SEAC*communications*

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PRESIDENT'S MESSAGE

Dear SEAC Members,

I am extremely pleased to highlight two contributions in this newsletter from SEAC postdoc member Dr. Maral Mousavi and SEAC student member Evan Anderson. Evan refers to a recent cover page article in Chemical & Engineering News, and discusses what the Community of Chemistry Graduate Students (CCGS) that he is currently leading is doing to address stress and mental health in graduate school. I strongly recommend Evan's article and the C&EN story to you. Elimination of unnecessary stress factors, focusing on what is really important, and providing support to community members is not only improving the graduate student experience, as stated by Evan and the sources he cites, but it makes us all more productive, effective, and happier, be that in academia, industry, or elsewhere.

Maral is introducing with her article a resource that many SEAC members, and in particular graduate students, will find tremendously helpful. During her graduate studies, Maral led for many years CCGS efforts, and has continued to work on the same type of issues since taking a postdoc position with Prof. George Whitesides at Harvard University. In particular, she has created a higher education YouTube Channel covering topics anywhere from how to give good presentations and write a winning resume to managing conflict and depression. Maral emphasizes in her article the value of the YouTube channel especially for those who are not part of a community that can provide them with this type of resources.

To this end, it is important to remember that SEAC not only promotes basic and applied research in electroanalysis, but it also strives to create a supportive community to researchers and professionals in our field. It has been great to see recently a number of young members joining SEAC and taking a more active role in activities at Pittcon and beyond. Let us all try to do our best to ensure that this trend persists, making SEAC not only the society of electroanalytical chemistry but also the community of electroanalytical chemists.

Last but not least, I would like to end this president's message with a thank-you note to the very person who recruited me to SEAC, Yoshio Umezawa. He is ending an incredible 28 years of regional editor for the SEAC newsletter, handing over the job to Eiichi Shoji. Thank you very much for your many years of service to SEAC; without people like you, SEAC would not exist.

Phil Buhlmann
President, 2017-2019

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REMINDER – NOMINATIONS FOR SEAC BOARD AND OFFICERS

Nominations are now open for President-Elect, Secretary and Treasurer as well as for three positions on the Board of Directors.

All members in good standing are eligible, with the exception of the following members, who will step down in 2018 and are not eligible for election to the Board until 2019:

Lane Baker Leslie Sombers Bo Zhang

The other current members of the Board are:

2014-2019	Erin Gross, Michael Johnson, Tim Paschkewitz
2015-2020	Ingrid Fritsch, David Wipf, Michael Heien
2016-2021	Takashi Ito, Parastoo Hashemi, and Ryan White
2017-2022	Anne Co, Charles Henry, Joaquin Rodriguez-Lopez

As specified in the bylaws, the list of nominees shall include the name of each candidate suggested by more than ten members and all other candidates deemed appropriate by the Nominating Committee. Nominations should be submitted to

Professor Ingrid Fritsch
Department of Chemistry and Biochemistry
University of Arkansas
Fayetteville, AR 72701
479-575-6499
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ifritsch@uark.edu

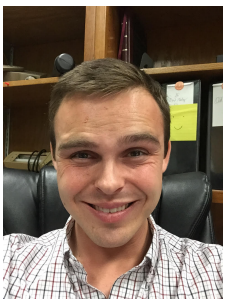
before November 1, 2017.

Ballots will be emailed to all members in good standing as of December 1st.

Thank you,
Ingrid Fritsch, Chair
Nominations Committee

NEW REGIONAL AND STUDENT EDITORS

Yoshio Umezawa decided to step back as Regional Editor, and Eiichi Shoji from the University of Fukui has agreed to serve as Regional Editor. In addition, Jeffrey Dick has accepted a tenure-track faculty position at the University of North Carolina, Chapel Hill, and will be replaced as Student Editor with Elena Montoto from the University of Illinois, Urbana-Champaign. We appreciate Yoshio and Jeffrey for their numerous contributions to the newsletter, and Eiichi and Elena for their willingness to serve as Regional and Student Editors, respectively!



