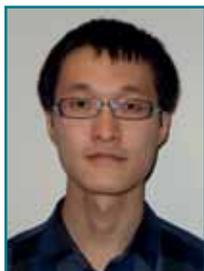


## Battery Division Student Research Award



**YUHUI CHEN** received a BS degree in chemistry from Fudan University, China in June 2009 and he is currently working on his PhD in the group of Peter G. Bruce, in School of Chemistry at University of St Andrews, UK. His research interest mainly focuses on the fundamental understanding of a rechargeable Li-air battery. His PhD study is to understand the chemical and electrochemical reaction on both the

discharge process and the charge process in a Li-air battery with some *ex situ* and *in situ* techniques (e.g., FTIR, NMR, *in situ* SERS, *in situ* DEMS, and *in situ* EC-AFM), to study the stability of electrolytes with different organic functional groups under oxygen, and to improve the kinetic of  $\text{Li}_2\text{O}_2$  formation and decomposition in a rechargeable Li-air battery.

## Corrosion Division Morris Cohen Graduate Student Award



**MARIANO KAPPES** obtained his diploma in materials engineering in 2006 from the Instituto de Tecnología “Prof. J Sabato” in San Martín, Argentina. He worked for a year as a metallurgy engineer for Linde Argentina, an industrial gas manufacturer plant. He joined the Fontana Corrosion Center (FCC) at The Ohio State University in summer 2007, where he obtained his PhD in materials science and engineering in fall 2011, under Gerald Frankel. Currently, he is working as a

post-doc in a collaboration program between the Corrosion and Reliability Engineering Center, at the University of Akron, and the Argentinean Atomic Energy Committee (CNEA). His supervisors are Mariano Iannuzzi and Ricardo Carranza.

Dr. Kappes’s dissertation focused on corrosion and corrosion fatigue of carbon steels in thiosulfate solutions. Based on an electrochemical analysis, his work predicted limits to the partial pressure of hydrogen sulfide that is possible to simulate with the use of thiosulfate solutions. Those limits were then validated with hydrogen permeation and corrosion fatigue tests performed in hydrogen sulfide solutions and thiosulfate solutions. Currently, Dr. Kappes is working on hydrogen embrittlement in magnesium and steels, and localized corrosion in aluminum and magnesium alloys.

Dr. Kappes has co-authored five peer-reviewed scientific articles (*Journal of The Electrochemical Society*, *Progress in Organic Coatings*, *Corrosion*) and participated in various international conferences.

## Chapter News

### Cleveland Section and Chapter Plan Project with Local “Zoo Crew”



The ECS Cleveland Section’s joint Yeager Center for Electrochemical Sciences–ECS Cleveland Student Chapter is excited to announce participation in science education community outreach. The overall project is multidisciplinary and is led by **CHRISTINE KORHNAK** and **D’EDRA THOMPSON**, the Education Manager and Education Specialist, respectively, with the Cleveland Metroparks Zoo. The outreach experience is aimed at Northeast Ohio high school students and is centered on identification of contaminants in local waters and the ecological consequences of the contamination. Participation of Case Western Reserve University is headed by **JIM BADER**, Director of the Center for Science and Mathematics Education. The ECS Student Chapter will interface directly with the high school students, teaching them the scientific method and analytical laboratory practices while providing HPLC analysis of water samples. The Departments of Biology and Chemistry at Case Western Reserve University will make laboratory space and instrumentation available in support of the initiative.

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ECS Student Chapter co-chairs meet with the Cleveland Metroparks Zoo’s “Zoo Crew” to Plan Water Analysis Project.

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## CUSAT Student Chapter Plans 2<sup>nd</sup> Optoelectronic Materials and Thin Films Conference

The Department of Physics, Cochin University of Science and Technology (CUSAT) in collaboration with ECS CUSAT Student Chapter and SPIE CUSAT Student Chapter is organizing an International Conference on Optoelectronic Materials and Thin Films for Advanced Technology (OMTAT 2013) January 3-5, 2013. This conference is the second in a series, the first one was held in Cochin in 2005. The theme of the conference is metal oxides for optoelectronic applications and it includes transparent electronics, solar cells, nanotechnology, functional oxide materials, plasma, and plasma-assisted thin film growth. For more details please visit <http://physics.cusat.ac.in/omat2013>.

