

## Expanding the Impact of *ECS Transactions*

by Jeffrey W. Fergus

One of the objectives of The Electrochemical Society (ECS) is to disseminate knowledge in electrochemistry and solid state science. Content presented at ECS meetings is disseminated beyond meeting attendees through the publication of proceeding papers. Prior to 2005, these papers were published in hard-cover Proceedings Volumes (PVs). In 2005, *ECS Transactions* (ECST) was established to expand dissemination of ECS meeting content. ECST allows for the publication of printed proceedings volumes, but also expands access because the papers are available online either as complete volumes or individual papers.

Each ECS symposium is represented by an issue of ECST, some of which are available as hard-cover books and others that are available as soft-cover print-on-demand books. If a hard-cover book is not published, there is no minimum paper number requirement, so any paper presented in an ECS symposium can be published for further dissemination. In some cases, papers are submitted prior to the meeting, so that the volume can be made available at the meeting. In other cases, the papers are not submitted until a few weeks after the meeting, so the issue is published later.

As shown in Fig. 1, more than 13,000 papers have been published in ECST. Most of these papers (81%) are associated with presentations made at ECS biannual meetings. However, ECST also publishes volumes for other meetings, which is a valuable resource for organizations lacking the infrastructure for publishing meeting content.

As ECST approaches a decade of publication, ECS is evaluating possible changes or new features to enhance the impact of ECST on scientific discourse in electrochemical and solid state science.

### Impact of Publications

Presentations at conferences and journal publications are both important for the dissemination and discourse needed to advance science and technology. Presentations at meetings can contain very recent results, since they do not have to take the time or meet the standards associated with the peer-review process of a journal publication. A journal paper contains more complete information, but is not available until sometime later. Oral or poster presentations at meetings provide

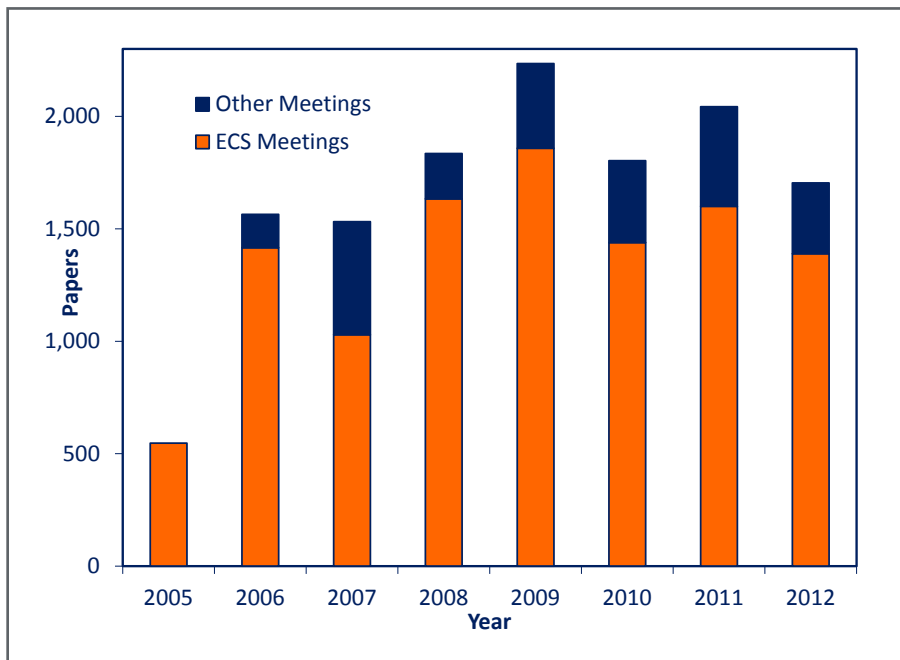


FIG. 1. ECST publication history.

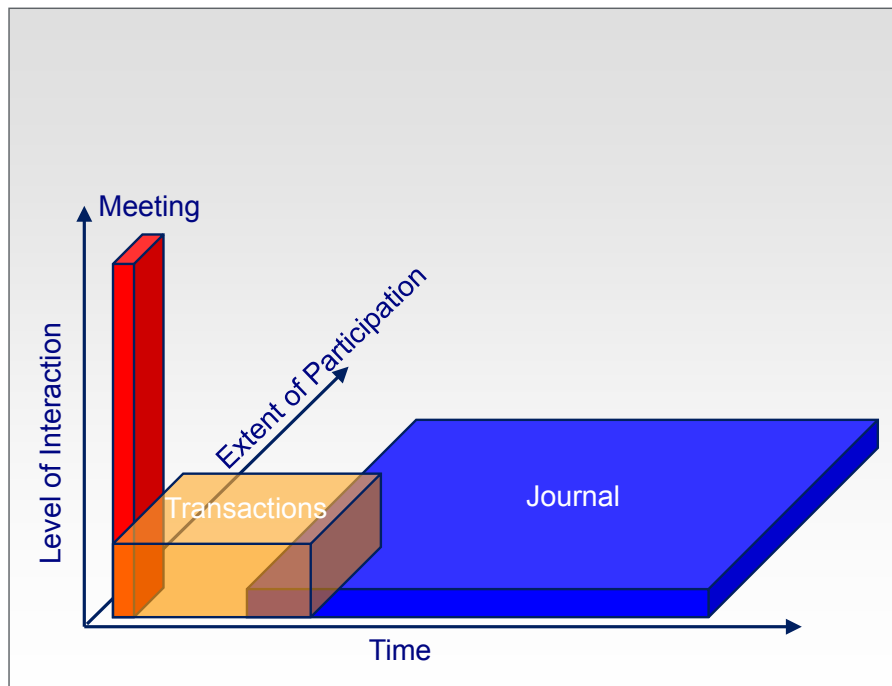


FIG. 2. Impact of publications.

opportunities for interaction and discussion between the authors and meeting participants, but this opportunity is available only to meeting participants. On the other hand, journal publications are more widely available but there is typically minimal interaction between authors and readers. A reader may contact an author with questions and perhaps have some subsequent discussion, but the level of interaction is generally limited.