Eiichi Shoji is an associate professor at the Department of Mechanical and System Engineering, University of Fukui, Japan. He received his B.S. and Ph.D. degrees from Waseda University. He worked at the Tokyo University of Agriculture and Technology, University of Wyoming, McGill University, and California Institute of Technology before starting his own research group at the University of Fukui.

Elena C. Montoto is a PhD candidate working in Prof. Rodríguez-López's group at the University of Illinois at Urbana-Champaign. She received her B.S. from Saint Joseph's University in 2014 where she worked on optimizing the synthesis of pyramidalized alkenes. At the University of Illinois she is a Ford Foundation predoctoral fellow and her thesis work focuses on the development and electrochemical exploration of macromolecular redox-active materials for energy applications such as redox flow batteries and catalysis. Additionally, she is the president of the local SACNAS chapter at UIUC and an active board member of the local ACS Younger Chemists Committee.

THE IMPORTANCE OF A MENTAL HEALTH FOCUS IN GRADUATE SCHOOL

By Evan L. Anderson, Community of Chemistry Graduate Students (CCGS), Department of Chemistry, University of Minnesota

Efforts to improve and understand the mental health of chemistry graduate students have received increased attention. A recent article on the front cover of the Aug. 7, 2017, edition of the American Chemical Society's Chemical & Engineering News, "*Grappling with graduate student mental health and suicide: the stress of grad school means that open discussions and training are vital*," describes the situation that led a chemistry graduate student from Scripps Research Institute California to commit suicide. The pressures of graduate school are undoubtedly large, much of which cannot be avoided. However, there is currently insufficient knowledge about the mental health of graduate students to be more proactive about helping students achieve their maximum potential throughout graduate school.

The C&EN article also describes the much-needed programs that several departments, including the chemistry department at the University of Minnesota, have implemented to help improve the climate and stigma around mental health. This includes changes to departmental policies, the formation of student groups, events to increase social interaction, and many others. Such initiatives are essential to the continued productivity of graduate programs and for the wellbeing of graduate students, as an alarming 32% of graduate students have a psychiatric disorder or are at risk of developing one.

Even though current efforts are a step in the right direction, more must be done and be known to prevent suicides and provide support and education for the large number of students whose happiness and productivity are impaired by mental health struggles. As students at the University of Minnesota, we have developed a graduate student group called the Community of Chemistry Graduate Students (CCGS). CCGS's goal is to improve the mental, physical, and social health of graduate students. We have strived to reach this goal by hosting social events, panel discussions, seminars, workshops, performing surveys, and working together with faculty to find ways to improve the graduate student experience. As discussed in the article below, we have also developed videos that highlight mental health issues in graduate school. It is our hope that these videos will in part help improve the climate around and educate graduate students on topics of mental health. To learn more, see the full C&EN article, and for links to our videos, please visit ccgs.chem.umn.edu or follow the links in Maral's article.

SURVIVING AND THRIVING IN HIGHER EDUCATION YOUTUBE CHANNEL

https://www.youtube.com/channel/UC4jExrOEqgZmJM6EmziU6NA

By Maral Mousavi, postdoc, Department of Chemistry, Harvard University

The objective of this contribution is to introduce a resource that might be beneficial to the readership of the SEAC newsletter, specifically SEAC Student Members. "Surviving and Thriving in Higher Education" is a YouTube Channel that is open to the public and provides an online resource for graduate students, postdoctoral scholars, and junior scientists to navigate their path and learn from the experiences of others. Faculty members and scientists in the fields of chemistry and chemical engineering are invited to share their tips on developing a successful career. The channel contains presentations on three categories: technical skills, soft skills, and mental health in higher education. The channel currently has more than 400 subscribers, 25000 views, a total watch time of 89000 minutes, and has been used by students from all over the world. One of the videos in which a faculty member describes his struggles with depression during his graduate studies has been featured in C&EN news (https://cen.acs.org/articles/95/i32/Grappling-graduate-student-mental-health.html). Please feel free to browse the channel, and if you find the content useful, please share it with students and colleagues and help to spread the word about this resource.

