



Division of Nuclear Chemistry and Technology
American Chemical Society

NUCL Webpage – <http://www.nucl-acs.org>

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NEWSLETTER

January 2020

Newsletter Editor: Andrew Klose

Email: andrew.klose@augie.edu

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FROM THE CHAIR

Tori Forbes

Happy new year! I hope that 2020 is off to a good start for everyone. With the new year, we have some changes and exciting events on the horizon for the NUCL division. First, I just want to thank Jen Shafer for her leadership over the last year. Under her guidance, the division was able to update our bylaws (which had to be approved by mail!), partner with different ACS divisions for a range of events, and invigorate our programming team. So, thank you, Jen, for the new ideas and leadership that you have brought to the division.

As part of Jen's efforts, we welcome Glenn Fugate (ORNL) as the new Executive Programming Co-Chair. Glenn will be planning recurring programming themes, developing strategies to participate in ACS Regional Meeting Programming, and identifying a MAPS secretary to aid in the administration aspects of symposium scheduling. He will also be working with our new programming sub-chairs, Tara Mastren (University of Utah) and Gian Surbella (PNNL), in the organization for the spring and fall ACS programming

They are taking over for Amy Hixon (U. Notre Dame) and John Auxier (LANL) and I want to take this chance to also thank them both for all their efforts in developing great programming for the NUCL division over the past few years. John and Amy have graciously agreed to help transition our new programming team, so our NUCL division will be in good hands over the coming year.

We have some exciting programming available for the Spring 2020 ACS meeting with seven sessions that span a range of topics, including radiotherapeutics, macromolecular actinide chemistry, computational chemistry, and the future of the periodic table. Congratulations to Sue Clark (WSU/PNNL), the Glenn T. Seaborg Awardee for 2020. There will be a special symposium session at the Spring ACS meeting in her honor, so please feel free to stop by to congratulate her and hear some great presentations on radiochemistry, interfacial science, and career development. You can refer to the additional notes in the newsletter for more details on the symposium and events for the Philadelphia meeting.

I am also happy to announce that Amy Hixon will continue to serve on our executive team under the new title of Secretary, along with reelection of Brian Powell (Clemson U.) for Treasurer and Silvia Jurisson (U. Missouri) as Councilor. I would also like to welcome Nathalie Wall (U. Florida) to the executive committee as the new Vice-Chair for the division. Thank you all for your willingness to serve and I'm grateful to the expertise that you bring to the executive committee.

I would also like to thank Lynn C. Francesconi (Hunter College) and Dave Robertson (U. Missouri) for their efforts during the leadership transition for the ACS Summer Schools in Nuclear and Radiochemistry. This program is crucial for talent development into the fields of nuclear, actinide, and radiochemistry and through their leadership

we continue to offer this opportunity to students across the country. We are grateful for the support from the Department of Energy because the ACS summer school is financially supported by both DOE BES Heavy Elements Chemistry and Nuclear Physics programs.

One of the major initiatives for the coming year will be a strategic planning process for the division. This effort has been spearheaded by the executive committee and we have received an ACS innovative planning grant (IPG) to complete the process. We feel very fortunate that an initial strategic plan was developed for the NUCL division five years ago and we thank Paul Mantica (Michigan State) and all those who participated in the first strategic plan for laying this foundation. We plan to build upon this earlier effort during the current reiteration of the strategic plan. This process is being facilitated by the ACS Leadership Development System and the initial drafting of the document will occur prior to the Spring 2020 ACS meeting. There will be multiple options for feedback from the NUCL division members on the strategic plan throughout spring and summer and we hope to have a document available for approval at the 2020 Fall ACS NUCL business meeting. So please stay tuned for opportunities to share your ideas and vision for the division over the coming year.

I'm very excited about serving as the Chair of the NUCL division for 2020 and truly want to hear from the members. If you have any interest in organizing a session or event at a spring or fall national meeting, feel free to reach out. ACS runs on volunteers, so we are always happy to explore new ideas, develop novel programming, and plan exciting events. Please feel free to contact me if you have questions or comments and I'm happy to talk further.

