

73rd Southeastern Regional ACS Meeting

CHEMISTRY TRANSCENDING BOUNDARIES FOR A SUSTAINABLE FUTURE

October 19-22, 2022

Program Book

PUERTO RICO CONVENTION CENTER, SAN JUAN, PUERTO RICO Hosted by the ACS-Puerto Rico Section



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GENERAL MEETING INFORMATION

Meeting Dates

October 19 to October 22

Meeting Hours

Wednesday, Thursday & Friday Morning 7:30 am – 12:15 pm Afternoon 1:30 -6:00 pm Saturday, October 22 7:00 – 12:00 am 1:30 – 5:00 pm

There are many activities outside this calendar. Check the Special Events Program (page 54) for the events schedules.

Registration & Badge Pickup Hours

Wednesday: 7:30 AM – 6:30 PM Thursday: 7:30 AM – 5:30 PM Friday: 7:30 AM – 5:00 PM Saturday: 7:30 AM – 2:00 PM

On-site Registration

On-site registration is located in the PRCC main lobby (first floor). The registration desk will be open the following dates and hours:

Wednesday, October 21, 7:00 AM-8:00 PM Thursday, October 22, 7:00 AM-6:30 PM Friday, October 23, 7:00 AM- 4:30 PM Saturday, October 24, 7:30 AM-12:00 M

On-site registration fees:

ACS member	\$230
AAAS member	\$230
Nonmember	\$305
Graduate Student	\$120
Undergraduate Student	\$90
K-12 Teacher	\$50
Post-Doctoral Fellow	\$160
Retired/Emeritus/Unemployed	\$70
Guest (Spouse, Relative, etc.)	\$5

Abstracts

Plenary Lectures and Workshop abstracts are available in this book.

All technical presentation abstracts are available in the SERMACS 2022 Mobile App. Use this QR-code to download the App.



Opening Ceremony

Wednesday, October 19, 5:00 – 6:30 PM, Ballroom A Kick-off SERMACS with the lecture *Future of the Chemical Sciences: The Transformative Age of Chemistry* with Dr. Angela Wilson

Break Locations and Times

Coffee Breaks will be held in the Ballrooms A/B Foyer at the following times:

Mornings: 9:30 - 11:00 am Afternoons: 3:00 - 4:30 pm

Exhibition Hour (Ballroom A/B Foyer)

Wednesday, October 19, 6:30 – 8:30 pm (Opening) Thursday, October 20, 9:30 am – 7:00 pm Friday, October 21, 8:30 am – 5:00 pm

Floor Plan of Meeting Facilities

See each Program Book Section for maps and locations.

Limitted WIFI Access

The Convention Center will offer complimentary wifi in public areas, however the speed is very limited.

Speaker Ready Room

The speaker ready room: Room 210

ACS Membership Lounge

Near Room 204 Wednesday, Thursday, 9:00 AM - 5:00 PM Friday, 9:00 AM- 4:00 PM

Shuttle Bus Service, Parking

There is no bus service for this meeting. There is ample paid parking on both sides of the Convention Center

Covid-19 Guideline

The mandatory use of a mask and the requirement of evidence of vaccination or negative test have been eliminated. (PR Order No. 2022-551), Proof of vaccination or negative test will not be required at SERMACS 2022



Dear SERMACS 2022 participants:

I welcome you to the 73rd Southeastern Regional Meeting of the American Chemical Society (SERMACS 2022) on behalf of the Puerto Rico Section and the 2022 Organizing Committee. The Puerto Rico Section is celebrating its 75th anniversary and we are very pleased and honored to serve as the SERMACS host, for the second time in its history, as part of this celebration. This will be an exciting meeting, with the theme: **"Chemistry transcending boundaries for a sustainable future"** and emphasizing the International Sustainable Development Goals. More than 30 invited symposia featuring some of the top chemists in the World, including a Nobel Laureate: Dr. David MacMillan and a number of keynote speakers including, Angela Wilson, ACS President, Victor McCrary, Vice-Chair of the National Science Board, Isiah Warner, Vice President for Strategic Initiatives at Louisiana State University, Erick Carreira, Editor in Chief of the Journal of the American Chemical Society and Laura Castillo, Chief Diversity and Inclusion Officer-National Academies of Sciences, Engineering, and Medicine. We are also honored to receive visitors representing 18 different countries. The event will also be enriched by over 1,000 technical presentations.

We are very happy to have for the first time in SERMACS, a hybrid program. Although limited to two daily symposia, it will also include all the plenary lectures and a virtual poster session for international students (i-RIPS). We have planned many other special events associated with the conference, including a Graduate School Fair in which 47 institutions will be represented, ACS on Campus, High School Teacher's Day, professional workshops, and a variety of luncheons and social events. SERMACS 2022 will continue the tradition of being an excellent opportunity to establish new collaborations and friends.

This week we are also celebrating National Chemistry Week and we will host a NCW event; "Festival de Química" in which, different student chapters from Puerto Rico, USA, and other countries will join efforts to highlight this year theme: *Fabulous Fibers: The Chemistry of Fabrics!* More than 900 6-12 grade students from around the island will visit us to conduct hands-on demonstrations to learn about the elements and their relevance in our daily life.