Mission of the channel: Teaching, mentoring, and training the next generation of scientists are crucial for advancing the scientific community. Online interactive resources such as videos are extremely powerful for this purpose. Students in higher education are trained in science; however, many skills that are required to have a successful career in science are not taught or learned. In graduate studies, students face so many surprises and struggles that simply can be avoided or managed better. Research advisers have limited time and availability; therefore, students might not get a chance to learn these skills directly from their mentors. We can help by providing online mentorship through video clips. These videos are open to everyone, can be accessed anytime of the day, and students can use them as a complimentary tool to learn from world-leading scientists, whom they might never get a chance to meet face-to-face. This channel will particularly assist students who are in resource-limited settings.

Content of the channel: You will find short video presentations (5-15 minutes) by faculty members and representatives in the chemical industry, where they share their suggestions on a specific topic (managing conflict, how to give a talk, managing depression, how to read an article, and other topics). Some of the faculty are familiar to the readership of the SEAC newsletter (Profs. Peter Carr and Philippe Buhlmann) have contributed to presentations published on the channel.

Here are some of the popular presentations:

- Series of videos on depression in graduate studies
  https://www.youtube.com/playlist?list=PLe5Q7eg9EFWE4uMpgBnnyFGdXc-SumgMq
  - Depression in Graduate Studies-How common is it? (by Prof. Philippe Buhlmann, Dr. Matthew Hanson, and David Golden)
  - My Story of Depression in Graduate Studies (by Prof. Christopher Cramer)
  - Depression in Graduate Studies–What are the Signs? (by Dr. Gary Christenson, MD)
  - Depression in Graduate Studies–Awareness, Prevention, and Early Intervention (by Dr. Matthew Hanson)
- How to Write a Winning Resume in an Afternoon (by Prof. Peter Carr)
  https://www.youtube.com/watch?v=3HPUN3oyvhY&list=PLe5Q7eg9EFWGbCTkX8Db-FmiwYxR5yTkI&index=1
  - Being a faculty member for more than 30 years and having mentored so many graduate students, Prof. Carr shares his tips and suggestions for preparing a successful and effective resume for landing jobs.

- My Story of Managing Conflict in Graduate Studies (by Profs. Christopher Cramer and Marc Hillmyer) https://www.youtube.com/watch?v=e7I6lcbUwrU
  - Faculty members share their personal story of facing conflict in graduate studies, and explain how they resolved the conflict and what could have been done to avoid the issue in the first place.
- How to give a good presentation (by Prof. William Tolman) https://www.youtube.com/watch?v=4w_qK3gx7U&list=PLe5Q7eg9EFWE9hOttLZHKDxFInMvJU4EC

Getting involved: This channel is organized by Maral Mousavi, a postdoctoral fellow at Harvard University, Department of Chemistry and Chemical Biology. If you are interested to contribute to making a video on a specific topic or have suggestions for improving the content of the channel, please contact mmousavi@gmwgroup.harvard.edu or mousavi.maral@gmail.com. Your feedback is very much appreciated.

