

ECS 227th ECS Meeting Highlights

May 24-28, 2015

Chicago, Illinois, USA

Hilton Chicago

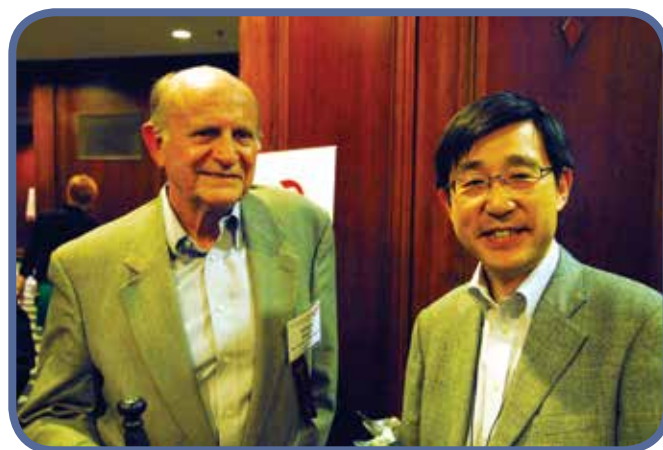


The spring meeting returned once again to Chicago, Illinois, to the historic Hilton Chicago, after eight years. Over 2,300 presentations were given in 45 symposia with an attendance of about 2,400 people. The meeting officially began on Monday at the plenary lecture, although many of the technical and business activities had already taken place on Sunday. In fact, many participants had already arrived in Chicago on Saturday to start early and enjoy some of the sights of Chicago, and its architecture. Several symposia were scheduled for Sunday afternoon, as were a few short courses. Several sections and divisions also held their committee meetings. The Sunday Evening Get-Together was a great kick-off for the scientific and social interactions of the next few days.

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Scene from one of the short courses held at the meeting.



*At the Sunday Evening Get-Together, **WILLIAM SMYRL**, an ECS past president, and **TAKA HOMMA**, associate editor for the ECS ES&T journals. (Photo by Petr Vanýsek)*



A scene from the Sunday Evening Get-Together. (Photo by Petr Vanýsek)

Plenary Session

ECS President **Paul Kohl** welcomed the assembled audience and opened the meeting. Paul Kohl gave an update on the ECS Toyota Young Investigator Fellowship, which was established in 2014 to support young professors and scholars from North America working in green energy technology projects. He also highlighted the continuous progress and growth in the publication open access initiative. He noted the difference between mere involvement and commitment of the members in the Society affairs and emphasized that many are indeed committed to the cause. He thanked all for their sustained help.



HENRY WHITE (right) receiving the Allen J. Bard Award from ECS President **PAUL KOHL** (left).



Yue Kuo (right) receiving the Gordon E. Moore Medal from ECS President **Paul Kohl** (left).

Paul Kohl thanked **Martin Winter** for his long-time service to the Society as a Technical Editor covering the field of Batteries and Energy Storage for the ECS journals. Paul Kohl next invited to the podium **Henry White**, the recipient of the Allen J. Bard Award and congratulated him on this achievement. Similarly, **Yue Kuo** was congratulated on his award – the Gordon E. Moore Medal for Outstanding Achievement in Solid State Science and Technology. Both of these award winners gave award addresses at symposia later in the week. Finally, Paul Kohl invited to the podium and yielded the floor to the ECS Lecture presenter, **John A. Turner**.



ECS President **Paul Kohl** (left) presented an ECS Service Award to **Martin Winter** (right) for his outstanding contributions as a Technical Editor and Associate Editor of the Journal of The Electrochemical Society and a Technical Editor of ECS Electrochemistry Letters.

The ECS Lecture

The ECS Lecture was given by John A. Turner, Research Fellow at the National Renewable Energy Laboratory in Golden, Colorado. Dr. Turner has been with NREL since 1979. His long career in the field of energy was showcased in his lecture, “Hydrogen from Photoelectrochemical Water Splitting – What’s It Gonna’ Take?”

Harvesting solar energy to achieve energy sustainability will require energy storage for times when sunlight is not sufficient. To achieve an efficient and low-cost system for conversion and storage of solar energy, a stable light absorber and a robust electrocatalyst will need to be coupled into one setup. While noble metals like platinum, iridium oxide, and ruthenium oxide are usually used because of their high efficiency, identifying earth-abundant material alternatives to replace expensive catalysts is highly desired. Hydrogen as an energy medium is a desirable technology. The cleanest way to produce hydrogen is by using sunlight to directly split water into hydrogen and oxygen.