These interactions are illustrated graphically in Fig. 2 where meetings have a high level of interaction among a relatively small number of meeting participants (smaller depth in the figure) while journals are widely available (large depth in the figure) but with little interaction. Also illustrated in Fig. 2 is the gap in time between when content is presented at a meeting and when it is published in a journal. This gap is due to the time required to develop research to the stage where it is suitable for a journal publication as well as the time for the peer-review and production processes. Proceedings publications can span this gap, since they can be available at or shortly following the meeting. Results that are not ready for a journal publication may still be valuable to other researchers in the field, so proceedings publications can be useful for advancing science and technology. Proceedings papers that are available at the meeting are particularly useful since they can provide information to enhance the discussions at the meetings.

Enhancing the impact of a publication can be through increasing the number of, or the interaction among, authors and readers as illustrated in Fig. 3. ECS is in the process of obtaining member feedback to identify ways in which the impact of ECST can be enhanced in both of these ways.

## Input on the Future of ECST

To obtain member feedback on the future of ECST an open forum was held at the Toronto meeting. In addition, the ECST Editor met with members at Division meetings and luncheons. Subsequently, broader input was solicited through a survey to ECS members.

*Toronto Meeting.*—One of the issues identified during discussions at the Toronto meeting (May 2013) was concern over the value to the author in writing ECST papers. Proceedings papers are typically read by fewer people and count for less in performance evaluations and promotion considerations as compared to journal publications. While the time required to write a proceedings paper is less than that to write a journal paper, it still takes time, so the value of spending that time must be justified.

Another concern raised is that publication in ECST may limit subsequent publication in a journal paper. Any content published in ECST can be published in an ECS journal. However, some authors may want to

publish content in other journals. In some cases, selected portions of the results can be published in a proceedings paper and then elaborated with additional results in a subsequent journal publication. However, in other cases any publication will preclude subsequent publication.

One of the strengths of ECST identified was its flexibility. Some symposia require all participants to submit a proceedings paper prior to presenting at the symposium, while others provide the option of a proceeding paper submitted after the meeting, but do not emphasize the proceedings issue. Different communities have different constraints, objectives and emphases, so the availability of multiple options is appreciated. This flexibility, however, leads to variability in the level of review and thus expectations between issues. To explore ways to take advantage of this flexibility, ECS members were surveyed on some possible new initiatives for ECST.

*Member Survey.*—The survey was sent by email to ECS members in June 2013. More than 300 members responded with at least 262 responses to each question.

About half of the respondents indicated that proceedings are always (12%) or often (40%) useful. The proportion that contributes (41% always or often) or actively seeks out proceedings papers (42% always or often) is somewhat less, but still indicates that proceedings papers are of value. The comments from respondents indicated that the value of proceedings papers is the rapid dissemination of recent results and providing a forum for publication of results that would not later be published in journals (such as some work from industry). Although proceedings papers are generally considered to be of lower stature than journal publications, they are useful for students and young researchers that need to establish a publication record.

One possible extension of ECST being considered is the publication of slides from meeting presentations. The support for this idea was similar to the general support for proceedings in that 49% of the respondents would often or always find narrated slides of presentations useful. The value of slides without narration was somewhat lower—42% indicated that this was often or always useful. Figure 4 shows that, although there is value in the slides, there is a reluctance to contribute. Only 28-32% of respondents would often or always contribute their slides, while 46-47% would never or sometimes contribute slides. Of those that would contribute slides, 62% would often or always want to remove selected slides before publication. The concern over publishing sensitive information was also identified as an issue in some of the respondent comments.

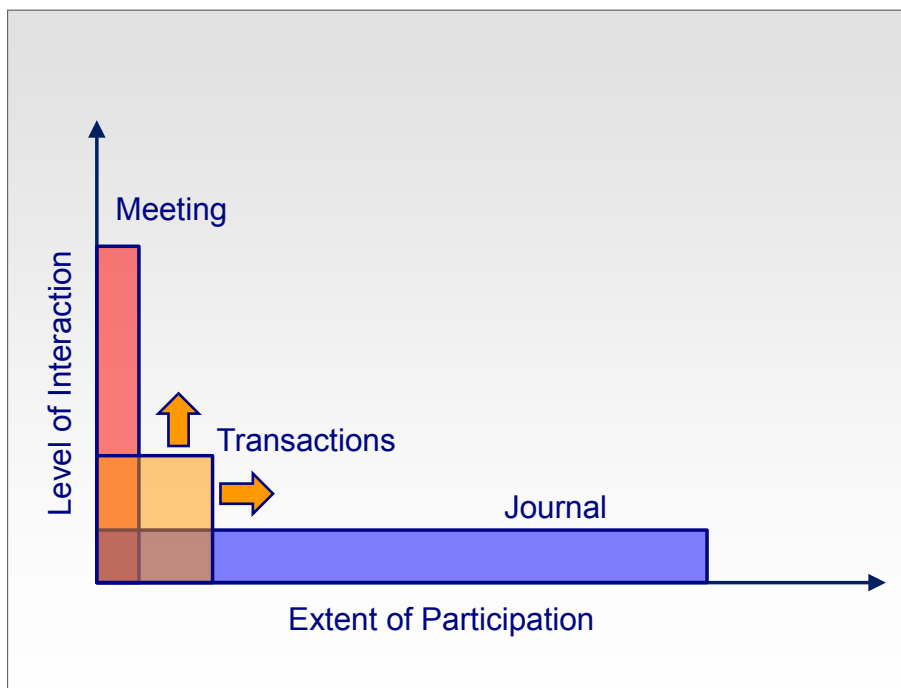


FIG. 3. Expanding impact of ECST.