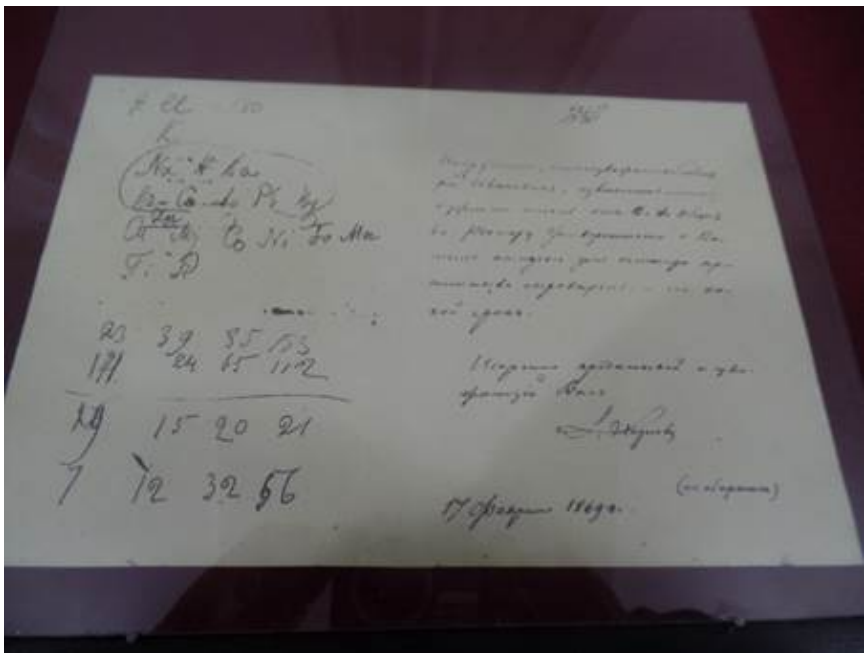
NEWS FROM MEMBERS

Robert Corn, University of California, Irvine, won the 2017 DAC Award in Chemical Instrumentation.

Patrick Unwin, University of Warwick, received the 2017 ISE-Elsevier Prize for Experimental Electrochemistry.

Gary Christian, University of Washington, was honored for his upcoming 80th birthday at the 21st International Conference on Flow Injection Analysis in St. Petersburg, Russia; details at: www.icfia2017.org

There was a lot of electrochemistry presented at the conference. A highlight was a visit to the Dmitry Mendeleev Museum Apartment at St. Petersburg State University. Mendeleev's elaborate apartment was in the university building. He was tall and a chain smoker. Here is a picture of his first periodic table, dated February 17, 1869.



Jonathon Howell informed SEAC members of a new product (C-Solder) from Goodfellow. C-Solder can be used to make relatively low temperature connections between carbon and metals. See info at: http://www.goodfellowusa.com/news-article/c-solder/

C-Solder

Product description

C-Solder is the trade name for a group of new tin-based, lead-free low-temperature soldering alloys which enable the joining of various carbon materials, including carbon fibers or carbon nanotube fibers, in both carbon-carbon and carbon-metal combinations. The resultant bond is mechanically strong and electrically conductive.

Characteristics

- **Melting Point:** 232 ºC (solidus temperature)
- **Density:** ~ 7.4 g/cm^3
- **Excellent flow**
- **Good wetting of surfaces to be joined**
- **Electrically and Thermally Conductive**
- **Aluminum to Aluminum can be soldered without using flux.**
- **Carbon can be soldered to metals (e.g. Copper, Aluminum), Ceramics and Glass materials**
- **C-Solder is not affected by cleaning solvents**
- **C-Solder does not leave residues**
- **C-Solder is not flammable**
- **C-Solder is flux Free**
- **C-Solder is lead Free**

Compliance

RoHS

Chemical Composition

Tin	Copper	Silver	Chromium
90 – 100%	0.01 – 1%	3 – 5%	2 – 6%

Main features of C-Solder compared to Brazing, Adhesive Bonding and Mechanical Fastening

Feature	Brazing	Adhesive Bonding	Mechanical Fastening	Soldering (C-Solder)
Time to make the joint	Minutes to hours	Long cure	Rapid assembly	Several seconds
Surface Preparation	Minimal	Extensive	Minimal	No surface cleaning
Thin Sections	Yes	Yes	No	Yes
Joint Weight	Light	Light	Heavy	Light
Stress Concentrations	High thermal stresses	Can be very low	Significant	Low
Sensitivity to Peel Forces	Susceptible	Susceptible	Resistant	Susceptible
Sensitivity to Tensile Forces	Resistant	Resistant	Susceptible	Resistant
Applied In-situ	No	Yes	Yes	Yes
Suitability for CNTs, Graphene & Carbon Components	No	Yes	No	Yes
Electrically & Thermally Conductive	Yes	No	No	Yes

MEETINGS TO COME

Meetings of interest to our SEAC members abound during the coming year, with symposia being organized by some among us.