## Drexel University Student Chapter Poster Session

On August 2, 2012, the ECS Student Chapter at Drexel University held a university-wide poster session, with twelve participants from both Drexel University and the University of Pennsylvania, and nearly 70 visitors during the two-hour session. The Department of Materials Science and Engineering and the College of Engineering Dean's Office both donated \$50 gift cards for best poster awards. The judges, **STEVEN MAY** (MSE) and **CHRISTOPHER WEYANT** (MSE) chose senior PhD candidate **MICHAEL NAGUIB**'s (Drexel) work on MXenes for lithium ion batteries, and PhD candidate **JEROME ROBINSON**'s (Penn) work on Cerium BINO Late heterobimetallics, as the awardees.

All in all, it was an excellent session that communicated the importance of electrochemistry to both a technical and non-technical audience, by explaining how electrochemical research can make a dramatic impact in our society, either by making better batteries and solar cells, solving corrosion problems, or synthesizing new biological materials using electrochemical techniques.

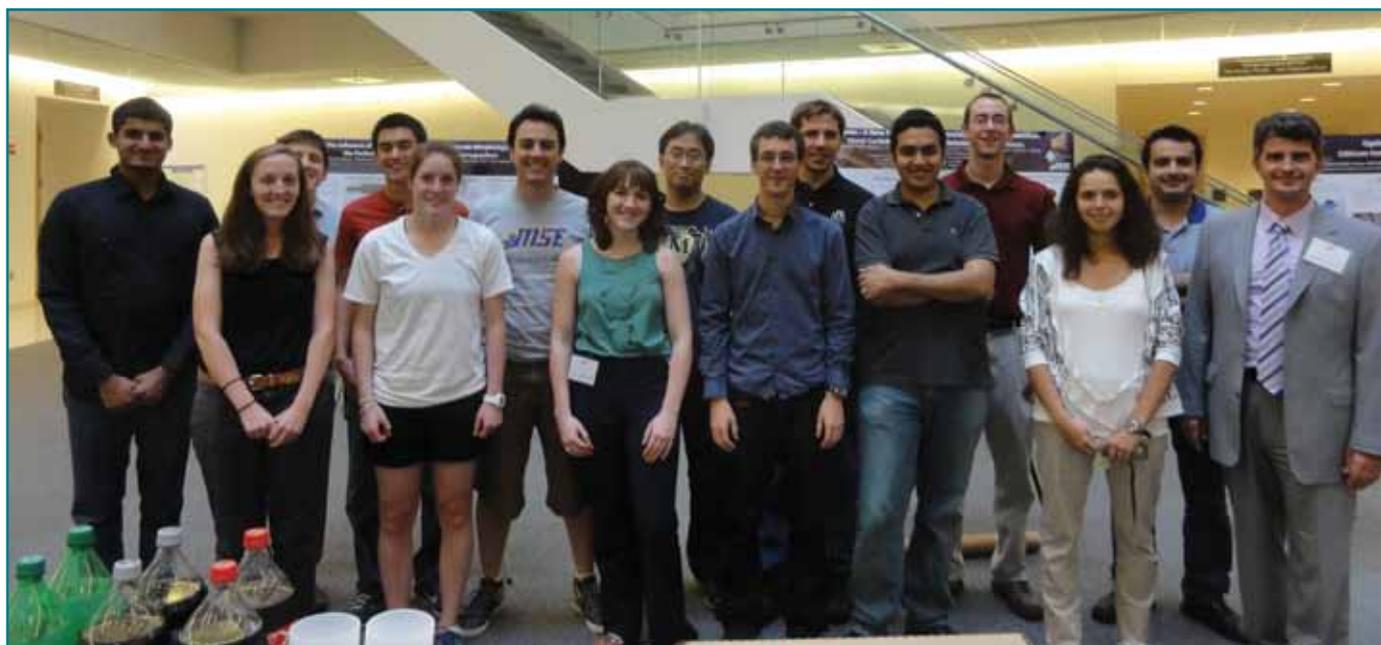


*ECS Drexel Student Chapter hosted a university-wide poster session. Pictured from the left are **JEROME ROBINSON** and **MICHAEL NAGUIB** (Best Poster Awardees), **KRISTY JOST** (Chair), **CHRISTOPHER WEYANT** (Judge), and **STEVEN MAY** (Judge).*

The presenters in materials science included **MICHAEL NAGUIB**, **CARLOS PEREZ**, **KATHERINE VAN AKEN**, **KELSEY HATZELL**, **DANIEL STENGER**, and **MIN HEON**. The presenters in chemical engineering were **FRANCIS RICHEY**, **HASTI MADJIDI**, **CHAU TRAN**, **ARVIND KALIDINDI**, and **JEROME ROBINSON** (Penn).