(continued on next page)

The other common issue identified in the comments was that many presenters like to continue to modify their slides until just before the talk. However, many respondents did indicate that they would find the slides of other presenters valuable. Since there is potential value in publishing presentation slides, ECS will be recording presentations made in the Symposium on Sensors for Agriculture at the meeting in San Francisco and post the narrated slides on the ECS website as a pilot test of this potential publication format.

Another possible extension of ECST is to provide an opportunity for online discussion of papers and scientific topics. Figure 5 shows that while respondents found value in input from others on their work (47% often or always found comments on their papers useful) they would not likely participate in online discussion. Only 15-19% of respondents would often or always comment on other papers or participate in an online discussion, while 25-26% would never do so. The comments from respondents indicated that developing an effective online discussion is difficult and that it is also difficult to find time to participate in such discussions.

One method for increasing participation is to reduce the length of the paper or provide alternative publication formats (like the slides discussed above). The survey included a question asking if a page limit should be imposed on ECST papers. There was no strong consensus for or against page limits. Figure 6 summarizes results on the suggested length, which indicates that preferred length is a little shorter than the actual length of ECST published papers (average length = 9.7 pages). Another approach to shorter publication is a two-page extended abstract, which has been used by ECS in the past, either in addition to, or in place of, a proceedings paper. The results from the survey shown in Fig. 7 indicate that the usefulness of or interest in submitting extended abstracts is not strong.

One of the strengths of ECST noted in the comments was, as also identified in discussions at the Toronto meeting, the flexibility that allows different groups to take different approaches to publishing in ECST. Thus, support from all members is not needed for an initiative to be successful, so some ideas with moderate support may still be worth pursuing. Expanding the range of publication alternatives will benefit ECS members even if all members do not utilize the new features.

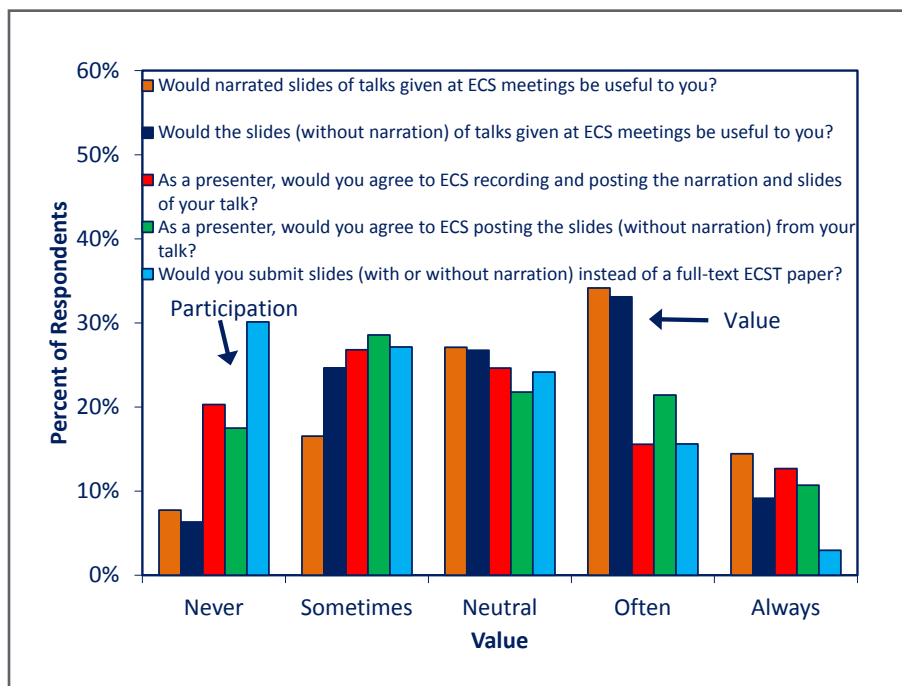


Fig. 4. Survey results on publication of slides from meeting presentations.

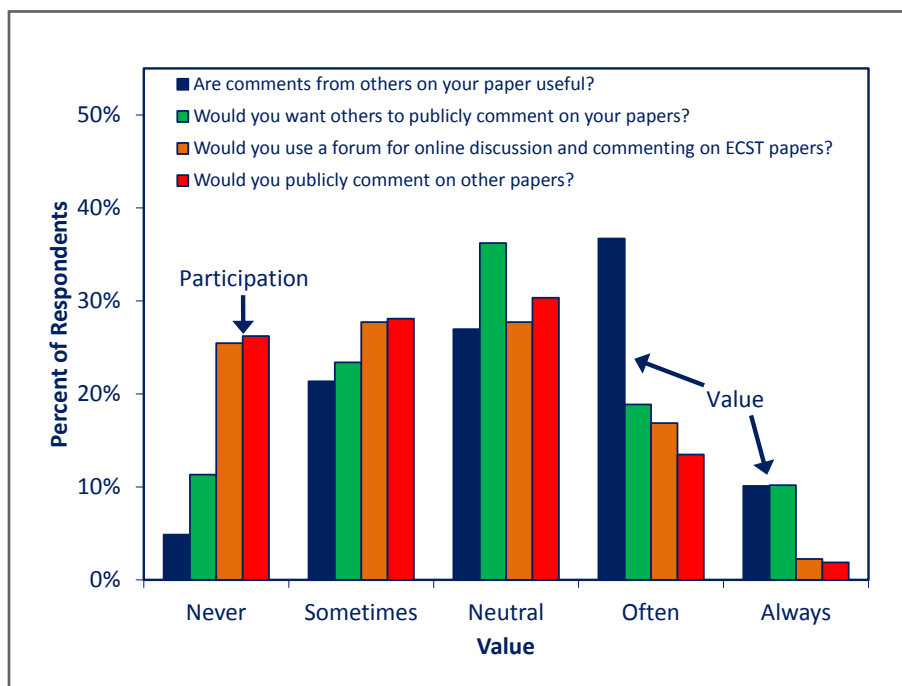


Fig. 5. Survey results on online discussions.