FROM THE PAST CHAIR

Jen Shafer

Happy new decade to everyone! Thank you for letting me serve as your chair during 2019. We made some nice accomplishments over the course of the past year. The NUCL Division now has a Media Team that contributes to the following aspects of Division communication:

Newsletter:

Andrew Klose – andrew.klose@augie.edu

Twitter/Facebook:

Angus Koeller – angus.koller@maine.edu

LinkedIn:

Deborah Penchoff – dpenchof@utk.edu

Website:

Christopher Klug - cklug@augusta.edu

Please reach out to them if you have any announcements you would like broadly disseminated. I know one thing that the division can help with is job advertisements...especially to our younger and growing membership. These are avenues that I encourage you to utilize as division members!

The modifications to our bylaws have also been finalized and approved by ACS. The division bylaws were more than fifteen years old and did not allow for electronic elections. Additionally, statements on professionalism, including that the division will not tolerate “intimidation, incivility, bullying, unfair discrimination, harassment, and other forms of disruptive behavior during division gatherings”. I have always felt very welcome at division gatherings, but this cements the expectation that such behaviors will not be tolerated as a part of division membership.

At the end of December, the ACS Board Committee on Public Affairs and Public Relations approved the nomination for “Saul Hertz and the Medical Uses of Radioiodine” National Historical Chemical Landmark. The Landmark will be a plaque in the lobby of

Massachusetts General Hospital. I collaborated with Barbara Hertz and members of the Northeastern Regional Section in this nomination. The National Historical Chemical Landmark celebrates Saul’s use of radioactive iodine for targeted thyroid cancer treatment. The first patients treated were in 1941! Some division members may want to consider historical achievements that would be appropriate for National Historical Chemical Landmark status.

As mentioned by Tori, we also have some shifts to Program Chair organization. After several years of esteemed service, Amy Hixon and John Auxier will be rotating from their spring and fall National Meeting Program Chair positions after completing their 2020 terms. Tara Mastran, University of Utah, and Gian Surbella, PNNL, will be transitioning to spring and fall National Program Chairs, respectively. During this year, they will be working with Amy and John to “learn the ropes”, so you may see emails from them regarding 2020 programming.

In addition to these programming changes, I am pleased to announce that Glenn Fugate will be the Executive Programming Co-Chair (per our bylaws, the Chair for a given year is also a Programming Chair). Glenn was the 2019 I&EC Chair and has learned much from their programming efforts. He is hoping to bring some things that he’s learned from I&EC over to NUCL. This will (hopefully) allow for us to more effectively do long-range planning. This involves evaluating and planning recurring programming themes, developing programming subcommittees, being strategic with ACS Regional Meeting Programming and identifying a MAPS secretary to deal with the administration of symposium scheduling (among other ideas he may have). Many of these things will directly help us plan for the more restrictive scheduling that will be happening in the future.

Moving forward, I am excited to announce that I have been elected to the ACS Committee on Science (ComSci) as a small technical division representative. I have a three-year term from 2020-2022. The ACS Committee on Science aims to engage the global chemistry enterprise to build a better tomorrow by identifying new frontiers of chemistry, examining the scientific basis of, and formulate public policies related to, the chemical sciences, and recognizing outstanding chemical scientists. I do not know which subcommittee I will serve on at this time (science, policy, awards or communication), but I was eligible to run for this post courtesy my position as NUCL Chair. Therefore, you have a NUCL representative on this committee. If you think there are things that ComSci can help with regarding the division (or just in general), please don't hesitate to reach out to me.

Thank you all again for letting me serve you. Best in the upcoming decade!

