ECS 2013 Summer Fellowship Winners

Each year ECS awards Summer Fellowships to assist students in continuing their graduate work during the summer months in a field of interest to the Society. Congratulations to the following five Summer Fellowship recipients in 2013. The reports of the 2013 Summer Fellows will appear in the winter issue of *Interface*.

Philippe Dauphin Ducharme is the recipient of the 2013 ECS Edward G. Weston Summer Fellowship. He received his BSc from the University of Montreal, Canada, in 2011. He is currently a PhD candidate in chemistry at McGill University, in Montreal, Canada, under the supervision of Janine Mauzeroll. In his research, Ducharme monitors Mg alloys corrosion using scanning electrochemical microscopy while concomitantly developing a numerical method to predict Mg corrosion. Ducharme is also actively involved in two collaborative projects related to DNA charge conduction and synthesis of non-phospholipidic vesicles.

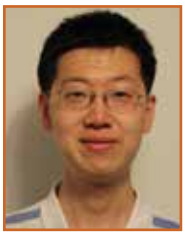
Ducharme is a co-author in two peer-reviewed publications in *Analytical Chemistry* and *Inorganic Chemistry*. He has been awarded several prestigious graduate fellowships including the National Science and Engineering Research Council of Canada–Alexander Graham Bell scholarship and the provincial Fond de Recherche Nature et Technologie du Québec fellowship. As an undergraduate, he was the recipient of eight prizes, including the Lucien Piché foundation provincial scholarship, and institutional fellowships rewarding his academic excellence, leadership, and communication skills. Finally, he was also selected for an international research internship at the University of Paris VI.

Following graduation, Ducharme intends to pursue a postdoctoral fellowship abroad to further develop his research interests involving supramolecular and biological electrochemically active materials in the perspective of pursuing an academic career.

Gabriel G. Rodríguez-Calero is the recipient of the 2013 ECS Colin Garfield Fink Summer Fellowship. He is a PhD candidate in the Department of Chemistry and Chemical Biology at Cornell University. His work in Héctor D. Abruña's research group focuses on the investigation of novel materials for electrochemical energy generation and storage. Specifically his work involves the investigation of the electrochemical, electronic, and chemical properties of organic materials and their behavior during their electrochemical reactions using spectroscopy and electro-analytical techniques. Prior to joining Cornell University, he pursued his undergraduate studies at the University of Puerto Rico, Río Piedras Campus, graduating *magna cum laude* with a Bachelor of Science with a major in chemistry. During his studies at UPR-RP he worked under Carlos R. Cabrera's guidance researching materials and electrosynthesis techniques for electrochemical biosensors and fuel cell applications.

Yongjin Lee is the recipient of the 2013 ECS Joseph W. Richards Summer Fellowship. He received his bachelor's degree and master's degrees from Seoul National University in Korea, both majoring in chemical and biological engineering. Currently, he is a fourth-year graduate student studying under the supervision of Gyeong S. Hwang in the McKetta Department of Chemical Engineering at the University of Texas at Austin. His research interests lie in the area of renewable energy sources including thermoelectric waste heat recovery. He has focused his thesis research particularly on developing a predictive computational tool and using it to investigate the fundamental mechanisms underlying thermal transport in various nanostructures and alloys for thermoelectric applications. Mr. Lee has co-authored 15 peer-reviewed journal publications, and was awarded a 2013 Donald D. Harrington Dissertation Fellowship, which is the highest award that can be made to a continuing graduate student at the University of Texas at Austin.

Carlo Santoro is the recipient of the 2013 ECS F.M. Becket Summer Fellowship. He received his BS (2006) and MS (2008) in environmental engineering from Politecnico di Milano (Italy). In 2005, he joined MRT Fuel Cell Lab (Politecnico di Milano) where he investigated mass transport through the MEA in direct methanol fuel cells under the supervision of Andrea Casalegno. In 2009, he joined Baikun Li's BioEnergy group and is currently pursuing his PhD at the University of Connecticut. His research focuses on the characterization and development of platinum-free cathodes in microbial fuel cells (MFCs) for long-term operation. Since 2010 he has been collaborating with several groups/institutions, in particular RSE SpA (Italy) with Pierangela Cristiani on biological cathodes; and with TU-Graz (Austria), TU-Braunschweig (Germany), and ITAE-CNR (Italy) on activated carbon nanofibers as cathode materials. He is also working in partnership with Politecnico di Milano on the surface characterization and mass transport in MFC cathodes under operating conditions. At present, he is collaborating with Ioannis Ieropoulos (Bristol Robotics Laboratory, UK) on his pioneering work with urine and exploring the potential for nutrient recovery. Finally, he is investigating the potential of enzymatic cathodes in MFCs, in collaboration with Plamen Atanassov (University of New Mexico).