The AAAS-Caribbean Division will hold its 37th Annual Conference (AAAS-CD 22) titled "Puerto Rico Confronts Climate Change" jointly with SERMACS 2022 on Saturday, October 22. The plenary speaker will be Professor Erick M. Carreira, Head of the Department of Chemistry and Applied Biosciences at ETH Zürich. In addition, this year's conference will be dedicated to the Puerto Rican ecologist and engineer Dr. Carl Soderberg, former Director of the EPA Region 2 Caribbean Environmental Protection Division, and an advocate for environmental science in the Caribbean. The AAAS-CD 22 will also include two panels, one on how Puerto Rico confronts climate change, and another on sustainable energy alternatives. Additionally, and as a tradition in AAAS-CD annual conferences, the group will present the Lucy Gaspar Award for Excellence in Science Education,. We are pleased to join the AAAS-Caribbean Division in celebrating such a significant year for science!

It is my honor to announce that Dr. Linette Watkins and Dr. Pamela Leggett-Robinson are the awardees of the ACS Stanley C. Israel Regional Award for Advancing Diversity in the Chemical Sciences. Moreover, Robert W. Ayton Jr., Dr. Allan M. Ford, and Dr. Bindu Krishnan will receive the awards for Excellence in High School Teaching, Ann Nalley Volunteer Service, and Industrial Innovation, respectively. We express our gratitude to the sponsors of these awards; it is a great opportunity for us to recognize exemplary members of the Southeast Region. Please join me in recognizing them for their well-deserved honors!

Is our goal that you can also enjoy our culture and the Caribbean! With a full program as we have planned for you it is difficult to find time to explore our beautiful Island; however, I encourage you to explore it. There are many historic places, beaches and restaurants to visit. You can start exploring our cultural offers joining us at the Puerto Rican night.

We also extend our gratitude to our many sponsors and exhibitors. In particular, I would like to thank our Platinum level sponsor, Oakland Chemical, as well as our other sponsor,: and the many other Divisions and Committees of the ACS and other institutions who are Silver and Bronze Sponsors as well. I encourage you to visit our Exposition and get all the important information that they have brought to share with you.

Finally, my gratitude and respect goes out to the SERMACS 2022 Organizing Committee and ACS staffs, without any doubt the coordination of this meeting required an enormous effort in terms of time, energy and patience. The Committee members and ACS staffs have worked eagerly for years to make this meeting possible.

Wishing you all a very productive and enriching meeting!

Marid Montes

Ingrid Montes, Ph.D., Fellow ACS, Fellow IUPAC General Chair SERMACS 2022 2022 Chair of the ACS-Puerto Rico Section



SERMACS 2022 ORGANIZING COMMITTEES

Executive Committee

General Meeting Chair	Ingrid Montes
Program Chair	Néstor M. Carballeira
Co-Chairs Treasurer	Jorge L. Colón José Antonio Prieto Arthur Tinoco Jorge L. Colón.
Meeting Coordinator	Carlos Castañeda. LCC Management
ACS Meeting Planner	Brianne Blevins
Webmaster	José Antonio Prieto

SERMACS 2022 Organizing Committee

ACS Meeting Planner	Brianne Blevins
Fundraising/ Exhibit Committee	Lisa Houston, District IV Director - ACS Board of Directors Chris Bannochie, Savannah River National Labs, CarlosTollinche – INDUNIV Maria de Lourdes Rivera, CQPR
Graduate School Fair Chair	Milagros Delgado, FIU
Education Program Chair	María Oliver-Hoyo – NCSU

Undergraduate Program Chair	Brenda J. Ramos – UPR-Aguadilla
i-RIPS Program Chair	Santiago Ureña – Costa Rica, Isaac Céspedes Camacho – Costa Rica, and Carolina Guzmán Guatemala
Teachers Day Chair	Liz Díaz –UPR-Río Piedras
SEED Program Chair	Ajay Mallia
NCW-Festival Chair	Ingrid Montes
Co-organizers	Delgado, Sara – UPR, Río Piedras and all Faculty Advisors (Student Chapters / ChemClubs)
Awards Committee Chair	Mitk'El Santiago – UPR-Humacao and Local ACS
Floor Coordinator	Edmy Ferrer – Interamerican University
Public Relations Committee	Marío Alegre, / Ingrid Montes, / Néstor Carballeira, / Jorge Colón / José Prieto

SERMACS 2022 Scientific Committee

Jenny Lawler

Ajay Mallia Alec H. Christian Angel. A. Martí-Arbona Arthur D. Tinoco Asier Unciti-Broceta Ben A. García Bob Kane Brenda J. Ramos-Santana Bridgette Shannon Caleb Martin Carlos R. Cabrera Christopher D. Chouinard Cliff W. Padgett Dalice M. Piñero Cruz Daniel Cruz-Ramirez de Arellano **Daniel Rabinovich** David J. Sanabria-Rios **Douglas Masterson** Elsie I. Pares-Matos

Idalia Ramos Colón James D. Kubicki Jenny Y. Yang Jesús Velázquez Jillian L. Dempsey Jorge L. Colón Joseph Sabol José Almirall Juan C. Colberg Kelley C. Caflin Lisandro Cunci Lorena Tribe Luyi Sun Mahesh Narayan Maria Oliver-Hoyo Mario V. Ramos-Garcés Mark Pederson Verónica Bermudez Benito Will E. Lynch