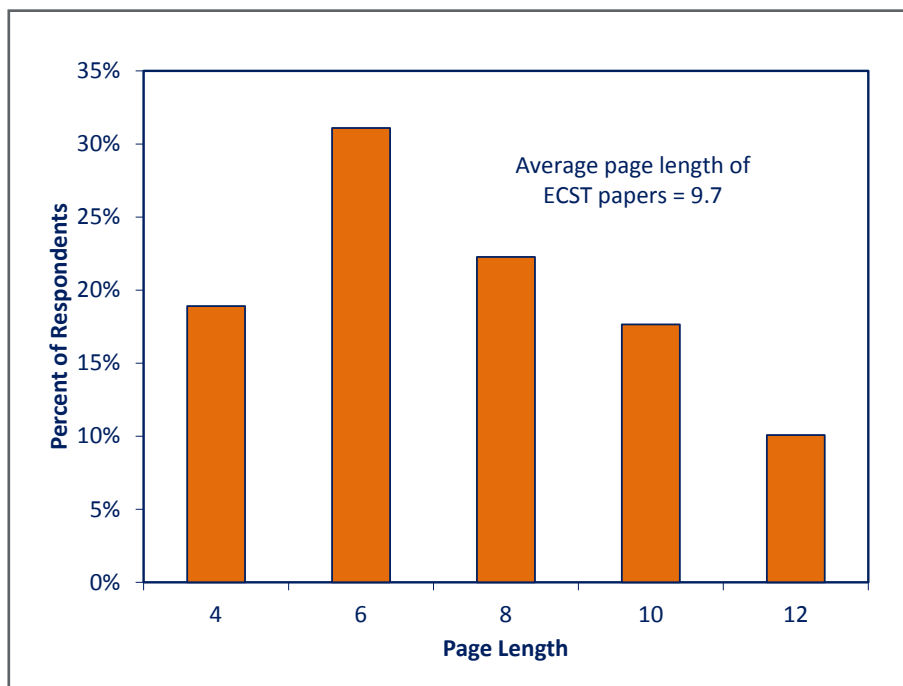


FIG. 6. Survey results on ECST paper length.

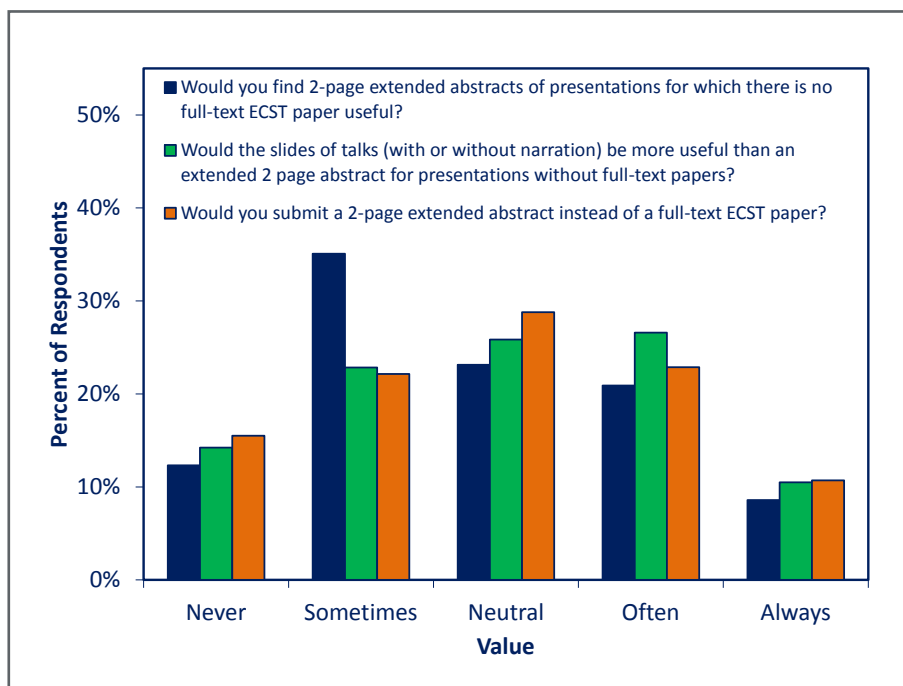


FIG. 7. Survey results on two-page extended abstracts.

The result from the survey that generated the strongest consensus was the preference for electronic formats. Of the respondents, 62% always or often download individual ECST papers, while 62% never purchase hard-cover books.

## Conclusions

The membership of ECS is very diverse and different groups within the Society have different needs and objectives for publishing meeting content. ECST provides multiple avenues for publication to meet these needs, but the range of opportunities can be expanded to more effectively disseminate content from ECS meetings. The survey of ECS members indicates that finding value for and facilitating participation of content contributors is a challenge for proceedings publications like ECST. Comments and suggestions on the possibilities discussed in this paper or alternative ideas would be most welcome. ■

## About the Author

**JEFFREY W. FERGUS** is Editor of *ECS Transactions* and Chair of the High Temperature Materials Division. After receiving his PhD from the University of Pennsylvania and a postdoctoral appointment at the University of Notre Dame, he joined the materials engineering faculty at Auburn University, where he is currently a professor. His research interests are in the high temperature and solid state chemistry of materials, including the chemical degradation of materials and materials for electrochemical devices, such as chemical sensors, batteries, and fuel cells. He may be reached at [jwfergus@eng.auburn.edu](mailto:jwfergus@eng.auburn.edu).