NATIONAL MEETING PROGRAMMING

SPRING 2020 – Philadelphia, PA

March 22 – 26, 2020

Theme: Macromolecular Chemistry: The Second Century

The 259th ACS National Meeting & Exposition will be held March 22-26, 2020 in Philadelphia, Pennsylvania. NUCL sessions will be held in the Hilton Garden Inn Philadelphia Center City. Please contact Amy E. Hixon (ahixon@nd.edu) for more information.

- **Macromolecular Actinide Chemistry**
Organizers: Peter C. Burns (pburns@nd.edu) and Ginger E. Sigmon (gsigmon@nd.edu)

- **Radiotherapeutics: From Isotope Production to Targeted Delivery**
Organizers: Rebecca Abergel (abergel@berkeley.edu), Ethan Balkin (Ethan.Balkin@science.doe.gov), and Stosh Kozimor (stosh@lanl.gov)
- **Young Investigators in Nuclear and Radiochemistry**
Organizers: Deborah Penchoff (dpenchof@utk.edu) and Justin Powers-Luhn (jpowersl@vols.utk.edu)
- **The Future of the Periodic Table**
Organizers: Charles M. Folden, III (Folden@comp.tamu.edu), Jenifer Shafer (JShafer@mines.edu), and Thomas Albrecht-Schmitt (TAlbrechtSchmitt@gmail.com)
- **General Topics in Nuclear Chemistry and Technology**
Organizer: Tori M. Forbes (tori-forbes@uiowa.edu)
- **Computational Methods for Lanthanides and Actinides**
Organizers: Deborah Penchoff (dpenchof@utk.edu) and Charles Peterson (Charles.peterson@unt.edu)
- **Seaborg Award Symposium in honor of Sue B. Clark**
Organizers: Janet Bryant (janetsbliss@hotmail.com), Amares Chatt (A.Chatt@dal.ca), Aurora Clark (auclark@wsu.edu), Nathalie Wall (nathalie.wall@ufl.edu)

FALL 2020 – San Francisco, CA
August 16-20, 2020

Theme: Chemistry from Bench to Market

The 260th ACS National Meeting & Exposition will be held August 16-20, 2020 in San Francisco, California. Abstracts for the following symposia are due April 6, 2020, and they can be submitted here: <https://callforpapers.acs.org/sanfrancisco2020/NUCL>. If you have questions, please contact John D. Auxier, II (jauxier@lanl.gov).

- **Computational Methods in Actinide Chemistry**

Organizers: Deborah Penchoff (dpenchof@utk.edu), Charles C. Peterson (Charles.Peterson@unt.edu), and Theresa L. Windus (twindus@iastate.edu)

This symposium has been well attended in the past where it seeks to find the interface between benchtop chemistry and computational chemistry to promote predictive chemical methods that can be used to jointly improve our computational methods and also provide theoretical insights into the reactions that are observed in the lab.

- **General Topics in Nuclear and Radiochemistry**

Organizer: Tori Forbes (tori-forbes@uiowa.edu)

This is an excellent symposium for all things nuclear chemistry and an excellent place for student presentations. This is one of the longest running symposia in the nuclear division and often provides the most variety. Make sure to attend.

- **Solid State Material and Nuclear Fuels**

Organizers: Sarah Finkeldei (sfinkeld@uci.edu) and Ashley Shields (shieldsae@ornl.gov)

This symposium is focused on the advancements in materials science to support nuclear fuels both on the laboratory scale but also on the large scale efforts that are current in industry. This symposium has a strong focus on the ACS National Theme: Moving Chemistry from Bench to Market.

- **Heavy Element Chemistry Relevant to Nuclear Waste Disposal**

Organizers: Thomas Albrecht-Schmitt (talbrechtschmitt@fsu.edu), David Hobart (dhobart@fsu.edu), Brian Powell (bpowell@clemson.edu), and Hans Conrad Zur Loye (zurloye@mailbox.sc.edu)

In addition to being within the theme of the meeting Moving Chemistry from Bench to Market, this symposium is organized to look into how the research from the heavy element community can be used to support an on-going scientific and technical area of nuclear waste. Very relevant to a hot button issue today, not to be missed.