Yousong Ding Marvin J. Bayro Mary Virginia Orna Md Nurunnabi Mitk-El B. Santiago-Berrios Monica Pica Paul S. Weiss Ramonita Diaz Ayala Randy M. Wadkins Renã A. S. Robinson Reni Joseph Rosalynn Quiñones Santiago Sandi-Ureña Scott R. Goode Stephen Westcott Tad Whiteside Ubaldo M. Córdova-Figueroa Verónica Bermudez Benito Will E. Lynch

H.N. Cheng

Xu Simon





SERMACS, Inc. Executive Committee

Past Chair: Chris Bannochie (Savannah River)

Chair: Brent Feske (Coastal Georgia)

Chair-Elect: Mary Engelmen (Northeast Tennessee)

Treasurer: Will Lynch (Coastal Georgia)

Secretary: Herman Holt (Western Carolina)

General Chairs:

Birmingham 2021: Tracy Hamilton (Alabama)

Puerto Rico 2022: Ingrid Montes (Puerto Rico)

Durham 2023: Katherine Glasgow (North Carolina)

For more information about the steering Committee, to read the SERMACS Bylaws, or to examine archived information about SERMACS, please visit our web site: www.sermacs.org

Meeting - Saturday, October 22, 2022 - 8:00 AM-12:00 M, Room 103 A&B

AGENDA

- 1. Introduction (ACS Staff/Board of Directors and Executive Committee) Chair of SE Region Brent Feske
- 2. Review and Acceptance of 2021 Steering Committee Minutes Secretary Herman Holt
- 3. Elections:
 - a. Nominations for Chair-Elect (2023 2025)
 - 1. Clifford Padgett
 - b. Treasurer (2023-2025)
 - 1. Will Lynch
 - c. Secretary (2023-2025)
 - 1. Chris Bannochie
 - 2. Tracy Hamilton
 - d. Nominating Committee (Call for Volunteers)
- 4. Local Section Bids for SERMACS 2027:
 - a. Coastal Georgia
- 5. Upcoming Meeting Reports:
 - a. 2023 North Carolina (Final Budget Approval) Katherine Glasgow (General Chair)
 - b. 2024 Atlanta (Preliminary Budget Approval) Ajay Mallia (General Chair)
 - c. 2025 Orlando (Joint with SWRM) Chris Chouinard (General Co-chair)
 - d. 2026 Memphis Timothy Brewster (General Co-chair)
- 6. Immediate Past Host Section Report Birmingham Tracy Hamilton
- 7. Officer Reports:
 - a. 2022 General Chair Ingrid Montes (Update on SERMACS 2022)
 - b. Chair Brent Feske (By-Law Committee: By-laws were voted and updated summer 2022)
 - c. Treasurer Will Lynch (Financial Report)



SERMACS 2022 LIST OF SPONSORS

The SERMACS 2022 Regional Meeting is made possible thanks to the support from our distinguished partners and sponsors. On behalf of the SERMACS 2022 Organizing Committee, we want to thank all the Companies, Institutions and individual that made this event possible thought their commitment, support, efforts, and hard work. We express our most sincere gratitude and hope that the successes of the meeting will bring benefits to all participants.







abbvie

ACS Chemistry for Life **ACS Office of Outreach**

Activities





Carolina Distance Learning





Keyence Corp. of America





ELEDYNE

ECHNOLOGIES



Rigaku

nanalysis

ACSDIC

Anton Paar

Nanalysis Corp

ACS Division of Inorganic

Chemistry

Anton Paar USA





Puerto Rico Science, Technology & Research Trust

PR Science Trust



TTC Analytical



Sponsor



Oxford Instruments



Science and Technology **Competency Education** (STCE) Core



ACS Committee on **Chemist with Dissabilities**



Teledyne ISCO &

Teledyne Hanson

ACS Division of History of Chemistry



Magitrek







ACS Committee on Minority Affairs



Los Alamos National Laboratory



Bruker USA

🖾 Mitel

Mitel Puerto Rico





Symposia, Panels, and Poster Sessions' Sponsors

- National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE) for the "Building Inclusive DEIR communities through societal" Symposium
- Baylor University sponsorship of (a) \$2,500 symposium Novel Strategies for Localized Drug Delivery and (b) symposium <u>Unusual Structures and Reactivity of</u> Inorganic Molecules
- **3. ACS President-Elect Judy Giordan** (neXus Regional Meeting Grant for the Sustainable Green Chemistry symposium)
- 4. ACS DIC ACS Division of Inorganic Chemistry (DIC) (for Photoinduced Processes in Macroscopic, Supramolecular and Nanoscale Inorganic Materials symposium, for The Chemistry of Solar Fuels symposium, for the Inorganic Porous and Layered Materials symposium, and for the Solving Chemical Problems with Crystallography: XRD in the Southeast symposium)
- 5. Puerto Rico Science, Technology and Research Trust sponsorship for Chemical Business: Resources and Best Practices symposium and Chemical Business Roundtable
- 6. ACS HIST for (a) La Historia de Pioneros y Descubridores en Química symposium and (b) History of Chemistry-Puerto Rico Impact on Chemistry symposium organized by Cliff Padgett
- 7. ACS ENFL ACS Energy and Fuels Division (ENFL) (for *The Chemistry of Solar Fuels* symposium and for the *Photoinduced Processes in Macroscopic, Supramolecular and Nanoscale Inorganic Materials* symposium) (Copper sponsorship)