At present, 48 % of hydrogen is produced from methane gas, 30 % from partial oxidation of oil, 18 % from gasification of coal, and only 4 % from water, through electrolysis. A sustainable path to hydrogen is through sunlight and water. The final cost of hydrogen will ultimately determine which pathway will be used. In PEM electrolytic systems the catalyst is only about 6 % cost of the whole plant. The problem is availability of materials for large-scale application. It is estimated that some 25,000 square kilometers of land would be required to generate the needed hydrogen using a photoelectrochemical process as the source of hydrogen. At this extent, the use of precious metals needs to be minimized. Finding new suitable materials can be done by high throughput screening, which can be theory driven, or achieved

by alternate approaches. The pathway to success will also require significant synthetic tools. The ideal goal is to attain a solar cell that is basically spontaneous and self-assembling.

This plenary lecture was a timely contribution that summarized the energy concerns of today's world. It gave a perspective on some recent positive advances. It also outlined future challenges, which, when properly addressed, can be the inspiration for future research in electrochemistry and materials science.

Awards

The Allen J. Bard Award, which was established in 2013 to recognize distinguished contributions to electrochemical science, was given out for the first time and was awarded to Henry White from the University of Utah. In a departure from the traditional scroll, the designed award plaque featured in the background an illuminated outline of a well-recognized symbol of electrochemistry – a diffusion-controlled voltammetric curve. An electrochemical source is used to keep the light flashing. Prof. White presented his award lecture on the topic of “The Electrochemical Nucleation and Physical Behavior of Hydrogen Nanobubbles”

Yue Kuo of Texas A&M received the Gordon E. Moore Medal for Outstanding Achievement in Solid State Science and Technology, and gave his award address, “Research on Nano and Giga Electronics – Breakthroughs Along the Path,” on Tuesday. In a fitting additional accolade it was also announced at the meeting that Prof. Kuo was elected the third vice-president of the Society.

Meeting Symposia

At the forty-five symposia held at the meeting, over two thousand presentations were given in large or small settings, according to the audience interest and space availability. Some of the symposia featured presentations related to awards, given by divisions. At the Electrocatalysis and Photoelectrochemistry symposium on Tuesday, **Phil Bartlett** presented his Europe Section Alessandro Volta Medal award lecture on Electrochemical SERS on Nanostructured Surfaces

Divisional Luncheons

Luncheons are yearly events for several divisions. This spring, the Physical and Electroanalytical Electrochemistry, Industrial Electrochemistry and Electrochemical Engineering, Energy Technology, and Organic and Biological Electrochemistry divisions met. The divisional meetings are used to discuss divisional issues (and vote on annual reports), build new and renew old relationships, and also present divisional awards.

Student Posters

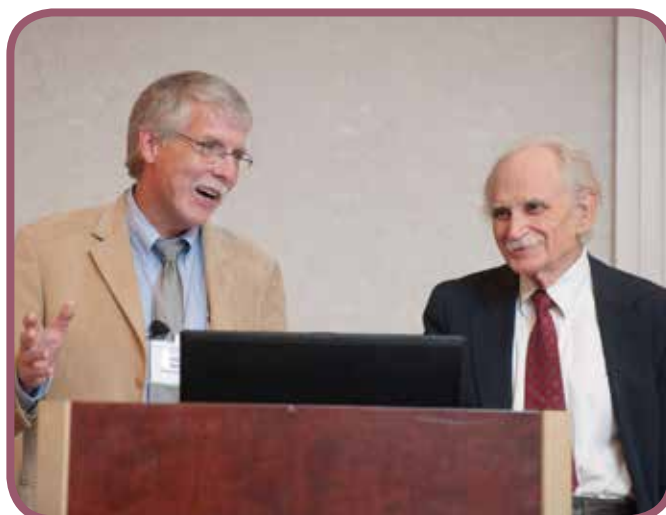
After the judges considered all the presentations during the Tuesday evening poster presentation, the student poster awards were handed out by Paul Kohl in the presence of the session organizers. The winners for the category of Electrochemical Science and Technology were Jonathan Kucharyson (University of Michigan), first place, and Maria Lukatskaya (Drexel University) second place, and in the category of Solid State Science and Technology, the first place went to Heather Barkholtz (Northern Illinois University), and second to Rajankumar Patel (Missouri University of Science and Technology.)

The student poster awards are not possible without generous service of the volunteer judges. The judges in Chicago were: Oana Leonte, Edgar Goluch, Andrew Hillier, Alice Suroviec, Michele Piana, Yelena Gorlin, Robert Lynch, Iryna Zenyuk, Andrew Hoff, Raluca Van Staden, Andrew Herring, Elizabeth Podaha-Murphy and Brian McCloskey.

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JOHN TURNER during his plenary lecture.



HENRY WHITE (left) presenting his award lecture alongside ALLEN J. BARD (right).



PHIL BARTLETT (left), receiving the Europe Section Alessandro Volta Medal from ENRICO TRAVERSA (right), the Europe Section Chair.



YUE KUO giving his award lecture Tuesday afternoon.



HUBERT GASTEIGER (left) receiving the PAED David C. Grahame Award for his work focusing on materials, electrodes, and diagnostics development for fuel cells and batteries from **ROBERT MANTZ** (right), PAED Chair.