The current Chapter officers are **KRISTY JOST** (Chair), **MICHAEL NAGUIB** (Vice-Chair), **BORIS DYATKIN** (Treasurer), and **FRANCIS RICHEY** (Secretary.) The faculty advisors are **YURY GOGOTSI**, **A. J. DREXEL** Nanotechnology Institute, and **CAGLAN E. KUMBUR**, Mechanical Engineering.

Special Thanks to **BORIS DYATKIN** for going above and beyond to help set-up this event and to **YOHAN D'ALLAGNESE** for beautifully capturing it on film.



*ECS Drexel University Student Chapter members include (back row from the left) **ARVIND KALIDINDI**, **JEROME ROBINSON**, **DANIEL STENGER**, **CARLOS R. PEREZ**, **MIN HEON**, **BORIS DYATKIN**, **CHRISTOPHER DENNISON**, and **MAJID BEIDAGHI**. Pictured in the front row from the left are: **KELSEY HATZELL**, **KATHERINE VAN AKEN**, **KRISTY JOST**, **YOHAN DALL'AGNESE**, **MICHAEL NAGUIB**, **MARIA LUKATSKAYA**, and **YURY GOGOTSI** (Advisor).*

## University of Maryland Student Chapter Gains Traction in First Year

The University of Maryland Student Chapter was formed in October 2011. ECS Fellow **ERIC D. WACHSMAN** advises the new Chapter, and doctoral candidates **COLIN GORE**, **WILLIAM GIBBONS**, and **ASHLEY LIDIE** serve as the President, Vice-President, and Secretary/Treasurer, respectively. The Chapter interacts with the nearby ECS National Capital Section. Membership has grown to 15 regular graduate students who study materials science, chemistry, and engineering.

The Chapter has gained momentum in its first year, and took advantage of opportunities to meet with prominent electrochemists invited by the Materials Science and Chemical Engineering Departments and the University of Maryland Energy Research Center. The board members arranged lunch meetings with the visiting lecturers that were open to ECS students. **BRUCE LOGAN**, a prominent microbial fuel cell researcher, **SUBHASH SINGHAL**, a world leader in solid oxide fuel cell technology, and **DONALD SADOWAY**, a *Time* 100 professor notable for his molten metal battery breakthroughs, all agreed to spend one to two hours meeting with students. Each of the visiting lecturers took a particular interest in giving guidance to graduate students, acknowledging that they are at a defining moment in their career. Dr. Sadoway had some of the clearest, most cross-

cutting advice: "Do what you have to do now so that you can do what you want to do in the future."

Since many of the University of Maryland's ECS members are focused on energy research, the Chapter organized an industry tour of Teledyne Energy Systems in Hunt Valley, MD. Teledyne manufactures large-scale electrolyzers for hydrogen production, fuel cell systems, and other advanced power devices. **ROB UTZ**, a Teledyne employee who earned his MS in mechanical engineering under Greg Jackson at the University of Maryland, led the tour. With some of Teledyne's electrolyzers producing 1000 slm of hydrogen, students witnessed what is involved in the transition from lab-scale research to industrial scale production.

Five Chapter members attended the recent 2012 PRiME meeting in Honolulu, HI. The Chapter held a poster contest for those members, with the prize being complimentary registration to the PRiME meeting. Professors from the Materials Science and Chemical Engineering Departments served as a panel of judges for the contest. **AARON FISHER** won first prize for his "Lithiated Block Copolymer Electrolytes with Ionic Liquids for Batteries," and **ASHLEY LIDIE** was runner up for "Fabrication and Characterization of Nanosized  $(D_xO_{1.5-x})(WO_3)_y(BiO_{1.5})_{1-x-y}$  for Lower Temperature SOFC Application." All of the students presented their full presentations at the PRiME meeting in October 2012.

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University of Maryland Student Chapter members discuss strategies for success in academia with **DONALD SADOWAY** over lunch.

# Start a Student Chapter!

ECS currently has 35 student chapters around the world, which provide students an opportunity to gain a greater understanding of electrochemical and solid-state science, to have a venue for meeting fellow students, and to receive recognition for their organized scholarly activities. Students interested in starting a student chapter may contact [david.harkness@electrochem.org](mailto:david.harkness@electrochem.org) for details.