- ACS ANYL ACS Analytical Chemistry Division (ANYL) for Analytical Chemistry programming (per symposia: (i) Mass Spectrometry: Transcending Boundaries with Innovations in Methods & Technology symposium, (ii) Forensic Chemistry symposium, (iii) X-ray Diffraction symposium, (Copper sponsorship)
- 9. ACS Committee on Environmental Improvement (CEI) for sustainability programming
- 10.ACS Committee on Minority Affairs (CMA) or four symposia: (1) Building inclusive DEIR communities through societal organizations; (2) Crossing boundaries: the resilience of women chemists Acá y Allá; (3) Project SEED Symposium; (4) Leveraging Diversity and inclusion for Educational Excellence
- **11.Nanalysis Corp.** (for the *Unusual Structure and Reactivity of Inorganic Molecules* symposium)
- 12. Joule and Chem journals (RSC) for The Chemistry of Solar Fuels symposium
- 13. ACS SCC ACS Senior Chemists Committee (SCC) for YCC and SCC panel
- **14.ACS Coastal Georgia Local Section** (for Solving Chemical Problems with Crystallography: XRD in the Southeast symposium)
- 15.ACS COLL ACS Colloid and Surface Chemistry Division (COLL) for undergraduate student poster session of the symposium of the Symposium "Surface Chemistry: Polymer Science, Self-Assembly, and Bio interfaces" organized by Rosalynn Quiñones
- 16. Elsevier for student poster competition of the Symposium on Forensic Chemistry
- **17.ACS PHYS ACS Physical Chemistry Division (PHYS)** for *The Chemistry of Solar Fuels* symposium
- **18.** *Dalton Transactions* journal (RSC) for the *Inorganic Porous* and *Layered Materials* symposium
- 19. EES Catalysis journal (RSC) -f or The Chemistry of Solar Fuels symposium
- 20. Energy & Environmental Science journal (RSC) for The Chemistry of Solar Fuels symposium
- 21. EASTMAN for The Chemistry of Solar Fuels symposium
- **22.** *Chem. Commun. journal (RSC)*_for the Unusual Structure and Reactivity of Inorganic Molecules symposium

- 23. Medicinal Chemistry, Chemical Science, Chemical Biology, and Biomaterials Science journals (RSC) for the Unusual Structure and Reactivity of Inorganic Molecules symposium
- 24. ACS CATL for The Chemistry of Solar Fuels symposium
- **25.ACS Board** Committee on Corporation Associates sponsorship for Chemical Business: Resources and Best Practices symposium and Chemical Business Roundtable

Student, Outreach and Others Sponsorship

- 1. 3M for student registrations (Gold sponsorship)
- 2. ACS Green Chemistry Institute (GCI) Pharma Roundtable for sponsoring students and \$1,000 Prof. Jeff Byers (Silver sponsorship)
- 3. ACS President Angela Wilson sponsorship (Silver sponsorship)
- 4. ACS Office of Outreach Activities (for outreach activities) ((Silver sponsorship)
- 5. Pfizer (for student registrations) (Copper sponsorship)
- 6. ACS Local Section Activities Committee (LSAC)-METT 2022 Grant for Local Section Meeting Lounge (Copper sponsorship)
- 7. Lilly del Caribe (to sponsor the Festival de Química) (Copper sponsorship
- 8. ACS Committee on Chemists with Disabilities (CWD) for sign language interpreters (Copper sponsorship
- 9. Gascó Industrial Corp.(Iron sponsorship)



SERMACS 2022 LIST OF EXHIBITORS (with Booth Number)

Wednesday, October 19, 6:30-8:30 pm (Opening), Thursday, October 20, 9:30 am - 7:00 pm, Friday, October 21, 8:30 am - 5:00 pm

SERMACS 2022 is expected to be one of the largest ACS regional meetings of chemistry professionals. Our program includes the most progressive symposia topics and scientific presentations, a number of professional and student activities, and many exhibits for you to choose from. As an attendee or exhibitor, you are sure to share a broad range of new information from state-of-the-art developments. We encourage you to visit and take advantage this important part of the meeting.





Materials Characterization Center (Booths 21 and 22) Silver Sponsor





ACS GSI Pharmaceutical Roundtable (Booths 24) Silver Sponsor

Rigaku



Carolina Distance Learning (Booth 11) Silver Sponsor



TTC Analytical (Booth 23) Copper Sponsor



Teledyne ISCO & Teledyne Hanson (Booth 5) Copper Sponsor



Rigaku (Booth 8) Copper Sponsor

Nanalysis Corp (Booth 10) Copper Sponsor



Agilent (Booth 4) Copper Sponsor



JEOL USA (Booth 7) Copper Sponso



Anton Paar USA (Booth 26) Copper Sponsor



BUCHI (Booth 14) Copper Sponsor



CCSI (Booth 3) Copper Sponsor



Bruker (Booth 27) Copper Sponsor



Magitrek (Booth 1) Copper Sponsor



Mitel Puerto Rico (Booth 30) Copper Sponsor



Oxford Instruments (Booth 9) Copper Sponsor



Science and Technology Competency Education (STCE) Core (Booth 31) Copper Sponsor



Los Alamos National Laboratory (Booth 32) Copper Sponsor





Colegio de Químicos (Booth 34)

SERMACS 2022 Exhibition Floor Plan

PRCC Third Level Foyer

Move in: Tuesday October 18, 2022; Event Days: Wed Oct 19-22, 2022; Move Out: Saturday, Oct 22





GRADUATE SCHOOL FAIR

Presiding: Milagros Delgado, Ph.D. Puerto Rico Convention Center – Ballroom B

Thursday, October 20th, 9:00 am – 5:00 pm

Friday, October 21st, 2022. 2:30 – 5:00 pm

We are pleased to invite you to visit the Graduate Program offerings at the SERMACS 2022 Graduate School Fair.

