill in late 1998.



Mahmoud Abd Elhamid received his BS in Chemistry from the College of Science, Cairo University, Egypt, in 1990, and in 1994, his MS in Solid-State Chemistry. In 1995, he joined the research team under the direction of Professor H. W. Pickering at the Pennsylvania State University where he is working as a research assistant

in the Metals Department of the Materials Science and Engineering.



Shouzhong Zou graduated from Xiamen University, China in 1994 with his master's degree. He then joined Dr. Michael J. Weaver's group at Purdue University to pursue his PhD. Zou's research interests include using Raman and Infrared spectroscopies and scanning tunneling microscopy to study electrochemical interfaces, computer simulations and theo-

retical calculations on electrochemical systems.

ECS & DOE Summer Research Fellowships

The Electrochemical Society is currently soliciting applications for the 1999 Society Summer Fellowships, which are given each year to assist a student in continuing his/her graduate work during the summer months in a field of interest to the Society. Each year the Society gives up to three such fellowships, worth \$3,000 each.

In order to be eligible for a Summer Fellowship, the individual must be a graduate student pursuing work between the degree of BS and PhD, in a college or university in the United States or Canada, who will continue his or her studies after the summer period. A previous holder of a Summer Fellowship is eligible for reappointment.

Qualified graduate students are invited to apply for these fellowships. Applicants must complete an application form and supply the following information: (1) a brief statement of educational objectives; (2) a brief statement of the thesis research problem, including objectives, work already accomplished, and work planned for the Summer of 1999; (3) a transcript of undergraduate and graduate academic work; and (4) two letters of recommendation, one of which should be from the applicant's research advisor.

As it is the spirit of these awards that they be the sole sponsor of the summer graduate work, successful recipients of a fellowship must agree not to hold other appointments or other fellowships during the Summer of 1999.

Application forms are available from the Chairman of the Fellowship Award Subcommittee, to whom completed applications and letters of recommendation should be sent: Johna Leddy, Dept. of Chemistry, Univ. of Iowa, Iowa City, IA 52242, tel: (319) 335-1720, fax: (319) 335-1270, e-mail: jleddy@blue.weg.uiowa.edu.

The deadline for receipt of completed applications is January 1, 1999. Award winners will be announced on April 1, 1999.

In addition, subject to approval, there will be five additional summer fellowships in 1999, each consisting of \$3,000, supported by the U.S. Department of Energy.

The purpose of these fellowships is to assist students in continuing graduate work during the summer months in such fields as energy-related aspects of electrochemical science and engineering as well as solid-state science and engineering, and shall involve the areas of batteries, fuel cells, photoelectrochemistry, photovoltaics, and electrochemical processes of materials aimed at reducing energy consumption.

Qualifications, submission of information, and deadlines for these fellowships are the same as outlined above.



The **Corrosion, Electronics, High Temperature Materials, Industrial Electrolysis and Electrochemical Engineering and the Physical Electrochemistry** Divisions are offering Awarded Student Memberships to qualified full-time students. Eligible students must be in their final two years as undergraduates or be enrolled in a graduate program in science, engineering, or education (with a science or engineering degree). Awarded memberships are renewable for up to four years; applicants must reapply each year.

Memberships begin on January 1 of the calendar year following receipt of the application and include subscriptions to the **Journal** and **Interface**. The application deadline is October 15, 1998.

AWARDED MEMBERSHIP APPLICATION

Name: _____

Home Address: _____

Date of Birth: _____

Phone #: _____

School, Division, and Department: _____

School Address: _____

Undergraduate Year (U) or Graduate Year (G) - circle one:
U3 U4 G1 G2 G3 G4 G5 GPA _____

Major Subject: _____

Have you won this award before? - circle one: Yes No

If yes, how many times? _____

Signature of Student: _____

Date: _____

Faculty member attesting to eligibility of student:

Name: _____

Department: _____

Signature: _____

Date: _____

Division under which award is being applied for:
(Applications made to multiple Divisions will be rejected)

Corrosion—Send to: Dr. G.S. Frankel, Dept. of Materials Science & Engineering, 477 Watts Hall, The Ohio State University, Columbus, OH 43210

Electronics—Send to: Dr. Arnold Reisman, NC State Univ., Department of ECE, Box 7911, Raleigh, NC 27695

High Temperature Materials—Send to: Dr. Mark D. Allendorf, Sandia National Labs, MS 9052, P. O. Box 969, Livermore, CA 94551-0969

Industrial Electrolysis & Electrochemical Engineering—Send to: Dr. James M. Fenton, Dept. of Chemical Engr., U-222, Rm. 208, Univ. of Connecticut, Storrs, CT 06269-3139

Physical Electrochemistry—Send to: Dr. Johna Leddy, Department of Chemistry, University of Iowa, Iowa City, IA 52242

The Society's **Electrodeposition, Electronics, Energy Technology, High Temperature Materials, and Physical Electrochemistry Divisions** offer travel grants to students presenting papers at Society Meetings. For the individual rules of each Division's grant program, please see the Student Travel Grant announcements on the facing page of this issue of **Interface**. **To apply, complete this application and send it along with a letter from an involved faculty member attesting both to the quality of the student's work and financial needs, and a copy of the student's Meeting Abstract.** *(Preference for travel allocation grants will be given to ECS Student Members.)*

STUDENT TRAVEL GRANT APPLICATION

1. Meeting Site: _____

2. Name: _____

3. School Address: _____

3. Major Subject: _____

4. Undergraduate grade point average: _____

Out of possible: _____

Graduate grade point average: _____

Out of possible: _____

5. Division Symposium Title: _____

6. Title of Paper to be Presented at Meeting: _____

7. Are you a Student Member of the Society? _____

(If not, please additionally submit the Awarded Student Membership application at left.)

8. Estimate meeting expenditures: \$ _____

9. Signature: _____

Date: _____

Check Division under which award is being applied for:
(Applications made to multiple Divisions will be rejected)

Electrodeposition—Send to: M. Datta, IBM Corp., T. J. Watson Research Center, Rm 40-025, P.O. Box 218, Yorktown Heights, NY 10598-0218

Electronics—Send to: Dr. Arnold Reisman, NC State Univ., Department of ECE, Box 7911, Raleigh, NC 27695

Energy Technology—Send to: K. Rajeshwar, Dept. of Chemistry and Biochemistry, The University of Texas at Arlington, Arlington, TX 76019-0065

High Temperature Materials—Send to: F. Garzon, Los Alamos National Lab, MS 0429, Los Alamos, NM 87545

Physical Electrochemistry—Send to: J. Leddy, Dept. of Chemistry, University of Iowa, Iowa City, IA 52242

Application and faculty letter must be received no later than one month prior the Meeting for which a travel grant is sought.