## IE&EE Division NET Award

The ECS **IE&EE Division** presented the 2013 New Electrochemical Technology (NET) Award to **UTC Power** at the Division's Luncheon and Business Meeting in Toronto, Canada. Michael L. Perry and Robert M. Darling accepted the company's award plaque as well as the individual key contributor scrolls for Sathya Motupally, Timothy W. Patterson, Tom Skiba, and Mathew P. Wilson. The team of engineers from UTC Power was awarded the 2013 NET Award for outstanding work in electrochemistry and electrochemical engineering that enabled fuel-cell powered vehicles to achieve commercial levels of reliability and durability in real-world transit bus service. Dr. Darling presented the NET Award address entitled "Fuel Cells for Transportation with Commercially-Viable Reliability and Durability." All sponsoring organizations of commercial, new electrochemical technology are invited to submit their nominations for the 2015 NET Award (see the ECS website for details).

The IE&EE Division was pleased to present **Young Woo-Lee** (Soongsil University, Seoul) with its 2013 H. H. Dow Memorial Student Achievement Award; and **Wei Yan** (Ohio University) and **Christopher Arges** (Illinois Institute of Technology) with the Division's 2013 Student Achievement Awards.

*This item was contributed by: Gerri Botte (Ohio University), IE&EE Division Chair.*



The ECS **IE&EE Division** presented the 2013 New Electrochemical Technology (NET) Award to UTC Power at the Division's Luncheon and Business Meeting in Toronto Canada. From left to right are: **ROBERT M. DARLING** (UTC Power), **MICHAEL L. PERRY** (UTC Power), and **GERRI BOTTE** (IE&EE Division Chair).

## Institutional Member Spotlight

**Bio-Logic** is the market leader in the manufacture and distribution of electrochemical instrumentation, including single and multi-channel potentiostats, electrochemical scanning probe microscopy, fuel cells test systems, and accessories. The EC-LAB™ product line is the fastest growing collection of instrumentation to address applications in battery, fuel cell and solar energy, electro-analytical chemistry and corrosion.



A unique approach to instrumentation and a broad selection of modular instruments that can be expanded as the needs of customers grow and evolve, is what helps Bio-Logic service its ever-growing client base. A powerful, yet easy to use EC-LAB™ software platform, and a complete array of electrochemical accessories, ensures that Bio-Logic always provides researchers with the potential to do more.

Uniscan Instruments, the market leader in scanning electrochemical instrumentation, was recently acquired by Bio-Logic. For more than 20 years, Uniscan Instruments has been at the cutting edge of scanning probe electrochemistry technology. Uniscan has helped pioneer scanning techniques which enable the electrochemist, materials scientist, biologist, and physicist to understand and develop technologies in the fields of materials research, corrosion, sensors, and energy storage research.

Bio-Logic holds four major instrument product lines: electrochemistry, rapid kinetics, electrophysiology, and photosynthesis. Electrophysiology instruments facilitate researchers in studying electron transfer in brain, nerve and muscle tissue, while the photosynthesis instruments allow the photosynthetic electron transfer in plants and bacteria to be studied. Rapid kinetics mixers and spectroscopy units are used to study fast reactions for biology and biomolecular chemistry.



## The Electrochemical Society of Japan Celebrates Their 80<sup>th</sup> Anniversary

**T**he Electrochemical Society of Japan's (ECSJ) 80<sup>th</sup> Anniversary celebration was held in Sendai, Japan from March 29-31 on the newly renovated Tohoku University campus. At the invitation of presiding ECSJ President Kiyohiko Nakae, ECS President Fernando Garzon and Executive Director Roque Calvo participated in this memorable anniversary celebration, and had an opportunity to reflect on the long term relationship between ECS and ECSJ.

This relationship has spanned more than 40 years and has been primarily built on our collaborative or joint meeting now called the Pacific Rim Meeting on Electrochemical and Solid State Science or PRiME. The most recent PRiME was held last October, and it was the 6<sup>th</sup> and most successful event with the inclusion of 4,011 technical papers. The ECS-ECSJ partnership began when leaders of each Society conceived the idea to hold a joint meeting in Hawaii. The growth and development of electrochemistry led to individual collaborations among leaders of both organizations who recognized that there were opportunities for the societies to work together. Because the programs and activities of each Society were built around technical meetings, they concluded that a joint meeting in a mutually beneficial location would leverage contributions from both organization and create a program that was superior to anything that either could do alone.

After concluding our most successful joint meeting last October, it was clear that this was a visionary plan which has led to the development of the most significant technical meeting in the field of electrochemical and solid state science. In the 1980s, collaborations of this nature were uncommon and they remain complex and challenging. The early collaboration between ECS and ECSJ was pioneering and the sustained excellence of the meeting and relationship between the societies is a model of success (see meeting summary on page 15).

ECSJ's 80<sup>th</sup> Anniversary was an opportunity to celebrate the progress of ECSJ, the partnership with ECS, and the important role electrochemistry is playing in the world today. The presidents of several important electrochemical societies participated in the anniversary celebration. In addition to those from ECS, other participants included the International Society of Electrochemistry, the Korean Electrochemical Society, and the Chinese Society of Electrochemistry. ECS President Fernando Garzon presented the following lecture to commemorate the event.

"On Behalf of The Board of Directors and the Members of The Electrochemical Society, I convey our sincere congratulations to The Electrochemical Society of Japan upon their 80<sup>th</sup> Anniversary. We salute the many achievements of the Society and its membership. The Electrochemical Society of Japan has been



Attending the ECSJ 80<sup>th</sup> anniversary dinner in Sendai, Japan are **ROQUE CALVO**, ECS Executive Director; **FERNANDO GARZON**, ECS President; **TSUTOMU TAKAMURA**, former ECSJ Editor; **SHANSHAN CHENG**, student, Waseda University; **TETSUYA OSAKA**, ECS Vice-President and former ECSJ President; **ISAO TANIGUCHI**, former ECS Board member; and **TOSHIO FUCHIGAMI**, former ECSJ Editor.

