Industrial Electrochemistry and Electrochemical Engineering Division Student Achievement Award

Mohammad Mahdi Hasani-Sadrabadi is currently a graduate researcher studying bioengineering at the Georgia Institute of Technology. Prior to joining Georgia Tech, Hasani-Sadrabadi attended the Swiss Federal Institute of Technology in Lausanne, where he received the Excellence Scholarship that enabled him to develop microfluidic platforms for controlled synthesis of polymeric nanoparticles. Hasani-Sadrabadi's fuel cell research began in 2007 at Amirkabir University of Technology. In 2010, he established the Biologically-Inspired Developing Advanced Research (BiDAR) group as an international collaborative research team. His main research area of interest is the development of bio-inspired nanomaterials for energy and biomedical applications.

Hansani-Sadrabadi has published more than 40 peer-reviewed papers and has an h-index of 15. He has received many honors and recognitions, including the National Scientific Prize for Elites and the IFIA Top Inventor Award.

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

Santosh Vijapur is a PhD candidate in the Department of Chemical and Bimolecular Engineering at Ohio University, working under the guidance of Gerardine G. Botte. Santosh's doctoral research work involves development of graphene and amorphous carbon films using coal as a carbon source, with focus on detailed investigation of the growth mechanism by utilizing various spectroscopy, crystallography and chromatography techniques. He has also demonstrated the utilization of these carbon films in various electrochemical applications. Apart from his dissertation work, Santosh is involved in coal electrolysis project for hydrogen production and synthesis of various nickel based nanocomposites for urea electrolysis.

Santosh has received degrees from Ohio University and Dr. Babasaheb Ambedkar Technological University. His master's thesis focused on enhancing the collection efficiency of pollutants containing particulate matter with diameter less than 2.5 µm. Santosh has published five peer-reviewed papers, two conference proceedings, and has given five oral presentations. Further, he founded the Ohio University ECS Student Chapter and served as its secretary.

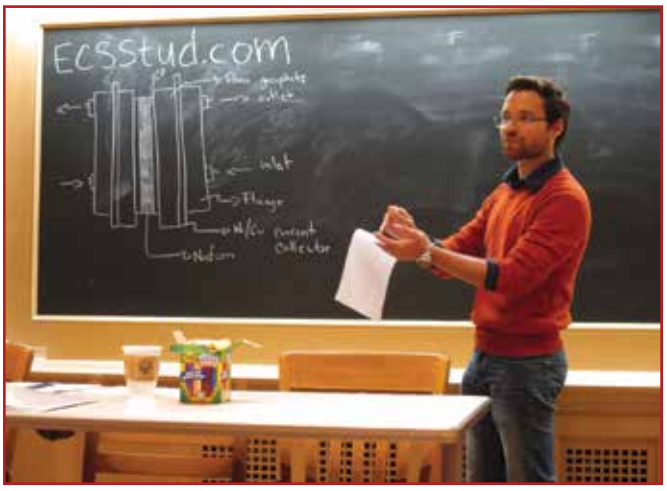
Student Chapter News

University of Texas at Austin Student Chapter

The **ECS Student Chapter at The University of Texas at Austin** (UT-Austin) was founded in 2007 to provide a forum for students interested in solid-state and electrochemical science and engineering. The chapter now has 38 registered members across the Cockrell School of Engineering and the College of Natural Sciences. Advised by Arumugam Manthiram, Director of the Texas Materials Institute at UT-Austin, current officers include Tyler Mefford (President), Alma Castaneda (Vice President), Martha Gross (Secretary), and Pauline Han (Treasurer). The student chapter organizes seminars, "chalk talks," and outreach events in addition to providing support to events organized by the Center for Electrochemistry, the Texas Materials Institute, and the Cockrell School of Engineering at UT-Austin.

On November 3, 2014, UT-Austin hosted a chalk talk given by senior doctoral graduate student and former ECS Student Chapter President, Netzahualcóyotl Arroyo Currás, on "Electrochemical and Spectroscopic Approaches to Study Slow EC Reactions." Chalk talks allow members to give an informal presentation on their research, providing a unique opportunity to engage in friendly discussions concerning solid state science and electrochemistry. Currás's talk highlighted many of the challenges in measuring slow EC reactions related to the stability of redox flow batteries.