- **Nuclear Forensics**

Organizers: John Auxier (jauxier@lanl.gov), Jennifer Erchinger (jerchinger@lanl.gov), and Jeffery Rolfe (Jeffery.rolfes@noblis.org)

This symposium will focus on the broad applications of nuclear forensics but with a new focus on detection with gamma-ray and neutron capabilities

and the overlap of detection by traditional and advanced counting, with detection and laboratory radioanalytical methods. Note on this symposium is that all of the organizers are graduates of the 2009 San Jose Nuclear Summer School.

- **Radioisotope Production**

Organizers: Kristian Myhre (myhreckg@ornl.gov) and Luke Sadergaski (sadergaskilr@ornl.gov)

This symposium is also in the meeting theme Moving Chemistry from Bench to Market since it not only highlights the new radioisotopes that are on the horizon for therapy, but new and improved methods for production of well-known isotopes that are regularly used in industry today. This will represent large multi-disciplinary groups from chemistry, bio-chemistry, and chemical engineering. Not to be missed.

**SPRING 2021 – San Antonio, TX
March 21-25, 2021**

Theme: Bonding Through Chemistry

The 261st ACS National Meeting & Exposition will be held March 21-25, 2021 in San Antonio, Texas. If you would like to organize a symposium for this meeting, please contact Tara Mastren (Tara.Mastren@utah.edu). The Call for Papers will be submitted in July 2020 and abstracts will be due October 2020.

NUCL DIVISION MEMBER HIGHLIGHT

Alison Tamasi, editor



*Above: Jen Shafer (left) with her wife, Whitney
Below: Jen and Whitney's daughter, Kennedy*

**Dr. Jenifer Shafer
Associate Professor
Colorado School of Mines**

Dr. Jen Shafer is such a fixture of the Nuclear Chemistry community, it almost seems strange to be introducing her. The entire division knows her either personally or by reputation as a dedicated leader, dynamic speaker, and gifted radiochemist. Jen is very proud to be an active part of a scientific community that enthusiastically supports young scientists through both mentorship and collaboration. Always ahead of the curve, Jen actually got her first taste of radiochemistry in high school, where the elements at the bottom of the periodic table, poorly understood by the layman despite their high public profile, captured her imagination. Like many of us, Dr. Shafer was a product of the Nuclear Chemistry Summer School, where Ken Czerwinski and Ken Nash introduced her to the captivating topic of transmutation and the practical considerations for the separations

chemistry that enables it, respectively. That line of inquiry followed her through her career, which led to her serendipitously landing a professorship in her home state of Colorado. This allowed her to grow a thriving research group, contribute exceptionally to the nuclear chemistry community, and still find time for CrossFit, watching the Broncos, and spending time with their three dogs. Ever the overachiever, Jen and her wife Whitney also recently brought a beautiful baby girl, Kennedy Jules, into the world (many in her research group have already asked if she could be renamed Kennedy Joules...).

NUCLEAR AND RADIOCHEMISTRY SUMMER SCHOOLS

Lynn Francesconi

We need your assistance in identifying outstanding undergraduates who might be interested in, and qualified for, the Department of Energy and American Chemical Society sponsored Nuclear and Radiochemistry Summer School Program. We are seeking curious and highly motivated students with strong science backgrounds. If selected, these students receive an all-expense paid opportunity to complete a 6 week summer course (June 15, 2020 – July 24, 2020) in Nuclear and Radiochemistry in either California or New York. They also earn hours (tuition paid) of undergraduate chemistry credit through either San Jose State University or SUNY-Stony Brook. Selected students also receive a stipend of \$4,000.

A poster / announcement for the Nuclear and Radiochemistry Summer Schools is included at the end of this Newsletter. It describes the application procedure and the background we hope applicants will have when applying.

This information and an on-line application form can also be found on the web at:

https://www.nucl-acis.org/?page_id=1731

Please ask the students to send me an email when they have filled out the on-line application so that I can track their application.