## SOCIETY NEWS

a leading contributor to the advancement of world science and technology throughout its distinguished history. As mankind faces the many challenges of increased population and energy usage, diminishing natural resources and the global environmental impacts associated with economic development, better technology needs to be implemented to ameliorate the undesirable consequences of our increasing standard of living. The Electrochemical Society of Japan, through its publications, technical symposia, and the scientific breakthroughs of its membership, has played and will continue to play a vital role in advancing improvements in efficient energy conversion, energy storage, environmental sensing and monitoring, and green chemistry and manufacturing. These achievements are evident in our everyday lives. Among the many achievements are the advanced lithium battery technology in our mobile computers, telephones and tablets, the high efficiency and low emission hybrid vehicles we drive, emerging fuel cell energy conversion technology, the sensors that monitor our homes and workplaces for toxic and flammable gases, and the numerous new advanced medical devices that improve our health and vitality.

“The Electrochemical Society and The Electrochemical Society of Japan have many mutual members and the societies have been formally collaborating for 40 years, which represents half of the historical lifetime of The Electrochemical Society of Japan. Our dual members were the basis of informal collaborations for decades before our joint meetings officially began. Our first international meeting was held October 1987 in Honolulu, Hawaii after five years of planning between the leadership of our societies. The attendance has grown from 2,500 to over 3,800 participants at PRiME 2012 demonstrating the success and importance of our

joint meetings. PRiME is the world’s largest and most important meeting dedicated to electrochemical science and technology and we only expect it to grow in the future. International collaboration in scientific endeavors directed toward the benefit of humanity, as exemplified by the PRiME conference, will only become increasing more important for the future well being of the planet.

“The Electrochemical Society would like to thank the outstanding past and present members and leaders of The Electrochemical Society of Japan for their globally significant advancement of electrochemical science and technology and we wish you continued future success in your noble mission.” ■

Date	Name	Location	Attendance
October 1987	Joint International Meeting	Honolulu, Hawaii	2,537
May 1993	Joint International Meeting	Honolulu, Hawaii	2,470
October 1999	Joint International Meeting	Honolulu, Hawaii	2,410
October 2004	Joint International Meeting	Honolulu, Hawaii	2,960
October 2008	PRiME 2008	Honolulu, Hawaii	2,775
October 2012	PRiME 2012	Honolulu, Hawaii	3,811



*Special guests at the ECSJ 80<sup>th</sup> Anniversary held on the campus of Tohoku University are (standing from left to right): AKIRA FUJISHIMA, President, Tokyo University of Science; MASUO AIZAWA, Counselor to the President of the Japan Science & Technology Agency; FERNANDO GARZON, ECS President; HASUCK KIM, ISE President; KIYOHICO NAKAE, ECSJ President; MICHIHARU NAKAMURA, President of the Japan Science & Technology Agency; ZEMPACHI OGUMI, Chair, ECSJ 80<sup>th</sup> Anniversary Celebration; and HIDEAKI MATSUOKA, ECSJ Former President.*

## New Division Officers

New officers for the 2013-2015 term have been elected for the following Divisions.



### Energy Technology Division

*Chair*

Adam Weber, Lawrence Berkeley National Laboratory

*Vice-Chair*

Scott Calabrese Barton, Michigan State University

*Secretary*

Andrew Herring, Colorado School of Mines

*Treasurer*

Vaidyanathan (Ravi) Subramanian,  
University of Nevada, Reno

*Members-at-Large*

Katherine Ayers, Proton Energy Systems

Huyen Dinh, NREL

James Fenton, University of Central Florida

Thomas Fuller, Georgia Institute of Technology

Kunal Karan, University of Calgary

Sanjeev Mukerjee, Northeastern University

William Mustain, University of Connecticut

Sri Narayan, University of Southern California

Peter Pintauro, Vanderbilt University

Krishnan Rajeshwar, University of Texas at Arlington

Juergen Stumper, Automotive Fuel Cell Cooperation

John Weidner, University of South Carolina

Karim Zagib, Hydro-Quebec

## Division Officer Slates Announced

New officers for a 2013-2015 term have been nominated for the following Divisions. All election results will be reported in the winter 2013 issue of *Interface*.



### Electrodeposition Division

*(The Division will vote to affirm the current Executive Committee to remain in office for the 2013-2015 term.)*

*Chair*

Giovanni Zangari, University of Virginia

*Vice-Chair*

Elizabeth Podlaha-Murphy, Northeastern University

*Secretary*

Stanko Brankovic, University of Houston

*Treasurer*

Philippe Vereecken, IMEC vzw

*Members-at-Large (both to be elected)*

Ingrid Shao, IBM Corporation

Natasa Vasiljevic, University of Bristol

Ellen Ivers-Tiffée, University of Karlsruhe

Xingbo Liu, West Virginia University

Torsten Markus, Forschungszentrum Juelich

Toshio Maruyama, Tokyo Institute of Technology

Patrick Masset, Fraunhofer UMSICHT-ATZ

Nguyen Quang Minh

Mogens Mogensen, DTU Energy Conversion

Jason Nicholas, Michigan State University

Juan Nino, University of Florida

Elizabeth Opila, University of Virginia

Emily Ryan, Boston University

Subhash Singhal (retired)

