Industrial Electrochemistry & Electrochemical Engineering Division H. H. Dow Memorial Student Achievement Award

Young Woo-Lee received the BS degree from Soongsil University, Seoul, Republic of Korea, in 2009 and is pursuing a PhD in the Department of Chemical Engineering at Soongsil University, Seoul, Republic of Korea. His current research interest is the synthesis and characterization of Pt-based nanostructure catalysts for electrochemical power sources such as low-temperature fuel cells, dye-sensitized solar cells, and metal-air batteries.

Mr. Woo-Lee has published 18 SCI papers in the *Chemical Communications, Electrochemistry Communications, Journal of Power Sources, RSC Advances, and Physical Chemistry Chemical Physics;* and has obtained seven registered and nine pending patents. In addition, he has received several awards including the 6th ECS Korea Section Student Award f, is in the 2013 *Marquis Who's Who in the World*, in the 30th Pearl Anniversary Edition of *Marquis Who's Who*, the 2011 best presentation award from the Korean Institute of Chemical Engineers, a scholarship for the development of human resources in science and engineering by the Seoam Scholarship Foundation, and a scholarship for excellent grades supported by the Soongsil University.

Industrial Electrochemistry & Electrochemical Engineering Division Student Achievement Awards

Wei Yan is currently a doctoral student working under the supervision of Gerardine G. Botte at the Center for Electrochemical Engineering Research at Ohio University. His doctoral research focuses on developing catalytic structures for the oxidation of urea with the purpose of improving the oxidation rate. In particular, Mr. Yan is working on the development of nickel-based catalysts that can greatly decrease the overpotential of urea oxidation, reduce the negative influence of side reactions, and improve the energy efficiency during the process of urea electrolysis. Mr. Yan's research has applications for large-scale urea removal/decomposition from urea-rich wastewater (wastewater remediation), as well as for hydrogen production, urea sensors and fuel cells.

Prior to his PhD work, he received an MS degree in 2009 and a BS degree in 2006 from the Department of Chemical Engineering at Shanghai Jiao Tong University. His master's research focused on fuel cells with special attention on purifying and recycling hydrogen feeding. He also studied supported oxygen electrode catalysts in water electrolyzers. Mr. Yan has published seven papers and has been granted a Chinese patent. In addition, he is enthusiastic in organizing and joining scholarly activities in the field of electrochemistry and electrochemical engineering. Mr. Yan has been a mentor for the ECS Industrial Electrochemistry and Electrochemical Engineering Division Outreach Program and is currently the elected President of the ECS Student Chapter at Ohio University.

Christopher Arges is a fourth year PhD student in the Department of Chemical and Biological Engineering at the Illinois Institute of Technology - Chicago, studying under Vijay Ramani. He plans to defend his dissertation in the summer of 2013. His thesis title is "Chemical Structure Relationships for Improved Alkaline Stability and Ionic Conductivity of Anion Exchange Polymer Electrolyte membranes." Mr. Arges's materials research is being applied to alkaline fuel cells, electrolyzers, and redox flow batteries. He received his BS from the University of Illinois - Urbana-Champaign, and his MS from North Carolina State University, both in chemical engineering. Mr. Arges is an author on six peer-reviewed publications and six *ECS Transactions* papers. He may be reached at carges@hawk.iit.edu.

Student Chapter News

Atlanta Student Chapter at Georgia Tech

The Atlanta Student Chapter at Georgia Tech hosted a lecture series entitled, "Applications of Electrochemistry" for the 2012 fall semester. In collaboration with Georgia Tech's Energy Club, the lecture series kicked off with a presentation by Michael Filler (Chemical and Biomolecular Engineering, Georgia Tech) about the state of global energy and emerging energy sources. On October 2, John Stickney (Chemistry, University of Georgia) presented a lecture on "Electrochemical Atomic Layer Deposition," a refreshing new way to use electrochemistry. Preet Singh's (Materials Science and Engineering, Georgia Tech) talk on corrosion and stress corrosion cracking in steel, completed the semester series of talks. Each lecture was well attended by faculty, students, and post-docs with typically 30-50 people present.

On November 16, the Chapter and the ECS Georgia Section held a joint meeting and poster session. The invited speaker was Daniel Scherson (Department of Chemistry, Case Western Reserve University, and ECS Third Vice-President) who presented a lecture on "Applications of *In Situ* Microspectroscopy to the Study of Energy Storage Systems." The meeting was held in cooperation with students from Auburn University and The University of Georgia. Seventeen posters were presented by students and postdoctoral researchers from the participating schools.