The deadline for applications is February 1, 2020. Please distribute this announcement to your undergraduate students and encourage them to consider this unique opportunity! If you or your students have any questions about the DOE and ACS sponsored program, please do not hesitate to contact me using the information below.

The Nuclear and Radiochemistry Summer Schools are funded by the DOE Office of Science.

Thanks, in advance, for your assistance.

Sincerely yours,

Lynn C. Francesconi, National Director
DOE and ACS Summer Schools in Nuclear and Radiochemistry
Professor, Department of Chemistry
Hunter College of the City University of New York
695 Park Avenue
New York, NY 10065
lfrances@hunter.cuny.edu

AWARDS NOMINATIONS COMMITTEE OF NUCL

Thomas Albrecht-Schmitt

The Awards Nominations Committee of the Division was formed to encourage and facilitate nominations for national ACS awards. Please nominate a colleague for one of the awards given below or another ACS award (<https://www.acs.org/content/acs/en/funding-and-awards/awards/national.html>).

The Awards Nominations Committee members will be approaching members to encourage nominations for ACS Fellows. The

ACS Fellows Program was created by the ACS Board of Directors in December 2008 to recognize members of ACS for outstanding achievements in and contributions to science, the profession, and the Society.

A listing of ACS Fellows who are members of the NUCL division is posted on the division website

www.nucl-acis.org/?page_id=89

Additional information on ACS Fellows Program is available at:

www.acs.org/content/acs/en/funding-and-awards/fellows.html

The nomination deadline is expected to be the first week of April 2020.

IUPAC RECOMMENDATIONS ON RADIOANALYTICAL VOCAUBULARY

IUPAC is recommending an update to the vocabulary of basic radioanalytical terms that are relevant to radioanalysis, nuclear analysis and related techniques. If interested, please review the recommendations and provide any comments you may have by March 31, 2020. The full recommendations can be found here: <https://iupac.org/recommendation/vocabulary-of-radioanalytical-methods/>

ACS DIVISION INNOVATIVE PROJECT GRANTS

The DAC Innovative Project Grant (IPG) program encourages division members to develop and implement new activities to strengthen their Divisions. All technical divisions are invited to apply for funding for up to two projects totaling up to \$12,500 per year.

For consideration in the Spring funding

cycle, the submission deadline is February 1, 2020. Funding decisions will be made at the ACS National Meeting in Philadelphia, March 22–26, 2020. In order to be considered for funding for new projects, divisions are required to submit final reports for any funded IPGs. [Complete a final report.](#)

Please note the following:

- The maximum funding per project is \$7,500; the maximum funding for two projects is \$12,500 in any calendar year.
- Divisions can submit joint applications describing inter-divisional activities for a maximum of \$12,500. If funded, funds are split evenly between partnering divisions. These joint applications require identical proposals from each partnering division.
- IPG funds may not be used for contemporaneous events within the meeting where the funding decision is made.
- A *signed* letter of support from the current chair is needed as part of the submission.
- Divisions are eligible for not more than one Strategic Planning IPG in any 5 year period. The Strategic Planning IPG is separate from the Regular IPG process and does not impact that process.

Limited funds from the Leadership Advisory Board (LAB) will be available for strategic planning retreats carried out during the 2020 calendar year. The available 2020 LAB funds are intended to supplement IPGs submitted in Fall or Spring 2020 and will be awarded in consideration of the division's financial need.

For complete IPG guidelines, please visit: www.acs.org/divisionipg

Contact Kevin McCue, Ph.D. (K_mccue@acs.org) with any questions.

Call for Papers

Symposium on Heavy Element Chemistry Relevant to Nuclear Waste Disposal

Division of Nuclear Chemistry and Technology Symposium
American Chemical Society Fall National Meeting
"Moving Chemistry from Bench to Market"
San Francisco, CA August 16-20, 2020



The deadline for abstract submission is April 6th, 2020.