Join the many universities and students that will be participating in this event. We have many undergraduate student opportunities at SERMACS 2022 and the Graduate School Fair is one of the highlights of the meeting.

Meet the Graduate School representatives in person and explore your possible future at these prestigious instructions. For the specific table booth locations check the floor plan on the right.



1. University of Tennessee, Knoxville



The Department of Chemistry at the University of Tennessee, Knoxville offers a long-standing tradition of excellence in chemical research and education, stretching from 1947 when the department granted the university's first PhD. We offer PhD and MS degrees in analytical, inorganic, organic, physical, and polymer chemistry. PhD students may also specialize in theoretical chemistry or may pursue a degree in

chemical physics in cooperation with the Department of Physics. Our faculty members have research interests including traditional areas of chemistry as well as new interdisciplinary fields such as materials chemistry, chemistry of the life sciences, data sciences and environmental chemistry, and faculty and students engages in a number of collaborative relationships with many departments across campus. Additionally, faculty members in a variety of divisions have close ties with nearby Oak Ridge National Laboratory (ORNL), providing unique access and opportunities for our graduate students.

Webpage link: https://www.uab.edu/cas/chemistry

2. Florida State University

The Florida State University Department of Chemistry & Biochemistry is home to ~30 national and international <u>award winning</u> research active <u>faculty</u>. Our departments research spans all traditional chemistry disciplines but fosters a <u>highly collaborative</u>, cross-disciplinary environment with emphasis in the Chemistry of Health, Advanced Measurements & Analysis, and Chemistry of Energy & Materials. This combined with close ties with the <u>National High Magnetic Field</u> Laboratory, High Performance Computing Cluster, Institute of Molecular Biophysics, and more provides a scientifical rich and diverse environment to teach, learn, and pursue cutting-edge science. In addition to the 5.2-year average time to Ph.D., our graduate students benefit from full access to our X-ray, spectroscopy, NMR, and mass-spec user facilities. We pride ourselves in producing high quality graduates that are the next generation of researchers, innovators, and leaders in the scientific community.

Website: https://www.chem.fsu.edu/

3. North Carolina State University

NC STATE UNIVERSITY

Graduate students in the Department of Chemistry at NC State perform cutting-edge interdisciplinary research. Working with our 45 distinguished and award-winning faculty, graduate students develop the skills needed to excel in positions throughout the world. Our vibrant research groups work

in basic science, technology development, and interdisciplinary chemistry. More than 130 years after its creation, NC State continues to make its founding purpose a reality. Every day, our career-ready graduates and world-class faculty make the fruits of learning and discovery available to people across the state, the nation and the world.

The Chemistry graduate program has approximately 170 graduate students across four divisions of study with most students requiring five years to complete a Ph.D. degree. First year graduate students typically teach undergraduate laboratory and recitation courses, enroll in classes specific to their interests, and choose a research mentor. Research usually begins during the spring of the first year.

Website: https://chemistry.sciences.ncsu.edu/

4. Georgia Southern University



Environmental Science Ph.D.

Heightened public interest in the hazards facing the environment, as well as increasing demands placed on the environment by population growth, are spurring the need for

environmental scientists. The PhD with a major in Environmental Science is the only degree of its kind in the state of Georgia and qualifies graduates to meet the growing statewide and national demand for professionals trained in an interdisciplinary science, technology, education, and mathematics field that focuses on environmental science and sustainability. Opportunities exist across all science and mathematics disciplines for study and for research in a wide range of natural laboratories that include forests, beaches, salt marshes, rivers and more along southeast Georgia's coastal plain as well as abroad. Graduates are equipped with writing, math, presentation, technical, and essential skills that are critical for success in today's economy and are well-prepared for jobs in industry, government, non-profit, and/or educational sectors. Data from the Bureau of Labor Statistics projects that environmental science-related fields will fill more than 9,400 jobs each year until 2030.

General Program Requirements: The PhD with a major in Environmental Science is housed within the James. H. Oliver, Jr., Institute for Coastal Plain Science (ICPS). The ICPS is an interdisciplinary unit that promotes, in coordination with public and private partnerships, interdisciplinary research and education directed toward understanding the physical and biological resources occurring below the Fall Line and their sustainable use and management. The PhD requires 78 hours of course work with the program of study developed jointly between the graduate student and graduate committee. Major advisors and committee members can come from any department within the College of Science and Mathematics as long as the faculty members are affiliates within the ICPS. In addition to completing the required course work, each candidate for the PhD in Environmental Science must complete a dissertation on a subject approved by the student's doctoral committee.