Junsi Gu is the recipient of the 2013 ECS H. H. Uhlig Summer Fellowship. He received his BS in materials chemistry at Fudan University (Shanghai, China) in 2009. He is now pursuing a PhD in chemistry at the University of Michigan under the supervision of Stephen Maldonado. His current research interests include exploring new electrodeposition strategies for low temperature preparation of crystalline Group IV semiconductor materials, as well as studying semiconductor surface chemistry by *in situ* spectroscopic methods.

Student Award Winners

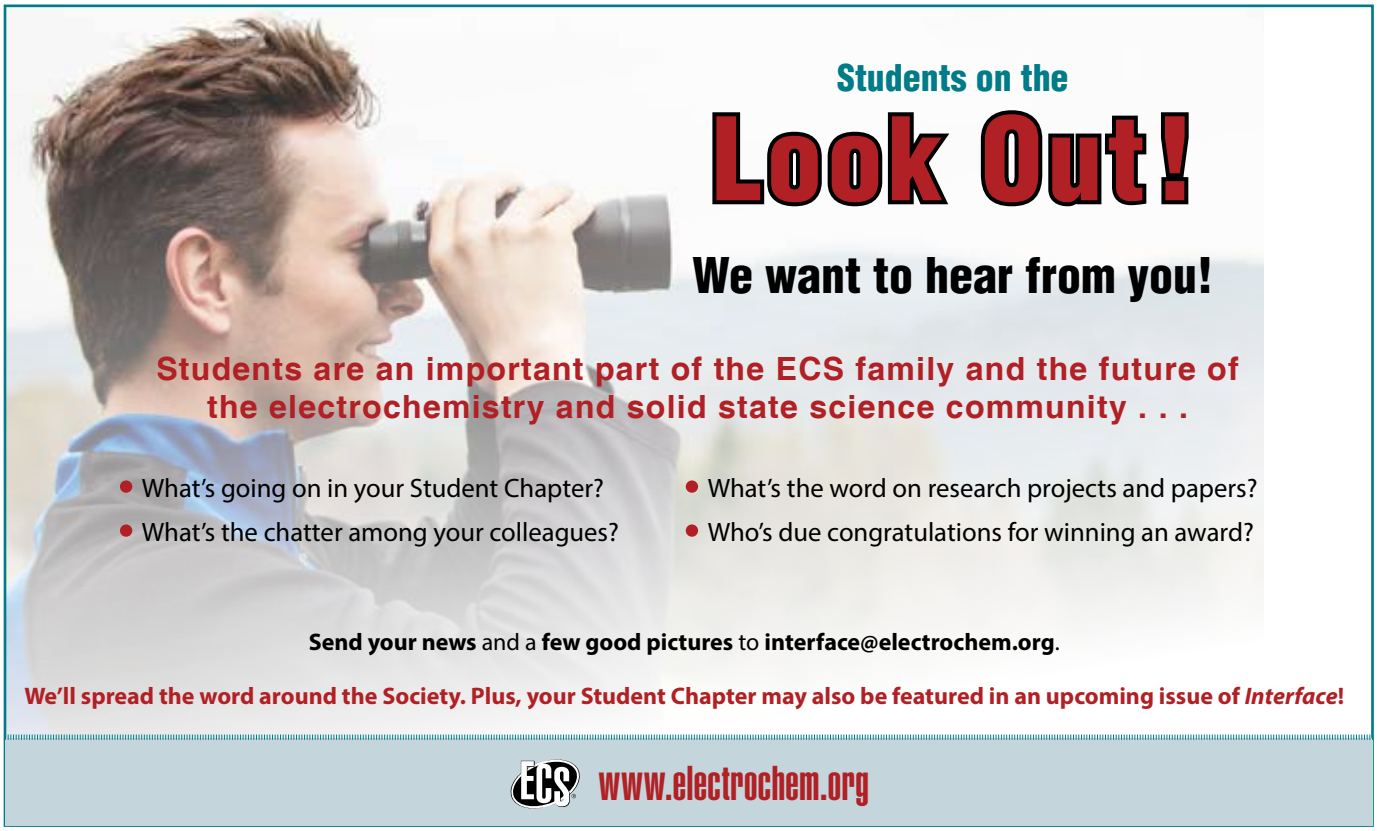
Student Research Award of the Battery Division