Meeting	***When***	***Where***	***Link for More Information***
2nd Gerischer-Kolb Symposium: Modern Aspects of Bioelectrochemistry	2017, Oct. 11–13	Schloss Reisensburg, Germany	http://www.gerischer-kolb.de/
The 8th Workshop on Surface Modification for Chemical and Biochemical Sensing	2017, Nov. 3–7	Zelechow near Warsaw, Poland	http://www.smcbs2017.pl
11th International Symposium on Electrochemical Impedance Analysis	2017, Nov. 6–10	Camogli (Genova), Italy	http://www.dicca.unige.it/ita/eia11/
2nd Asian Symposium on Electrochemical Impedance Spectroscopy	2017, Dec. 7–8	Tokyo, Japan	http://www.aecd.tus.ac.jp/aeis2017/
GRC in Electrochemistry	2018, Jan. 7–12	Ventura, CA	http://www.grc.org/programs.aspx?id=11218
2018 CEC Annual Workshop on Electrochemistry	2018, Feb. 10–11	Austin, TX	http://cec.cm.utexas.edu/electrochemistry-workshop-2018
Pittcon 2018	2018, Feb. 26 – March 1	Orlando, FL	https://pittcon.org/
255th ACS National Meeting	2018, March 18–22	New Orleans, LA	https://www.acs.org/content/acs/en/meetings/national-meeting.html
22nd ISE Topical Meeting – Materials Engineering and Process Optimization at Electrified Solid/Liquid Interfaces	2018, April 15–18	Tokyo, Japan	http://topical22.ise-online.org/
23rd ISE Topical Meeting – Electrochemistry for Investigation of Biological Objects: from Functional Nanomaterials to Micro/Nano-Electrodes	2018, May 8-11	Vilnius, Lithuania	http://topical23.ise-online.org/
233rd ECS Spring Meeting	2018, May 13–17	Seattle, WA	http://www.electrochem.org/233
8th International Conference on Electrochemistry in Nanosciences: *Electrochemistry for Nano & Nano for Electrochemistry*	2018, May 29–31	Nancy, France	http://www.elecnano.fr

Meeting	*When*	*Where*	*Link for More Information*
17th International Conference of Electroanalysis – ESEAC2018	2018, June 3–7	Rodos, Greece	http://www.eseac2018.com/
GRC in Bioanalytical Sensors	2018, June 24–29	Newport, RI	http://www.grc.org/programs.aspx?id=13734
Electrochemistry at Nano-interfaces: Faraday Discussion	2018, June 26–28	Bath, UK	http://rsc.li/nanointerfacesfd2018
256th ACS National Meeting	2018, Aug. 19–23	Boston, MA	https://www.acs.org/content/acs/en/meetings/nationalmeetings/meetings.html
69th ISE Annual Meeting	2018, Sept. 2–7	Bologna, Italy	http://www.ise-online.org/ise-conferences/next_ISE-meetings.php
AiMES 2018	2018, Sept. 30–Oct. 4	Cancun, Mexico	http://www.electrochem.org/upcoming-meetings/
257th ACS National Meeting	2019, March 31–April 4	Orlando, FL	https://www.acs.org/content/acs/en/meetings/nationalmeetings/meetings.html
235th ECS Meeting	2019, May 26–31	Dallas, TX	http://www.electrochem.org/upcoming-meetings/
258th ACS National Meeting	2019, Aug. 25–29	San Diego, CA	https://www.acs.org/content/acs/en/meetings/nationalmeetings/meetings.html
236th ECS Meeting	2019, Oct. 13–17	Atlanta, GA	http://www.electrochem.org/upcoming-meetings/

2018 CEC Annual Workshop on Electrochemistry — Feb. 10-11, 2018

Each year, the CEC Annual Workshop on Electrochemistry brings together experts in fields of engineering, materials, and electrochemistry to focus on a few topics in important areas of electrochemical research. The Workshop features scientists and researchers from top universities, national laboratories, and electrochemical industries discussing cutting-edge electrochemical science, and addressing issues with respect to the mechanisms of electron transfer.