External Link: https://cosm.georgiasouthern.edu/icps/environmental-science-ph-d/

Master of Science in Chemistry - Applied Physical Science Degree

Overview: Prepare to become a leader in the business aspects of science. Georgia Southern's Master of Science in Applied Physical Science (MS-APS) is a terminal professional degree that prepares you for the workplace. Gain real-world experience in applying physical science to the business, government, and nonprofit sectors. This master of applied science program deepens your understanding of the science used in your field, giving you a solid grounding in business fundamentals and communications. You can choose between a terminal non-thesis or a terminal thesis option, and select an interdisciplinary concentration area in: Environmental science; Pharmaceutical science

External Link: https://cosm.georgiasouthern.edu/degrees-programs/graduate/msaps/

5. Baylor University



Baylor University has R1 status and is located in Waco, Texas. The Chemistry and Biochemistry (CBC) department has over 20 research active faculty members and continues to grow each year. The program offers the Ph. D. degree in Organic, Biochemistry, Inorganic, Analytical, and Physical Chemistry. CBC is the largest graduate program at Baylor University with over 100

graduate students enrolled. Students receive a competitive stipend, free tuition, and subsidized health insurance. Students conduct research using state-of-the art equipment located in faculty laboratories and in various multi-user facilities within the Baylor Science Building. These are the Molecular Bioscience Center, the Mass Spectrometry Center, the Center for Microscopy and Imaging, the Center for NMR spectroscopy, and the X-ray diffraction facility. More information of our program can be found at:

Website: https://www.baylor.edu/chemistry/index.php?id=948293

6. University of Alabama - Department of Chemical and Biological Engineering

THE UNIVERSITY OF ALABAMA Chemical engineering provides students with real-world experience through laboratory classes, hands-on operation of pilot scale equipment, and research projects that result in clean energy production and medical applications. UA's chemical and biological engineering curriculum is designed to shape students into the kinds of people who understand as much as possible about their world and their roles in it, and who want to make a difference in the world today. Students graduating from this program pursue various careers, including petroleum engineers, pharmaceutical manufacturing, patent lawyers, process engineers, medical doctors, and dentists.

Link: https://che.eng.ua.edu/

7. West Virginia University



Located in the picturesque rolling hills of northern West Virginia, the West Virginia University C. Eugene Bennett Department of Chemistry is home to 27 research and teaching faculty and 90 graduate students who collectively engage in cutting edge research, difference making education, and community engagement activities. All graduate students receive guaranteed assistantships, including competitive stipends, full University tuition waivers

and health insurance, for the entirety of their doctoral training. Structured mentoring from energetic and enthusiastic faculty allows graduate students to pursue the research and scholarship that best suits their career aspirations. Students enjoy living in the family-oriented Morgantown community that is rated a top-ten college town in the United States and offers the best of city atmosphere together with a near endless variety of outdoor recreational opportunities. Please contact Prof. Brian Popp, Director of Graduate Studies (Chemistry.DGS@mail.wvu.edu) for more information about the program and details about the application. Priority review for Fall 2023 admission begins January 1st, 2023.

Website: https://www.chemistry.wvu.edu/students/graduate-students/phd-in-chemistry

8. University of Pennsylvania



The Chemistry Department at the University of Pennsylvania is located in Philadelphia, Pennsylvania. Within the department, the traditional sub-fields of biochemistry, organic, inorganic, and physical chemistry serve as a framework from which collaborative, inter-disciplinary experimental and

theoretical research is launched. Penn Chemistry offers a summer research program for undergraduates, a professional Master's Degree program, and a fully funded PhD program.

Penn Chemistry prides itself on its educational mission. A breadth of undergraduate and graduate courses involving the chemical sciences are available in the department, which also administers the University's chemistry and biochemistry majors as well as the Vagelos Scholars Program in the Molecular Life Sciences and the Vagelos Program in Energy Research. Students and researchers develop skills in laboratory practice, the analysis of findings, and in building models and understanding, while performing research in the leading frontiers of molecular science.

Website: https://www.chem.upenn.edu/

9. University of Mississippi (Ole Miss)



of Mississippi offers research opportunities **MISSISSIPPI** in astrochemistry, drug delivery, bioinorganics, energy & fuels, environmental chemistry, catalysis, nanomaterials, spectroscopy, theory & computation, and biomedical materials among other applications across the traditional fives areas of chemistry. Additionally, we anticipate opening chemistry education as an additional research area for Fall 2023. Our department is a large family with roughly 50 graduate students and 17 tenured and tenuretrack faculty. All admitted students are guaranteed full funding for five years provided that they are making good progress. Oxford, MS is a hotbed of culture and sports in a small town of 25,000 making it a true gem of a place to live. SEC athletics along with world-class arts & music complement this place recently listed by Southern Living magazine as the best food town in the south. Chemistry and culture combine at the University of Mississippi.

Website: https://chemistry.olemiss.edu/graduate-program/

10. Virginia Polytechnic University (Virginia Tech)



The Virginia Tech Department of Chemistry is a highly ranked University Exemplary Department housed in three world-class teaching, research, and instrumentation buildings. Research in the Department is innovative, collaborative, and interdisciplinary. Nearly all our research activities extend beyond conventional

boundaries, embracing engineering, biology, medicine, and agriculture. The strength of these initiatives has been recognized nationally for many years by the continual presence of special funded programs. Faculty in our department form cross-disciplinary relationships with researchers across campus, the nation, and the world. Our alumni enjoy successful academic careers, perform award-winning research, and lead companies on the cutting edge of discovery. Above all, Virginia Tech Chemistry is a family. As the saying goes, "Once a Hokie, always a Hokie."