The symposium will cover all aspects of heavy element chemistry relevant to nuclear waste disposal issues, including solubility; complexation; speciation; separations; waste form matrices; migration in the far-field; radiolysis effects; geochemistry; etc.

Organizers:

Thomas E. Albrecht-Schmitt (talbrechtschmitt@fsu.edu)

Hanno zur Loye (zurloye@mailbox.sc.edu)

Brian Powell (bpowell@clemson.edu)

David E. Hobart (dhobart@fsu.edu)

EARN CASH & COLLEGE CREDIT!

DOE and ACS NUCLEAR & RADIOCHEMISTRY UNDERGRADUATE SUMMER SCHOOLS

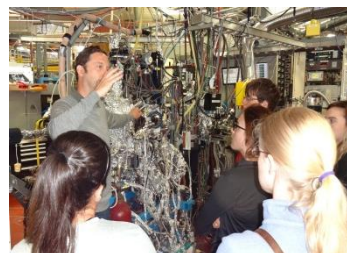


San Jose State University,
San Jose, CA

Brookhaven National
Laboratory,
Long Island, NY



June 15, 2020 through July 24, 2020



The **Office of Science** of the **US Department of Energy (DOE)** along with the **Division of Nuclear Chemistry and Technology** of the **American Chemical Society (ACS)** are sponsoring two **INTENSIVE** six-week Summer Schools in **Nuclear and Radiochemistry** for undergraduates. Funding is provided by the US Department of Energy.

AWARDS

Fellowships include a stipend of \$4000, all tuition and fees, transportation to and from the Summer School location, housing, books, and laboratory supplies. Transferable college credit will be awarded through the ACS accredited chemistry programs at San Jose State University (7 units) or the State University of New York at Stony Brook (6 units).

QUALIFICATIONS

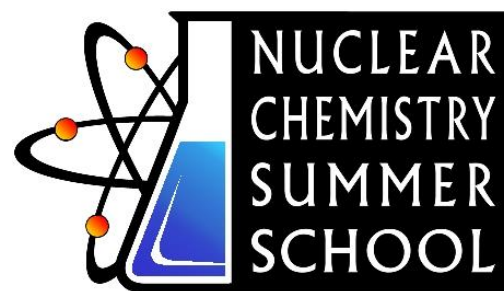
Candidates should be undergraduates with an interest in nuclear science who are presently in their sophomore or junior year of study at a US college or university. They should have completed at least two years of chemistry, one year of physics and one year of calculus. Applicants must be US citizens.

SELECTION

Completed applications must be received no later than February 1, 2020. Each Summer School is limited to 12 students. Announcement of awards will be made in early March 2020.

COURSE DESCRIPTION

The course will consist of lectures on the fundamentals of nuclear science, radiochemistry, and their applications in related fields. Laboratory work will introduce you to state-of-the-art instrumentation and technology used routinely in basic and applied nuclear science. In addition to the formal instruction, the course will include a Guest Lecture Series and tours of nearby research centers at universities and National Laboratories. Students will meet and interact with prominent research scientists from universities and the DOE national labs who are working in nuclear and radiochemistry, nuclear medicine, nuclear forensics, and related fields.



FUTURE RESEARCH OPPORTUNITIES

Participants in the 2020 Summer Schools will be encouraged to join a research project during the following summer at a university or federal research institution. Considerable personal assistance will be provided to secure summer positions and admission to PhD and MD programs at leading universities.

An "**Outstanding Student**" is selected from each summer school site. These students will be invited to attend the following spring national meeting of the American Chemical Society with all expenses paid.

For more information contact:
Prof. Lynn C. Francesconi, Director
Nuclear & Radiochemistry Summer Schools
Department of Chemistry
Hunter College of the City University of New York
New York, NY 10065

Tel: 212-772-5353 Fax: 212-772-5332
Email: lfrances@hunter.cuny.edu

On-line application forms are available at:
https://www.nucl-acs.org/?page_id=1731