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## Montréal Student Chapter Symposium

Following last year's success, the 2<sup>nd</sup> ECS Montreal Student Symposium took place on June 22, 2012 at the Université du Québec à Montréal in collaboration with the Centre Québécois sur les Matériaux Fonctionnels (Quebec Center for Functional Materials, CQMF). More than 60 participants from five universities in Montréal and Ottawa, as well as a national research center, attended the 15

talks and 13 posters, including the two invited presentations of **ROLF WÜTHRICH** (Concordia University) and **SASHA OMANOVIC** (McGill University).

Professor Wüthrich's talk entitled, "Lighting the Spark in Electrochemistry" included a fascinating introduction to the applications of electrochemical discharge, while covering the latest results of this research area. The presentation was followed by Professor Omanovic's talk on "Enhancement of Biocompatibility of Coronary Stents by Electrochemically-assisted Surface Functionalization." It exemplified how important electrochemistry is



The 2<sup>nd</sup> ECS Montréal Student Symposium attracted more than sixty students and staff from Montréal and Ottawa universities and research centers.



Fifteen presentations at the 2<sup>nd</sup> ECS Montréal Student Symposium touched on almost every area of interest within ECS.



At the 2<sup>nd</sup> ECS Montréal Student Symposium, the students held many discussions during the poster session.

to the field of surface chemistry even in such diverse areas as metal alloy-tissue hybridization. Prizes for the best oral (\$100) and best poster (\$75) presentations were awarded to **DELPHINE BOULLY** from the Université de Montréal for her talk on “Covalently Functionalized Carbon Nanotubes for Electronics” and **MATHIEU SAULNIER** from the Université du Québec à Montréal for his poster on the “Development of a 3D Porous Carbon Electrode for Lithium-Ion Batteries.” Further information about the ECS Montréal Student Chapter may be found at [ecsmontreal.blogspot.com](http://ecsmontreal.blogspot.com) or visit us on Facebook.

## Richard Compton Gives Seminar to the Tyndall National Institute Student Chapter

The 2011 Sir George Stokes Award winner, **RICHARD COMPTON**, gave an invited seminar to the Tyndall National Institute Student Chapter on March 15, 2012 (see photo on page 104). Professor Compton won this prestigious award for his work in translating original and fundamental insights in interfacial charge transfer mechanisms and their kinetics into innovative and robust analytical sensing protocols. The seminar, entitled “Electrochemistry at the Nanoscale” was attended by over 50 students and staff, and was hosted at the Tyndall National Institute. In the first part of his seminar, Prof. Compton presented highlights of his research on voltammetric determination of silver nanoparticles in solution brought to an electrode surface by virtue of their Brownian

motion, where the oxidation of the nanoparticles was shown to allow the sizing of the particles and their aggregation in aqueous solution to be followed. Electrochemical formation of core-shell structures via electroplating of the nanoparticles during their transient period of electrical contact with the electrode and the study of “tagged” nanoparticles was also presented. In the second part of his seminar, Prof. Compton went on to describe various experiments with carbon nanotubes including the electrochemically-driven release of materials from inside single walled carbon nanotubes with closed ends and the voltammetric study of reactions between species confined to the surface of multiwalled carbon nanotubes.

Chairperson **AMELIE WAHL** (PhD candidate) said, “the members of the Chapter were absolutely delighted that Prof. Compton accepted the invitation, and his seminar was an inspiration to all of the members. Professor Compton was the first person to give a seminar to the Chapter and we’ll hopefully be able to make this an annual event whereby leaders in the field will come and give a seminar at Tyndall.” The Tyndall National Institute Student Chapter was founded in December 2010 with Alan O’Riordan acting as faculty advisor. The members meet monthly with individual members presenting recent results on their on-going research on a rota basis. The Chapter is also active in science outreach and have developed a number of practical demonstrations to help explain electrochemistry to 10-16 year olds.