We anticipate two days of great speakers, in a casual atmosphere that fosters interaction between students, postdocs, faculty, representatives from industry, and national labs. The Workshop features technical presentations and posters from several different perspectives. The 2018 CEC Annual Workshop on Electrochemistry will be held February 10–11, 2018, on the University of Texas campus in Austin, Texas. The Workshop will focus on three main topic areas: *Electrochemistry for the Climate and Environment*, *Next Generation Batteries*, and *In Situ Characterization of Intermediates in Electrocatalysis*.

Registration and Workshop information **details:** Available beginning Nov. 1, 2017, at http://cec.cm.utexas.edu/electrochemistry-workshop-2018.

Posters*:* Attendees are invited to present posters at the poster session/reception scheduled for Saturday, February 10, 2018 from 5:30–8:00 pm. *To present a poster, you must first register for the Workshop. You do not need a final title for your poster until January.* We will re-confirm with you and request titles, which will need to *be finalized by noon on January 19, 2018*. You can also e-mail Stephanie Huntzis at stephanie.huntzis@cm.utexas.edu if you decide to present a poster after you have already registered.

Exhibition*:* If your company is a CEC Industrial Affiliate in good standing, there are a number of spaces available for table exhibits at the poster session. Contact Stephanie Huntzis at stephanie.huntzis@cm.utexas.edu for more information.

JOB OPENING

Postdoctoral Position in Metabolite-Based Genotoxicity Research:

Anticipated Postdoctoral Position (search began 09/02/2017, earliest appointment October, 2017). Department of Chemistry, University of Connecticut, Storrs, CT. A postdoctoral researcher with experience in electrochemistry, microfluidics, electrochemiluminescence, nanomaterials metabolism and metabolic enzymes, and mass spectrometry is sought. The successful candidate will have prior knowledge of and experience with the majority of these areas. The project involves ongoing collaboration with the University of Connecticut Health Center aimed at developing new high throughput methods of elucidating the chemical aspects of metabolite-based genotoxicity utilizing nanomaterials, DNA damage targets, and 3D printed devices. Major focuses of the project include in vitro profiling of organ-based toxicity and codon damage to p53 tumor suppressor gene. Please send your resume, list of publications, graduate GPA, and 3 letters of recommendation from professional references to Prof. James Rusling <james.rusling@uconn.edu>. For previous bioanalytical technologies developed in this project, see

- Eli G. Hvastkovs and J. F. Rusling, State-of-the-Art Metabolic Toxicity Screening and Pathway Evaluation, *Anal. Chem*. **2016,** *88*, 4584-4599. **(PMCID: PMC4862375)**
- K. Kadimisetty, S. Malla, and J. F. Rusling, Evaluating Genotoxicity of E-Cigarettes with an Automated 3-D Printed Array, Automated 3-D Printed Arrays to Evaluate Genotoxic Chemistry: E-Cigarettes and Water Samples. *ACS Sensors,* **2017**, *2*, 670–678.

HOW EASY IT IS TO BECOME A SEAC MEMBER

Any individual with an interest in electroanalytical chemistry is invited to join SEAC. Regular one-year membership dues are $30. Student dues are $10. Dues are payable on January 1 of each year. A lifetime membership option is available for $300, payable either as a lump sum or in three annual, nonrefundable installments of $100.

To become a new member of SEAC, go to http://electroanalytical.org/membership.html, fill out the downloadable membership form, and pay either by check or on-line.