Mohamed Ati has been named the Battery Division's 2013 Student Research Award recipient. This award was established in 1962 and is given annually to recognize young engineers and scientists in the field of electrochemical power sources. Mohamed Ati was born and raised in Tunisia, but upon finishing his bachelor's degree in chemistry, he moved to France to participate in the Erasmus Mundus' master's program on Materials for Energy Storage and Conversion. He then began a PhD program under the guidance of Jean-Marie Tarascon at the University of Picardie Jules Verne (Amiens, France). The focus of his thesis work has been the synthesis and characterization of new fluorosulfates compounds $LiMSO_4F$ (M = 3d metal) as positive electrode materials for Li-ion batteries. His work has been motivated by the need for simple yet inexpensive synthesis methods such as solvothermal, solid-state, and mechanical alloying to explore new and sustainable electrode materials. Among them, tavorite $LiFeSO_4F$ appears to be a promising new material, hence most of his efforts have been focused on its optimization. Such investigations led to the discovery of the triplite polymorph of $LiFeSO_4F$, which shows the highest redox potential for Fe^{3+}/Fe^{2+} redox couple (3.9V *vs.* Li) in any inorganic compound known thus far. In order to understand the observed difference between the polymorphs, he pursued thermodynamic studies of these materials, and also synthesis to show phase transition from one polymorph to the other. Based on his previous experience, he also successfully prepared and characterized new lamellar hydroxysulfates phases $LiMSO_4OH$ (M = 3d metal). Mr. Ati has authored18 publications, has five patents, and was recently awarded the Elsevier Scopus Young Researcher Award 2013, which is given to the most cited young scientist in materials chemistry.

Morris Cohen Graduate Student Award of the Corrosion Division

Quentin Van Overmeere has been named the Corrosion Division's 2013 Morris Cohen Graduate Student Award recipient. This award was established in 1991 and is given annually to recognize outstanding graduate research in the field of corrosion science or engineering. Quentin Van Overmeere obtained his chemical engineering degree from the Université catholique de Louvain in 2006 and subsequently obtained a PhD in materials engineering in 2011, under the supervision of Joris Proost. During his doctoral studies, Dr. van Overmeere developed a high-resolution curvature measurement technique to monitor the internal stresses *in situ* during the growth of anodic oxide films. The technique was used to investigate growth instabilities such as breakdown and pore initiation during zirconium and aluminum anodizing, which are important for corrosion control. In 2011, Dr. Van Overmeere was awarded a postdoctoral fellowship from the Fonds de la Recherche Scientifique (FNRS) and subsequently joined the group of Shriram Ramanathan at Harvard University where he developed multifunctional oxide electrodes for advanced, low temperature solid oxide fuel cells.

Dr. Van Overmeere's research interests are the formation mechanisms of thin oxide films on metals for improved corrosion control, and developing advanced electrochemical power sources by leveraging the ionic and electronic transport properties of thin oxide films. He has received several awards, including the Oronzio and Niccolò de Nora Foundation Young Author Prize in 2012, and the Japan Trust for collaborative research activities in Japan in 2013. He may be reached at q.vanovermeere@uclouvain.be.



Student Chapter News

Cochin University of Science and Technology

The **ECS CUSAT Student Chapter**, in collaboration with the SPIE CUSAT Student Chapter of the Department of Physics at Cochin University of Science and Technology (CUSAT) organized an International Conference on Optoelectronic Materials and Thin Films for Advanced Technology (OMTAT 2013) January 3-5, 2013. The second in the series of OMTAT was held at Rivera suites, Kochi. SFI Stokes Professor of Solar Energy, K. Ravindranathan Thampi, University College Dublin, Ireland, inaugurated the conference on January3.

Renowned scientists and researchers from all around the world participated in the conference and over 100 research papers in the fields of nanomaterials, dye sensitized solar cells, dielectrics and ferroelectrics, magnetic materials, and materials for energy storage etc., were presented. The conference provided a platform for the young researchers to interact with the experts in the field. ECS and SPIE CUSAT awarded to four students cash prizes and merit certificates for the best poster and best presentation. First and second prizes for an oral presentation were awarded to Ciaran Lyons, University College Dublin, Ireland and Shemeena Basheer, Department of Physics, Catholicate College, Kerala. Ms. Sajimol Augustine, Department of Physics, Cochin University of Science and Technology, Kochi and Mr. Raneesh, Department of Physics, MG University, Kerala were awarded first and second prize in poster presentation.