Members of the UT-Austin Student Chapter have additionally been volunteering with SciBridge to provide African university students with engaging electrochemical experiments on energy materials. One project (Interface, Winter 2014, p. 92) provided dye-sensitized solar cell kits to Makerere University in Kampala, Uganda. The kits arrived in late October and the physics undergraduate students were very excited to learn how to assemble solar cells from natural dyes. The second project is focused on teaching battery science with aluminum-air batteries. SciBridge students and ECS Student Chapter members have been working on designing high performance Al-air batteries that the students in Uganda can assemble themselves with effective



Former UT-Austin ECS Student Chapter President **Netzahualcóyotl Arroyo Currás** *presents on "Electrochemical and Spectroscopic Approaches to Study Slow EC Reactions."*

The University of Texas at Austin ECS Student Chapter and faculty advisor **Arumugam Manthiram** *(front left) with the 2014 ECS Outstanding Student Chapter Award.*

and affordable materials. The SciBridge project (www.SciBridge.org) is funded by the Materials Research Society (MRS) Foundation Grassroots Grant Award and the solar-cell experiment was designed at the University of California-Los Angeles.

The student chapter continues to grow and sustain the strong tradition in electrochemistry and solid state science at the University of Texas at Austin. This spring, we will continue to expand the electrochemical community at UT-Austin with a number of planned outreach programs and chalk talks. More information about the ECS Student Chapter at the University of Texas at Austin can be found at http://www.ecsstud.com.

Montreal Student Chapter

The 4th ECS Montreal Student Symposium took place on June 13th 2014 at McGill University, Canada, sponsored by Pine Research Instrumentation, HEKA Elektronik, NanoQuébec, Centre Québecois Sur Les Matériaux Fonctionnels, McGill and Thomlinson Project in University-Level Science Education Fund along with DropSens. More than seventy participants from six universities in Montreal and Quebec City, Ottawa, as well as a national research center took part in the annual symposium.

The attendees enjoyed sixteen talks and twenty-one posters, including presentations by the two invited speakers, Evgeny Katz (Clarkson University) and Alexis Vallée-Bélisle (Université de Montréal). Prof. Katz' talk entitled "Bioelectronics: From Novel

(continued on next page)

Invited speaker **Evgeny Katz** *from Clarkson University.*

Students in discussions during the poster session.

(continued from previous page)

Concepts to Practical Applications," discussed basic principles of bioelectronics and other developments in biofuel cells operated in animals. On a related topic, Prof. Vallée-Bélisle presented his recent research entitled "Adapting Nature's Tricks to Engineer Better Biosensors" about the ability of using DNA as a switchable material for sensing applications.

Prizes for the best oral and best poster student presentations were awarded to Mark McArthur from McGill University for his talk on "MWCNT-based Electrodes for Electrochemical Applications" and Kim-Ly Nguyen from Université de Montréal for her poster on the "Redox-induced Ion-pairing Between Anionic Amphiphile and Ferrocenylalkanethiolates Self-assembled Monolayers." Further information about the ECS Montreal Student Chapter can be found at http://ecsmontreal.blogspot.com or visit us on Facebook.

The 4th ECS Montreal Student Symposium attracted more than seventy students and staff from Montreal and Ottawa Universities and research centers.

University of Pittsburgh Student Chapter

The **University of Pittsburgh ECS Student Chapter** was founded in fall 2014 and hosted their first event on November 6, 2014 with a seminar featuring long-time ECS member George Blomgren of Blomgren Consulting Services Ltd. of Lakewood, OH. Dr. Blomgren was recently recognized as an ECS Fellow for his contributions to The Electrochemical Society. Dr. Blomgren's talk on "Recent trends in Battery Research and Development" discussed various battery technologies and their relevance/scope in the electrochemical energy storage market in the next decade. With over four decades of research and development in electrochemical energy storage systems, Dr. Blomgren shared his vast experience and insights on upcoming technologies like lithium-air and lithium-sulfur batteries in addition to lithium-ion batteries. The talk was attended by a number of chapter members including the faculty advisor, Prashant Kumta. Fruitful discussions on electrochemical energy storage with the students ensued after the talk.

George Blomgren *(third from left) with the ECS University of Pittsburgh Chapter members (from left) including* Bharat Gattu *(Treasurer),* Prashant N. Kumta *(Faculty Advisor),* Prashanth H. Jampani *(President),* Sameer Damle, Oleg Velikhokhatnyi, *and* Prasad Patel.