The annual Outstanding Student Award of the ECS Georgia Section was presented to Kara Evanoff for her research on the characterization of stable, high-capacity materials for energy storage devices, including work on carbon nanotube-based electrodes. She is also the Treasurer of the Chapter. Prizes were presented for the best posters at the meeting: Ryan West (Georgia Tech) received first place for his work on "Characterizing Polyaniline-Insulator Interfaces with Work Function Noise." Alex Jonke (Georgia Tech) received second place for "Atomic Metal Catalysts." There was a third place tie between Shi Feng (Georgia Tech) for "Flexible Multiphysics Simulation of Porous Electrodes: Conformal to 3D Reconstructed Microstructures;" Leah Sheridan (University of Georgia) for work on "Hydrogen Sorption Properties of Bare and Rhodium-capped Palladium Multilayers Grown via Surface Limited Redox Replacement (SLRR) Reactions;" and Victor Agubra (Auburn) for his work on "Characterization of the Insoluble Surface Film Layer on the Anode of the Lithium-Ion Battery."

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Calgary Student Chapter

The ECS Calgary Student Chapter was established at the University of Calgary in 2011, with the intention of providing a link between those interested in electrochemical research (graduate students and postdoctoral fellows) and related industries in Alberta. Last fall, the ECS Calgary Student Chapter hosted two events: a presentation from a local solar company, highlighting solar energy projects currently in use in southern Alberta; and a tour of the electrochemistry labs at NOVA Chemicals Research & Technology Centre.

The invited speaker, David Kelly of SkyFire Energy Inc., delivered a presentation entitled, "Solar that Works in Western Canada." The presentation, which attracted over 40 attendees from both the chemistry and engineering departments at the University of Calgary, provided a real-world view of practical aspects of solar power.

The tour of NOVA Chemicals Research & Technology Centre gave ECS Calgary Student Chapter members an opportunity to see firsthand how corrosion research and testing is carried out in an industrial setting. Networking opportunities with potential future employers were also available to students.

The ECS Calgary Student Chapter has more than 25 current members, and is actively recruiting new members to attend tours and invite speaker presentations. For information on joining the ECS Calgary Student Chapter or upcoming events, please email UofCECS@gmail.com.

ECS Calgary Student Chapter *members tour the NOVA Chemicals electrochemistry labs.*

Members and faculty advisors of the ***ECS Calgary Student Chapter*** *displaying a flexible solar panel after a presentation by SkyFire Energy at the University of Calgary.*

University of Maryland Student Chapter

The University of Maryland Student Chapter has been taking advantage of its proximity to Washington, DC, to get perspective on the political side of scientific research. As part of a co-sponsored seminar with the University of Maryland Energy Research Center (UMERC), Eric Miller, an active ECS member, was invited by the Chapter to discuss his work with the Department of Energy's Hydrogen and Fuel Cell Technologies Program.

Dr. Miller received his PhD and MS degrees in electrical engineering from the University of Hawaii at Manoa, where his graduate research focused on oxide materials for photoelectrochemical (PEC) hydrogen production. During Dr. Miller's visit, members of the ECS University of Maryland Student Chapter arranged to meet with him over lunch. Discussions at the luncheon with Dr. Miller varied from his work in hydrogen production technology to his suggestions for shaping career paths.

To conclude Dr. Miller's visit, he presented a critical assessment of the research that the DOE is supporting in the production of hydrogen, highlighting works in PEC hydrogen production as well as other advances being made in water splitting technologies. His perspective on how particular needs of the nation shape demand for competing energy technologies proved valuable for the students whose research must focus on individual lab-scale challenges for their graduate careers. Several of the UMERC faculty in attendance who co-sponsored the lecture are prominent contributors to the ECS community, including Chungsheng Wang, Lingbing Hu, Gregory Jackson, and UMERC Director Eric Wachsman.

University of Texas at Austin Student Chapter

The ECS Student Chapter at The Unversity of Texas at Austin (UT-Austin) is committed to promoting solid-state and electrochemical science and technology. The Student Chapter organizes technical and non-technical talks, networking events, and outreach activities, in addition to providing constant support to other events organized by the Center for Electrochemistry, Texas Materials Institute, and the Cockrell School of Engineering at UT-Austin.

Over the winter, two University of Texas at Austin professors, Allen J. Bard (an ECS Fellow) and John B. Goodenough, were conferred with the National Medal of Science Award. The Student Chapter felt this was a great honor and opportunituy to organize informal meetings with both professors to talk about their scientific careers and achievements. Two separate meetings were organized for each award recipient. Attendees, including graduate students, postdoctoral fellows, and other members, had the opportunity to listen to their stories, ask questions about their scientific careers, and discuss future challenges in electrochemical and solid-state sciences. Both professors provided valuable insight into their research career and interests, societal issues, and the prospects of science. The Student Chapter prepared a sample questionnaire to moderate the sessions. Excerpts are shared below.

How did you get involved with electrochemical/solid state sciences in the first place?—When asked about their early days in science, Dr. Goodenough talked about his path from serving as a meteorologist in the U.S. military during World War II to entering the graduate

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University of Texas at Austin Student Chapter *members surround National Medal of Science Award recipient* ***John B. Goodenough*** *(seated at center).*

National Medal of Science Award winner and ECS Fellow ***Allen J. Bard*** *(seated in center) with* ***University of Texas at Austin Student Chapter*** *members.*

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program in physics at the University of Chicago. After graduation, he joined the Lincoln Laboratory at MIT to start his career in solid-state sciences. Dr. Bard indicated that even though he had originally joined an inorganic chemistry group at Harvard, he soon switched to doing research in fundamental electrochemsitry. Dr. Bard shared his experiences in this field and how he played a role in the ongoing transition from traditional methods, like polarography, to research on solid electrodes and reaction mechanisms.