Learn more at chem.vt.edu/graduate

11. University of Texas at Dallas



The PhD program in Chemistry and Biochemistry at the University of Texas, Dallas produces graduates trained in innovation and problem-solving in all areas of chemistry. The Department of Chemistry and Biochemistry has an interdisciplinary research program at the interface between materials science, engineering and biomedical sciences. Students receive highly interdisciplinary

training in areas spanning biochemistry, chemical biology, organic and inorganic materials chemistry, organic synthesis and analytical chemistry with state of the art infrastructure. Program Link <u>https://chemistry.utdallas.edu</u>

12. University of Central Florida



The Chemistry PhD program at University of Central Florida (UCF) provides a doctoral education on major areas of modern chemistry including Materials Chemistry, Environmental Chemistry, Forensic Science, Biochemistry and Chemistry Education. The program is built on the strengths of the Department of Chemistry and other units at UCF campus, such as the College of Optics and Photonics, Advanced Materials Processing and Analysis Center, National Center of Forensic Science, Nanoscience and Technology Center, College of Medicine, College of Engineering and Computer Science. The curriculum has

been formulated in collaboration with industrial, government, and academic scientists and represents a response to current and projected competencies needed by industry and the scientific community. The training prepares future scientists and educators for research within contemporary subjects which yield graduates that are highly competitive when entering the workforce in industry, government, and academic positions.

Website: <u>https://sciences.ucf.edu/chemistry/graduate/</u>

13. ACS Bridge Project



The ACS Bridge Program (ACS-BP) aims to increase the number of underrepresented groups, namely Black, Latinx, and Indigenous students that have Ph.D.'s in the chemical sciences. As part of a

national effort, the Inclusive Graduate Education Network (IGEN), ACS-BP is doing this by creating sustainable transition (bridge) programs and a national network of doctoral-granting institutions that provide substantial mentoring for students to successfully complete Ph.D. programs.

A FREE Application portal will open in December of every year for students who are current or former undergraduate chemistry or chemical engineering students who for various reasons do not have the necessary coursework, research experience, or guidance to successfully apply for admission and complete a chemical sciences Ph.D. program. Applications will be viewed by various vetted Sites and Partner departments that are committed to increasing diversity in the chemical sciences.

Website: www.acs.org/bridge

14. University of Southern Mississippi



The Chemistry and Biochemistry graduate program at The University of Southern Mississippi offers both MS and PhD degrees. Our faculty's research interests cover all five major subdisciplines: Analytical Chemistry, Biochemistry, Inorganic Chemistry, Organic Chemistry, and Physical Chemistry with three main research thrusts: (1) Assembly of macromolecules and proteins, (2) Asymmetric synthesis of bioactive

molecules and their applications in biochemistry, and (3) Ultra-sensitive and quantitative detection. In 2022, our highly research-active program has an annual external research expenditure of \$2.5 M, all supported by federal agencies. Our award-winning faculty include four NSF-CAREER awardees. All PhD students will be provided with full TA or RA, tuition waiver, and subsidized health insurance. Our program has a proud tradition of developing our students into quality scientists under close mentoring from faculty mentors. Hattiesburg is ~70 miles from the coast, providing an excellent spot to conduct research and enjoy plenty of indoor and outdoor activities throughout the year!

Website: https://www.usm.edu/mathematics-natural-sciences/research.php

15. The University of Alabama, Birmingham - Department of Chemistry



The Department of Chemistry at the University of Alabama at Birmingham (UAB) leads the way in providing students with both the educational and practical experiences needed to participate in exciting new scientific frontiers, including advanced materials, energy and

fuels, nanomaterials, drug discovery, sensors, biotechnology, genomics, and more. UAB is one of the world's leading teaching and research medical centers, and the Department of Chemistry maintains strong ties with the biomedical research community within the School of Medicine, which makes our program uniquely multidisciplinary.

Our Ph.D. program offers specializations in inorganic, organic, polymer, physical, analytical, bioanalytical, radiochemistry, and biophysical chemistry. Additionally, the department is home to numerous research and training opportunities alongside world-class faculty in state-of-theart facilities. Our internationally-recognized research programs provide outstanding experiences to UAB graduate students and Ph.D. researchers. Research mentors provide personalized attention to each graduate students. We invite you to explore our research labs and training opportunities.

https://77b10749.flowpaper.com/UABDepartmentofChemistryGraduateProgram/#page=1

16. University of South Carolina



The Department ofChemistryandBiochemistry attheUniversityofCarolina contains 33 faculty and 140+graduatestudentsworking in all classical divisions ofchemistryinadditionto

polymer, computational, and environmental chemical sciences. The department fosters a collaborative educational environment, training students to think independently, solve complex problems, and to use advanced research tools. Our award-winning faculty and students, nationally competitive stipends, research facilities, support staff and funding base provides students with all the elements required for their advanced study. The sunny and vibrant Columbia, SC region also provides the richly fulfilling lifestyle desired by candidates who value breadth as well as depth in their careers.