Rensselaer Polytechnic Institute Student Chapter

Tom Angeliu *speaks to students about career opportunities after the presentation.*

Over 30 people, including undergraduate students, graduate students, chapter advisor David Duquette and other professionals, attended the Rensselaer Polytechnic Institute Fall 2014 Electrochemical Society meeting on October 29, 2014. This meeting featured Tom Angeliu of GE Global Research. Dr. Angeliu was educated at Michigan Technical University and the University of Michigan. He has over 20 years of experience as a materials and corrosion engineer at both GE Global Research and Knolls Atomic Power Lab.

Dr. Angeliu spoke to students about interesting technical problems that he has tackled over the years (such as stress corrosion cracking). He also discussed his important career decisions and how he has found success in his career and in his life. Students also had the opportunity to speak with Dr. Angeliu after the meeting about career opportunities and advice.

Research Triangle Student Chapter

Representatives from Pine Research Instrumentation shared their electrochemical equipment's capabilities with local students during the 2014 RTECS Holiday Social.

Over the past few months, the **Research Triangle ECS (RTECS) Student Chapter** has focused on granting members the opportunity to network with both academia and industry with an emphasis on chapter growth. In November, Duke University's department of Mechanical Engineering and Materials Science partnered with RTECS to host ECS Fellow and Drexel University Professor, Yury Gogotsi, where he presented on the novel usage of carbon nanomaterials with sub-nanometer pores for the next-generation energy storage devices. The RTECS then invited students from across the region to dinner with Prof. Gogotsi for an entertaining and informative discussion on advancements in electrochemical research and opportunities in academia.

For another perspective on career opportunities, the RTECS held a holiday social on December 17, 2014 with industry partners Pine Research Instrumentation for all members to attend just before the holiday break. The social event gave members the opportunity to connect with other students and an electrochemical equipment manufacturer located right in the Research Triangle. Pine Research Instrumentation generously hosted the event and provided student members with valuable information on skills highly sought after by employers, in addition to sharing information related to their company's products.

Students and faculty join Drexel University Professor **Yury Gogotsi** *(center) for dinner during his visit to the NC Research Triangle area.*

The RTECS continues to strive to connect members between its three founding universities. Through these two events, and the numerous others throughout the beginning of 2014, the membership of RTECS has grown to approximately 70 members over the chapter's first year with representatives from Duke University, University of North Carolina at Chapel Hill and North Carolina State University. The chapter hopes to continue growing in the upcoming year through many future events. In 2015, RTECS members will get a chance to give back to the community by serving as judges for an upcoming science fair competition. Additionally, a professional development workshop day is planned for March. The RTECS student chapter is excited to get 2015 underway.

University of California - San Diego Student Chapter

The activity of the **University of California-San Doego Student Chapter** ended the fall 2014 semester and its first year of existence on a high note. The chapter brought together all parties interested in the advancement of electrochemical science and technology for a colloquium on December 4, 2014.

Housed within the Department of Nanoengineering at University of California, San Diego, the UCSD chapter is fortunate to have the privilege of working with a former (2001-2002) president of The Electrochemical Society, Jan Talbot. Dr. Talbot gave an insightful seminar on her work involving electrophoretic deposition.

Dr. Talbot discussed the fundamentals of electrophoresis for deposition of materials such as phosphors, zeolites, and single-walled carbon nanotubes, and applications of such materials for solid-state lighting and display screens. The students found her seminar intriguing because she discussed the bridge between fundamental research and developing it in industry. Her industrial affiliations through her research include Hughes Aircraft, Sony, and Osram-Sylvania, just to name a few. Those who attended the seminar were captivated by how influential Dr. Talbot's work truly has been. This was a powerful seminar that gave insight on how research in academia influences industry to positively impact society, giving one a better quality of life.

The founding members and active executive board of the University of California, San Diego Electrochemical Society Student Chapter are truly thankful to Dr. Talbot for giving a great seminar which brought students from various departments such as Physics, Chemistry, Materials Science, and Nanoengineering. This is a motivational factor for the founding board members to provide high-quality events in 2015.