What was the driving force throughout your research career?—Curiosity was the common motivating factor for both of them. Dr. Goodenough wanted to learn how the world worked. To him, a great motivation was to always feel like he was serving a cause. Dr. Bard was interested in discovering the fundamentals of science.

What do you think was the key characteristic of your personality that helped you in your professional journey?—Dr. Goodenough explained that he had self-discipline, kept a balanced life between family, sports and work, and that he was always respectful to others. Dr. Bard mentioned that he has always been a hard worker, and that he liked to have a dream, even an improbable one, to pursue.

What does winning the National Medal of Science award mean to you?—Dr. Goodenough and Dr. Bard were honored to have received the award. They emphasized the importance of the work done by the students, postdoctoral researchers, and other colleagues that they worked with in their research careers.

Would you like to leave a message to the student community?—Dr. Goodenough ecouraged students to maintain a balanced life, and to utilize their talents (no matter what they are) to the best of their ability. Dr. Bard encouraged students to dream big and be willing to take risks. He also emphasized the need for hard work and perseverance while staying focussed on achieving the goal.

To conclude, Dr. Goodenough discussed his early work on the development of the ceramic magnetic memory element for the first RAM memory, the discovery of orbital ordering in solids, and the Jahn-Teller distortion. Dr. Bard discussed his work on electrogenerated chemiluminescence (ECL), an analytical technique currently being used for many clinical lab applications. He also talked about the development of scanning electrochemical microscopy (SECM) and its applications in electroanalytical chemistry.

Dr. Bard and Dr. Goodenough were happy to share their experiences. The Student Chapter thanks them for their time and for being inspiring mentors. The Student Chapter would also like to thank Arumugam Manthiram (Director of the Texas Materials Institute at UT-Austin), the faculty advisor of the ECS Student Chapter at The University of Texas at Austin for his encouragement and support.

In spring 2013, the Student Chapter has been invited to participate in the Science Day activities at a local school to engage and enlighten students on electrochemical and solid-state sciences. This activity is in addition to the other events planned before summer 2013. More information on the ECS Student Chapter at The University of Texas at Austin may be found at http://studentorgs.engr.utexas.edu/ecs.

Call for Nominations

Visit
www.electrochem.org
and click on the "Awards" link.

For details on each award—including a list of requirements for award nominees, and in some cases, a downloadable application form—please go to the ECS website (www.electrochem.org) and click on the "Awards" link. Awards are grouped in the following sub-categories: Society Awards, ECS Division Awards, Student Awards, and ECS Section Awards. Please see the individual award call for information about where nomination materials should be sent; or contact ECS headquarters.

ECS Awards

The **H. H. Dow Memorial Student Award of the Industrial Electrochemistry and Electrochemical Engineering Division** was established in 1990 to recognize promising young engineers and scientists in the fields of electrochemical engineering and applied electrochemistry. The award consists of a scroll and a prize of $1,000 for educational purposes. The next award will be presented at the ECS spring meeting in Orlando, Florida, May 11-16, 2014.

Nominations and supporting documents should be sent to John Staser, University of Puerto Rico, Cond. La Ciudadela 602, Ave. Las Cumbres #2, Guaynabo, 00969 Puerto Rico; e-mail: john.staser@upr.edu. **Materials are due by September 15, 2013.**

The **Student Achievement Award of the Industrial Electrochemistry and Electrochemical Engineering Division** was established in 1989 to recognize promising young engineers and scientists in the field of electrochemical engineering and to encourage the recipients to initiate careers in this field. The award consists of a scroll and a prize of $1,000 for educational purposes. More than one recipient may be named, at the discretion of the Division. The next award will be presented at the ECS spring meeting in Orlando, Florida, May 11-16, 2014.

Nominations and supporting documents should be sent to John Staser, University of Puerto Rico, Cond. La Ciudadela 602, Ave. Las Cumbres #2, Guaynabo, 00969 Puerto Rico; e-mail: john.staser@upr.edu. **Materials are due by September 15, 2013.**

Travel Grants

Several of the Society's Divisions offer travel assistance to students and young faculty members presenting papers at ECS meetings. For details about travel grants for 224th ECS Meeting in San Francisco, California, (October 27-November 1, 2013), please see the San Francisco, California, Call for Papers; or visit the ECS website: www.electrochem.org/student/travelgrants.htm. Please be sure to e-mail the student travel grant contact as each Division requires different materials for approval. **The deadline for submission for the fall 2013 travel grants is May 17, 2013.**

Awarded Student Memberships Available

ECS 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. Memberships include article pack access to the ECS Digital Library, and a subscription to *Interface*. To apply for an Awarded Student Membership, use the application form below or refer to the ECS website at: www.electrochem.org/awards/student/student_awards.htm#a.