Enrico Traversa, King Abdullah University

of Science & Technology

Anil Virkar, University of Utah

Eric Wachsman, University of Maryland

Werner Weppner, Christian-Albrechts University Kiel

Mark Williams, URS Corporation

Leta Woo, Lawrence Livermore National Laboratory

Eric Wuchina, Naval Surface Warfare Center

Carderock Division

Shu Yamaguchi, The University of Tokyo

Harumi Yokokawa, National Institute of

Advanced Industrial Science & Technology



### High Temperature Materials Division

*Chair*

Xiao-Dong Zhou, University of South Carolina

*Senior Vice-Chair*

Turgut Gur, Stanford University

*Junior Vice-Chair*

Greg Jackson, University of Maryland

*Secretary/Treasurer (the candidate not elected will be a*

*Member-at-Large)*

Paul Gannon, Montana State University

Koichi Eguchi, Kyoto University

*Members-at-Large (up to 33 to be elected)*

Stuart Adler, University of Washington

Mark Allendorf, Sandia National Laboratories

Timothy Armstrong, Carpenter Technology,

Corporate Research & Development

Sean Bishop, Kyushu University

Fanglin (Frank) Chen, University of South Carolina

Emiliana Fabbri, Paul Scherrer Institute

Fernando Garzon, Los Alamos National Laboratory

Robert Glass, Lawrence Livermore National Laboratory

Srikanth Gopalan, Boston University



### Luminescence and Display Materials Division

*Chair*

Anant Setlur, GE Global Research Center

*Vice-Chair*

Madis Raukas, Osram Sylvania

*Secretary/Treasurer*

Mikhail Brik, University of Tartu

*Members-at-Large (up to 6 to be elected)*

Holly Comanzo, GE Global Research Center

Uwe Happek, University of Georgia

Charles Hunt, University of California, Davis

Marco Kirm, University of Tartu

David Lockwood, National Research Council – Canada

Alok Srivastava, GE Global Research Center



## Highlights from IC4N

The latest edition of the 4<sup>th</sup> **International Conference from Nanoparticles and Nanomaterials to Nanodevices and Nanosystems (IC4N)** ([www.uta.edu/ic4n](http://www.uta.edu/ic4n)) on the beautiful island of Corfu, Greece was a resounding success. Like the three previous conferences, this year's IC4N was also co-sponsored by ECS and had a truly international flavor with *ca.* 200 participants from more than 40 countries around the world.

The conference was opened with an inspirational plenary lecture by Nobel Laureate Dan Shechtman and involved four keynote lectures and more than 100 invited lectures by renowned researchers around the globe, making IC4N a forum of the highest quality. The poster sessions contributed to a vigorous and informal scientific and technical exchange. Mariana Sendova of the New College of Florida received the ECS Poster Paper Award for her poster, "BaTiO<sub>3</sub> Nanoparticles: Temperature-Dependent Micro-Raman Spectroscopy." The conference involved eleven special symposia that were planned to address the current state-of-the-art in nanoscience and nanotechnology as applied to energy conversion, human health, and the environment. A Nanotechnology Transfer Workshop also took place to address issues relating to facilitation of recent nanomaterials and nanotechnology advancements to the marketplace. ■



The ECS Poster Paper Award at IC4N was awarded to **MARIANA SENDOVA** of the New College of Florida (center), who is pictured here with **STATHIS MELETIS** (left) and **KRISHNAN RAJESHWAR** (right).

## 13<sup>th</sup> ISE Topical Meeting

The 13<sup>th</sup> **Topical Meeting of the International Society of Electrochemistry (ISE)** was held at the International Convention Centre of the Council for Scientific and Industrial Research (CSIR ICC) in Pretoria, South Africa, from April 7 to 11, 2013. The theme of the meeting was "Advances in Electrochemical Materials Science and Manufacturing," which involved ISE Division 4 (Electrochemical Materials Science) and ISE Division 5 (Electrochemical Process Engineering and Technology). The meeting was a huge success, attracting 218 participants from 25 countries. The program included five plenary lectures, eleven keynote lectures, 131 oral and invited lectures, and 77 posters. This was the first time an ISE meeting was held in Africa.

ECS was one of the sponsors of the conference and the Society awarded travel grants to the following four students (USD 500 each).

**Paul Ejikeme** (University of Nigeria, Nsukka, Nigeria), for his paper, "Factorial Design and Response Surface Methodology in Optimization of Biodiesel Production from Nigerian Non-Edible Oil."

**Shane Flanagan** (Rhodes University, Grahamstown, South Africa), for his paper, "Normalizing Variability in the Electrochemical Detection of Mycotoxins at Carbon Nanotube Modified Glassy Carbon Electrodes." ■



ECS was one of the sponsors of the 13<sup>th</sup> ISE Topical Meeting and as part of its sponsorship, awarded travel grants to four students. From left to right: **DANIEL SCHERSON** (ECS 2<sup>nd</sup> Vice-President); award winners **XOLILE GODFREY FUKU**, **SHANE FLANAGAN**, **PAUL EJIKEME**, and **KATLEGO MAKGOPA**; and **KENNETH OZOEMENA** (Conference Chair).

**Xolile Godfrey Fuku** (University of the Western Cape, Cape Town, South Africa), for his paper, "Quantum Dots Electrochemical Genosensor for Breast Cancer Biomarkers."

**Katlego Makgopa** (University of Pretoria, Pretoria, South Africa), for his paper, "Electrochemical Properties of Graphene Oxide/Manganese Oxide Nanocomposites for Electrochemical Capacitors." ■



## websites of note

by Zoltan Nagy

### Guide to Electrochemical Technology for Synthesis, Separation, and Pollution Control

Chemical manufacturers and users are daily faced with decisions associated with the need to improve chemical processes (e.g., increase selectivity, separate difficult mixtures, decrease energy consumption, recover the value of chemicals in waste streams, minimize the discharge of a toxic by-product, etc). This Guide seeks to show that modern electrochemical technology can offer the preferred solution to a range of problems, and several illustrative examples are described. What is electrolysis? Applications of electrochemical technology. Why consider electrolysis now? Will electrochemical technology solve your problem? Examples of electrolytic processes.