Jan Talbot *and the founding board members of the ECS -UCSD Student Chapter. From left:* **Han Nguyen, Judith Alvarado, Haodong Liu,** *Jan Talbot,* **Jeremy Rosenfeld** *and* **Jimmy Mac.**

View of the lecture hall during the presentation, with Dr. Talbot at the podium.

South Brazilian Student Chapter

On Friday November 14, 2014, the **South Brazilian Student Chapter** at the Universidade Federal do Rio Grande do Sul in Porto Alegre held the first members' meeting to celebrate the re-inauguration of the chapter. Originally founded in 2010, the student chapter was reactivated through incorporation of new students that had the interest of collaboration and participation in the Electrochemical Society. The chapter members presented the results of their latest research at this meeting.

Three main events were programmed for this meeting. First, in the morning, Sara Matte Manhabosco presented her work about the "Corrosion study using the SVET (Scanning Vibration Electrode Technique) in *in-situ* deformed galvanized steel." Then, Isaac Rodríguez Pérez presented his work on the "Hydrogen production in NaOH by the corrosion of rapidly solidified eutectic Al-Si alloy using Melt Spinner technique." And, finally, João Carlos Brancher Bartoncello presented the study of "The use of SVET for the evaluation of the corrosion of the friction stir lap joint of AA7050-T76511 on AA2024-T3." The presentations were followed by Q&A session that allowed formulating a general summary of the meeting.

João Carlos Brancher Bertoncello *presenting his research about "The use of SVET for the evaluation of the corrosion of the friction stir lap joint of AA7050-T76511 on AA2024-T3."*

This meeting allowed the information exchange between different members of the student chapter and also permitted dissemination of brand-new points of view about their current research projects. At the end of the day, all the researchers remained excited and delighted about the idea of having further meetings to permit the creation of a collaboration strategy for future research projects and improve the communication flow between all the members of the student chapter.

Informal gathering between the organizers of the meeting.

Start a Student Chapter!

ECS currently has 45 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 **ecs@electrochem.org for details**.

Student Awards

ECS Student Awards & Fellowship Program: Call for Nominations

ECS provides a number of fellowships and awards to help students in our field become full-fledged professionals. This is an amazing opportunity to recognize and boost the career of the hard working students you know. Find out more about summer fellowships, awarded student membership, student division and section awards, and more.

For more about the ECS Awards & Fellowship Program go to:

electrochem.org/awards

ECS student awards and fellowships are open to anyone who meets the ECS criteria for being a student. Specific information for each award, and information regarding rules, past recipients, and nominee requirements are available online. Please note that the nomination material requirements for each award vary.

Email questions to: awards@electrochem.org.

The **Energy Technology Division Graduate Student Award** was established in 2012 to recognize and reward promising young engineers and scientists in fields pertaining to the Division. The awards are intended to encourage the recipients to initiate or continue careers in this field. The award consists of up to two recipients chosen annually will receive an appropriately worded certificate as well as an amount of $1,000, payable to the recipient. In addition, the recipient will receive a waiver of student registration, and un-reimbursed travel expenses to attend the Spring ECS meeting, an amount not to exceed $1,000.

Go to www.electrochem.org/student to learn more and start the nomination process.

Materials are due by September 1, 2015.

The **Georgia Section Student Award** was established in 2011 to recognize a student who is pursuing a PhD at a University within the Georgia Section in any area of science or engineering in which electrochemical and/or solid state science and technology is the central consideration. The award consists of an amount not to exceed $500.

Go to www.electrochem.org/student to learn more and start the nomination process.

Materials are due by August 15, 2015.

The **Industrial Electrochemistry and Electrochemical Engineering Division H. H. Dow Memorial Student Achievement Award** 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 prize of a $1,000 for education expenses.

Go to www.electrochem.org/student to learn more and start the nomination process.

Materials are due by September 15, 2015.

The **Industrial Electrochemistry and Electrochemical Engineering Division Student Achievement Award** 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 prize of a $1,000.

Go to www.electrochem.org/student to learn more and start the nomination process.

Materials are due by September 15, 2015.

The **Korea Section Student Award** was established in 2005, and is awarded to a student who is pursuing a PhD at a Korean University in any area of science or engineering in which electrochemical and/or solid state science and technology is the central consideration. The award consists of a monetary award set by the Executive Committee of the Korea Section not to exceed $500.

Go to www.electrochem.org/korea_award to learn more and start the nomination process.

Materials are due by September 30, 2015.