The students who received the travel award from the PAED Division are introduced by the division chair **ROBERT MANTZ** (right). (Photo by Petr Vanýsek)

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All thirteen divisions participate in providing travel support of students and some mostly young professionals. Some of the support enabled the students to contribute to the student posters. The following people received from the divisions either a registration waiver or travel supplement: Maria Abreu-Sepulveda, Paul Addo, Mahmoud Kamal Ahmadi, Josh Aller, Robert Atkinson, Sourav Bag, Moran Balaish, Stephen Bazinski, Seong Beom, Federico Bertasi, Vamsi Bevara, Kamala Bharathi, Arnaud Bordes, Andrea Bourke, Loraine Torres Castro, Tandeep Chadha, Alexander Chadwick, Lin Chen, Chun-Yu Chen, Yong-Siou Chen, Sheng-Heng Chung, Sameer Damle, Abdoulaye Djire, Carina Dressel, Boris Dyatkin, Ali Estejab,

Xin Fang, Fathima Fasmin, Miriam Ferrer-Huerta, Bharat Gattu, Danny Gelman, Joydeep Ghosh, Edgar Goluch, Yelena Gorlin, Sapna Gupta, Jennifer Heine, Carlos Herreros-Lucas, Drew Higgins, Mohammad Hossein, Ya-Hsi Hwang, Clement Jacob, Sukhraaj Johal, Manohar Kakunuri, Kristyna Kantnerova, Saeed-Uz-Zaman Khan, Jangwoo Kim, Jimin Kim, Kevin Kirshenbaum, Sydney Laramie, Ermias Girma Leggesse, Na Li, Zhefei Li, Cheolwoong Lim, Yadong Liu, Caihong Liu, Bohuslava McFarland, M. Mehdi, Mohit Mehta, Prateek Mehta, Kuber Mishra, Alireza Molazemhosseini, Beatriz Molero, Njideka Okoye, Daniel Ortiz, Paul Panikulam, Oluwadamilola Phillips, Mayandi Ramanathan, Muhammad Rashid,



From left to right: **VIMAL CHAITANYA** with the student poster winners, **HEATHER BARKHOLTZ**, **JONATHAN KUCHARYSON**, **MARIA LUKATSKAYA**, and ECS President **PAUL KOHL**. (Not pictured: **RAJANKUMAR PATEL**.)

Russell Reid, Allen Rodriguez-Silva, Pranav Shetty, Jamie Shetzline, Mona Shirpour, Hassan Srour, Stephen Stewart, Jin Suntivich, Alireza Tari, Dan Thien, Lorenzo Toffoletti, Honorio Valdes-Espinosa, Celeste van den Bosch, Andrea Vittorio, Honglong Wang, Zi Wei, Jian-Feng Xiao, Le Xin, Litao Yan, Bo Yan, Jianhua Yan, Fan Yang, Naixing Yang, Venkata Raviteja Yarlagadda, Haoran Yu, Shumao Zhang, Shiliang Zhou, Xi Zhou, and Chenxi Zu.

Free the Science 5K Run

This traditional event took place Wednesday morning in the pleasant setting of Grant Park, a short walk from the hotel on the other side of Michigan Avenue. Matthew Lawder, 16:45 (men), and Elizabeth Jones, 22:06 (women), won the race. For Matthew it was his third win in the row at the ECS run. In addition to the run, an opportunity was given to participants who preferred the milder pace of a brisk walk. While the proceeds from participation at the event benefit the ECS Publications Endowment, participation builds camaraderie beyond the halls of science.

Student Mixer

On Monday night more than 150 students attended a special invitation-only mixer to relax and compare notes with their own peers.

(All photographs, unless noted otherwise, by Julie Valkanet.)

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Scene from Monday evening's student mixer.

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Participants of the Free the Science 5K Run posing for a picture before the start.



ECS introduced its first set of Official ECS Major League Trading Cards at the meeting. They were a major hit.



Meeting attendees were given the opportunity to take a selfie with two of the giants of electrochemistry – Nikola Tesla and Thomas Edison. Pictured here with them are ECS staffers **AMANDA STALLER** (left) and **BETH ANNE STUEBE** (right).

Future Meetings

2015

228th ECS Meeting Phoenix, AZ

October 11-15, 2015

Hyatt Regency Phoenix &
Phoenix Convention Center

2016

229th ECS Meeting San Diego, CA

May 29-June 3, 2016

Hilton San Diego Bayfront &
San Diego Convention Center

PRIME 2016 Honolulu, HI

October 2-7, 2016

Hawaii Convention Center &
Hilton Hawaiian Village

231st ECS Meeting New Orleans, LA May 28-June 2, 2017 Hilton New Orleans Riverside

232nd ECS Meeting National Harbor, MD (greater Washington, DC area) October 1-6, 2017

Gaylord National Resort
and Convention Center

2017



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