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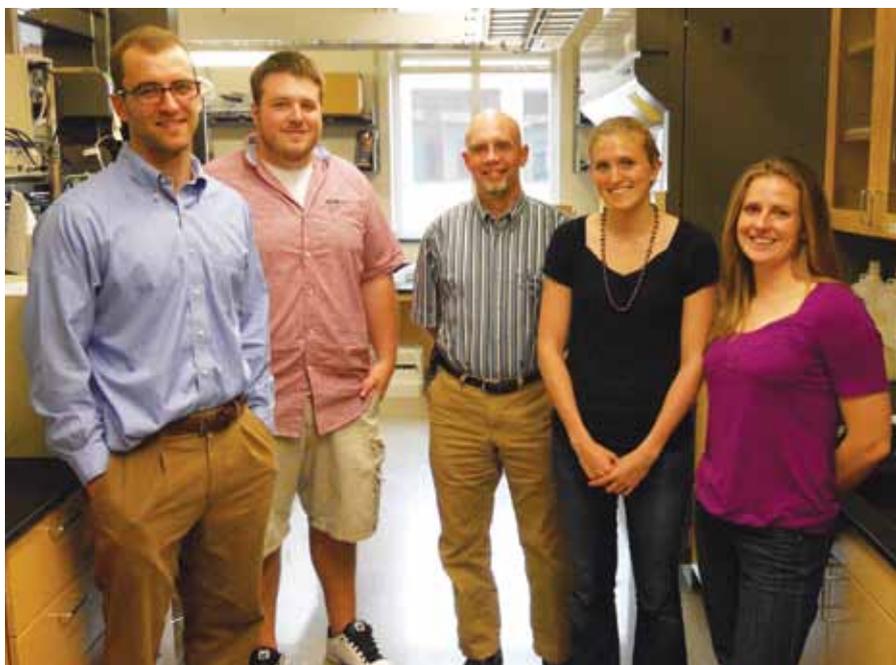
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**RICHARD COMPTON** with **ALAN O'RIORDAN** (faculty advisor) and members of the Tyndall National Institute ECS Student Chapter after his inspiring seminar on "Electrochemistry at the Nanoscale," in Cork, Ireland, March 2012.

## University of Virginia Student Chapter Membership Drive

The ECS University of Virginia Student Chapter membership drive pizza party was held September 24, 2012. About 30 graduate students attended, and fifteen students joined the Society through Awarded Memberships. The Chapter was successful in introducing and familiarizing the incoming graduate student members to the resources of the Society, and continues to provide current members with important social and intellectual experiences. In addition to the membership drive, the University of Virginia Student Chapter has held several seminars relevant to the science over the past year. ■



*ECS University of Virginia Student Chapter Officers from left are SAMUEL MADDEN (President), ANDREW KING (Vice-President), ROB KELLY (Faculty Adviser), MARA SHEDD (Treasurer), and CORTNEY CRANE (Secretary).*

## Call for Nominations

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](http://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.

Visit [www.electrochem.org](http://www.electrochem.org) and click on “Awards” link.



The ECS SUMMER FELLOWSHIPS were established in 1928 to assist students during the summer months in pursuit of work in the field of interest to ECS. The next fellowships will be presented in 2013.

Nominations and supporting documents should be sent to Vimal Chaitanya, New Mexico State University, Office of the VP for Research, MSC 3RES - Box 30001, Las Cruces, NM 88033-8001, USA, e-mail: [vimalc@nmsu.edu](mailto:vimalc@nmsu.edu). **Materials are due by January 15, 2013.**



The STUDENT RESEARCH AWARD OF THE BATTERY DIVISION was established in 1962 to recognize promising young engineers and scientists in the field of electrochemical power sources and consists of a scroll, a prize of \$1,000, waiver for the meeting registration, travel assistance to the meeting if required, and membership in the Battery Division as long as a Society member. The next award will be presented at the ECS fall meeting in San Francisco, California, USA, October 27-November 1, 2013.

Nominations and supporting documents should be sent to Yet-Ming Chiang, Department of Materials Science and Engineering, Massachusetts Institute of Technology, Room 13-4086, 77 Mass. Ave., Cambridge, MA 02139, USA; email: [ychiang@MIT.EDU](mailto:ychiang@MIT.EDU); **Materials are due by March 15, 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](http://www.electrochem.org/awards/student/student_awards.htm#a).

## Looking for Student News

Send all correspondence to

65 South Main Street  
Pennington, NJ 08534-2839, USA  
Tel: 609.737.1902 Fax: 609.737.2743  
E-mail: [interface@electrochem.org](mailto:interface@electrochem.org)

ECS takes an active interest in the affairs of its Student Members, and is always interested in hearing from you about your interests, activities, and accomplishments.

 [www.electrochem.org](http://www.electrochem.org)