*The **ECS CUSAT Student Chapter** organized a conference called OMTAT 2013 (see related story). Shown here (from left to right) are **Joaquin Puigdollers Gonzalez** (Chair), **K. P. Vijayakumar** (Head-in-Charge), and **M. K. Jayaraj** (Convener) during the discussion session.*

*The organizing committee and **ECS CUSAT Student Chapter** members gathered during OMTAT 2013.*

Montana State University

***Paul Gannon** (left), faculty advisor of the new ECS student chapter at Montana State University, observes as **Jude Eziashi** removes a high-temperature corrosion specimen from a furnace system.*

A new ECS Student Chapter has been established at **Montana State University** (MSU), in Bozeman, MT. Jude Eziashi, an undergraduate student in chemical engineering at MSU, initiated the Chapter following his experience of presenting a poster at PRiME 2012 in Honolulu. Mr. Eziashi has generated over a dozen student members and will begin meetings and activities in the fall of 2013, when he returns from an internship at IM Flash. MSU faculty Paul Gannon, an ECS member within the High Temperature Materials Division, will serve as the faculty advisor. The new ECS MSU Student Chapter intends to grow and maintain a membership of over two dozen students, while promoting electrochemical science, technology, and education through various student activities and community-engaging events.

University of Maryland

Amy Marquardt *(center), Academic Outreach Coordinator for the UMD Student Chapter, leads students in testing their completed DSSCs.*

Members of the **University of Maryland** ECS Student Chapter participated in the Adventures in Science program at the National Institute of Standards in Technology (NIST). Adventures in Science is an ongoing program that provides an outlet for those with a passion for science to lead middle school aged students through enlightening demonstrations. Chapter President Colin Gore, along with members Amy Marquardt, Chris Pellegrinelli, and William Gibbons, gave a presentation on the electrochemistry of dye-sensitized solar cells based on natural fruit pigments, entitled "Getting Juice from Juice." During the presentation the students discussed the fundamentals that govern the generation of electricity from light, such as how sunlight is composed of a spectrum of wavelengths with different energies and how photons interact with semiconductors. They also discussed how anthocyanin, a pigment molecule found in blackberries and other fruits, in combination with TiO_2 nanoparticles and an iodide based electrolyte, can be used to generate electricity through photoelectrochemistry.

The presentation was followed by a hands-on demonstration in which the students fabricated their own dye-sensitized solar cells, using the materials mentioned in the presentation, and sandwiched between conductive FTO glass slides. Students were then given a lesson in determining power curves for a solar cell and determining cell efficiency, and tested their cells in incandescent and fluorescent bulbs and natural sunlight. A friendly competition was held to determine which team of students made the most efficient cell. The demo was the most popular of the entire day at NIST, drawing a larger crowd than all other demos combined. Clearly electrochemistry is not only useful, but a fascinating topic.

Awards

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.

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, U.S., e-mail: vimalc@nmsu.edu. Materials are due by January 1, 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 Cancun, Mexico, October 5-10, 2014.

Nominations and supporting documents should be sent to Battery Student Award, c/o The Electrochemical Society, 65 S. Main Street, Building D, Pennington, NJ 08534, U.S.; tel: 1.609.737.1902; e-mail: awards@electrochem.org. Electronic submission of nomination packets is preferred. Materials are due by March 15, 2014.

The **Morris Cohen Graduate Student Award of the Corrosion Division** was established in 1991 to recognize outstanding graduate research in the field of corrosion science and/or engineering. The award consists of a scroll, a prize of $1,000, and travel assistance to the meeting where the award will be presented (up to $1,000). The next award will be presented at the ECS fall meeting in Cancun, Mexico, October 5-10, 2014.

Nominations and supporting documents should be sent to Corrosion Cohen Student Award, c/o The Electrochemical Society, 65 S. Main Street, Building D, Pennington, NJ 08534, U.S.; tel: 1.609.737.1902; e-mail: awards@electrochem.org. Electronic submission of nomination packets is preferred.. Materials are due by December 15, 2013

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Student 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 the 223rd ECS meeting in Orlando, Florida, USA, please see the Orlando, Florida, Call for Papers; or visit the ECS website: www.electrochem.org/student/travelgrants.htm. Please be sure to click on the link for the appropriate Division as each Division requires different materials for travel grant approval. Complete the online application (preferred) or download the PDF application and send to travelgrant@electrochem.org, indicating to which Division a travel grant is being requested. The deadline for submission for the spring 2013 travel grants is January 1, 2014.

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.