- D. Pletcher (U. of Southampton)
- <http://www.electrosynthesis.com/pdfs/Guide.pdf>

### Electrochemical Technology for Environmental Treatment and Clean Energy Conversion

The applications of electrochemical technology in environmental treatment, materials recycling, and clean synthesis are briefly reviewed. The diversity of these applications is shown by the number of industrial sectors involved. The scale of operation ranges from microelectrodes to large industrial cell rooms. The features of electrochemical processes are summarized. Electrochemical reactors for energy conversion are also considered, with an emphasis on load-leveling and proton-exchange membrane (PEM) (hydrogen–oxygen) fuel cells.

- F. C. Walsh (U. of Bath)
- <http://www.iupac.org/publications/pac/2001/pdf/7312x1819.pdf>

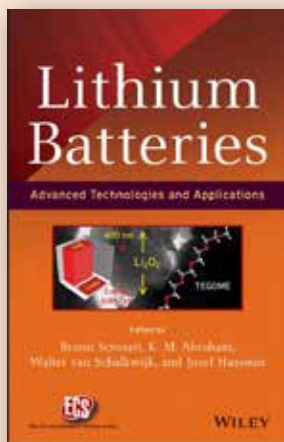
### Electrodialysis

Electrodialysis is used to transport salt from one solution, the diluate, to another solution (concentrate) by applying an electric current. This is done in an electrodialysis cell providing all necessary elements for this process. The concentrate and diluate are separated by a membrane into the two different process streams (concentrate and diluate), an electric current is applied, moving the salt over the membrane. Applications are: desalination of salt water, stabilization of wine, whey demineralization, pharmaceutical applications, pickling bath recycling, etc.

- PCA - Polymerchemie Altmeier GmbH
- <http://www.pca-gmbh.com/appli/ed.htm>

### About the Author

ZOLTAN NAGY is a semi-retired electrochemist. After 15 years in a variety of electrochemical industrial research, he spent 30 years at Argonne National Laboratory carrying out research on electrode kinetics and surface electrochemistry. Presently he is at the Chemistry Department of the University of North Carolina at Chapel Hill. He welcomes suggestions for entries; send them to [nagyz@email.unc.edu](mailto:nagyz@email.unc.edu).



## 224<sup>th</sup> ECS Meeting Highlight

ECS celebrates the publication of  
*Lithium Batteries—Advanced Technologies and Applications*

**Meet, greet, and chat with some of the editors!**  
**Plus, enter to win\* a signed copy of *Lithium Batteries***

**When:** Wednesday, October 30, 2013 • See Meeting Program for time.

**Where:** ECS Booth in the 224<sup>th</sup> ECS Meeting Technical Exhibit

\*Please refer to the 224<sup>th</sup> ECS Meeting Program for further details about the time and location of this event. No purchase is necessary but you must be present to win. Official rules available upon request to [ecs@electrochem.org](mailto:ecs@electrochem.org).

**You must be present at the Meet and Greet Book Signing & Giveaway to be eligible to win.**

Please check your meeting badge sheet for your book giveaway entry ticket and the 224<sup>th</sup> ECS Meeting Program for more details.

## ECS Co-sponsored Conferences for 2013

*In addition to the regular ECS biannual meetings, ECS, its Divisions, and Sections co-sponsor meetings and symposia of interest to the technical audience ECS serves. The following is a list of the co-sponsored meetings for 2013. Please visit the ECS website for a list of all co-sponsored meetings.*

- **Electrochem 2013**, September 1-3, 2013 — Southampton, UK
- **EuroCVD 19**, September 1-6, 2013 — Varna, Bulgaria
- **64<sup>th</sup> Annual Meeting of the International Society of Electrochemistry**, September 8-13, 2013 — Santiago de Querétaro, Mexico
- **New Processes and Materials Based on Electrochemical Concepts at the Microscopic Level (MicroEchem 2013)**, September 16-19, 2013 — Querétaro, Mexico
- **28<sup>th</sup> Symposium on Microelectronics Technology and Devices (SBMicro 2013)**, September 16-19, 2013 — Curitiba, Brazil (Sponsored by ECS Electronics & Photonics Division)
- **13<sup>th</sup> International Symposium on Solid Oxide Fuel Cells (SOFC-XIII)**, October 6-11, 2013 – Okinawa, Japan

*To learn more about what an ECS co-sponsorship could do for your conference, including information on publishing proceeding volumes for co-sponsored meetings, or to request an ECS co-sponsorship of your technical event, please contact [ecs@electrochem.org](mailto:ecs@electrochem.org).*

## In the **NEXT** issue of **INTERFACE**

- The work of the members of the ECS **HIGH TEMPERATURE MATERIALS DIVISION** will be featured. Guest edited by **Jeff Fergus**, the issue will feature a number of very interesting articles, including “Design of Materials for Solar-Driven Fuel Production by Metal-Oxide Thermochemical Cycles,” by **Mark Allendorf**; “A Summary of the SOFC-PPP Workshop,” by **Jason Nicholas**; “Corrosion in Energy Conversion,” by **Elizabeth Opila**; “High Temperature Proton Conductors,” by **Enrico Traversa**; “Energy Harvesting,” by **Mark Williams**; and “Reversible Solid Oxide Fuel Cells/Solid Oxide Electrolysis Cells,” by **Nguyen Minh** and **Mogens Mogensen**.

- Highlights from the **224<sup>th</sup> ECS MEETING IN SAN FRANCISCO** will be presented, including photos from the **Electrochemical Energy Summit (E2S)** featuring the **Water-Energy Nexus Symposium**, and from the special symposium in honor of **Adam Heller** on the occasion of his 80<sup>th</sup> birthday.
- **TECH HIGHLIGHTS** continues to provide readers with free access to some of the most interesting papers published in the ECS journals, including articles from the Society’s newest journals: *ECS Journal of Solid State Science and Technology*, *ECS Electrochemistry Letters*, and *ECS Solid State Letters*.
- Don’t miss the next edition of **WEBSITES OF NOTE** which will focus on all the ECS websites: the new ECS Digital Library, the ECS home site, and Redcat.