Website: https://sc.edu/study/colleges_schools/chemistry_and_biochemistry/

17. Life University



Life University (LIFE) offers leading-edge, health science, social science and business degrees in a dynamic community that empowers and inspires individuals to design lives of success and significance. LIFE instills and practices a set of values, a philosophy, a perspective toward wellness and a deeper meaning of service to humanity, which produces graduates with a Lasting Purpose not only for their chosen professions, but for the

communities they serve.

At its core, Chiropractic is a philosophy of health, a science of the nervous system and spine, and an art of helping people regain their health naturally. The Mission of the College of Chiropractic is to educate, mentor and graduate contemporary and compassionate Doctors of Chiropractic, based on a model of Vertebral Subluxation. The College establishes an environment demonstrating the expression of University core values; to embody Vitalism, nurture the standard to live an exceptional life of Integrity and be of service to the world. The combination of sciences, philosophy, practice management and real-world clinical applications in Life University's Doctor of Chiropractic program gives students an engaged curriculum that one could only describe as exceptional.

Life University – leading the vital health revolution!

Website: https://www.life.edu/academic-pages/chiropractic-program/

18. University of Connecticut (UConn)



The Department of Chemistry at the University of Connecticut (UConn) is rooted in academic rigor and innovative research collaboration, supporting students and alumni in the achievement of their academic and professional goals. UConn Chemistry is a community that values the contributions of all of our members and

the distinct backgrounds we all represent.

Our graduate students use cutting-edge facilities to advance their education and impact the world. Our faculty are leaders in the field, and are committed to student mentorship within the classroom and lab. Students engage in rigorous analytical thinking, develop technical and professional skills, and create lifelong connections.

Globally recognized, UConn Chemistry offers opportunities in all areas of synthetic, physical, and analytical chemistry within biological, polymer, organic and inorganic research. The department focuses on interdisciplinary and collaborative approaches towards finding insight to current materials, biological, and non-technological programs.

Website: https://chemistry.uconn.edu/graduate/

19. Rensselaer Polytechnic Institute

Rensselaer

The Department of Chemistry and Chemical Biology at Rensselaer Polytechnic Institute (RPI) offers graduate programs and courses that reflect the growing impact of

the chemical sciences in 21st-century science and engineering. We have a *highly interdisciplinary environment* with *excellent faculty* and *a flexible program* that can be <u>tailored</u> to a student's research interests. Our faculty are well grounded in traditional areas of chemistry, while embracing new interdisciplinary programs that transcend traditional boundaries. In recent years, we have witnessed tremendous progress in research areas related to biotechnology, nanotechnology, energy and the environment, computational science, and astrobiology. Our Department has established excellence in inorganic, analytical, biophysics, bioinorganic, bio-organic and green chemistry that complements traditional strengths in polymer, materials, biochemistry, and medicinal chemistry, and provides unique opportunities for our graduate students. All students admitted to the Ph.D. program receive a generous financial aid package, including tuition remission and a competitive annual living stipend.

Website: https://science.rpi.edu/chemistry/programs/graduate

20. Auburn University



The Department of Chemistry and Biochemistry at Auburn University, a Carnegie R1 institution, offers programs leading to master's and doctoral degrees. Graduate students choose between 21 research groups ranging from senior faculty with established reputations to younger faculty rapidly launching their careers. Cutting-edge research is carried out in the areas of biological and medicinal chemistry, synthesis methodology, catalysis, molecular recognition and detection, new material synthesis and

characterization, advanced spectroscopy, computational chemistry, renewable energy, and chemical education research. In addition to our excellent faculty, advanced instrumentation, and strong academic rankings, you will find a welcoming and supportive environment for students joining our program from all walks of life. We are passionate about helping everyone develop as an independent scientist. Your experiences at Auburn University will prepare you well for careers in industry, academia, national labs, and any others that require advanced training in science.

Website: http://www.auburn.edu/chemistry and the logo is attached.

21. University of California, Davis

DEPARTMENT OF CHEMISTRY Graduate Program in Chemistry and Chemical Biology

The Chemistry Department at the University of California at Davis has over 200 graduate students engaging in research across six areas of study: analytical. chemical biology, inorganic, organic,

physical, and chemical physics. We encourage and support graduate research that transcends traditional academic boundaries by bringing together faculty from departments across campus, including the School of Medicine, College of Engineering, College of Biological Sciences and the Genome Center. Students pursuing their Ph.D. receive a competitive salary, tuition and fees paid for, and comprehensive health insurance. All applications are also considered for merit-based fellowships with admission.

Website: https://chemistry.ucdavis.edu/graduate/prospective-students/phd-chemistry

22. The George Washington University

The Chemistry Graduate Program at the George Washington THE GEORGE University fosters active learning through an intensive, research-based WASHINGTON curriculum. Our award-winning graduate students engage in cutting-**UNIVERSITY** edge research alongside expert faculty.

 We offer a PhD program in analytical, biochemistry, inorganic, organic. WASHINGTON, DC and physical chemistries. We take pride in knowing our students perform innovative research from a variety of disciplines that span the diversity of the chemistry field.

For students desiring in-depth knowledge across a range of chemical topics, the Master of Science in Chemistry program is an attractive choice before employment or embarking on a doctoral degree.

Our Master of Science in Environmental and Green Chemistry is a unique program, designed in collaboration with the EPA, that trains the next generation of environmental experts.

Located in the heart of Washington DC, our program takes advantage of unparalleled access to a range of governmental agencies, national laboratories, institutes, and NGOs, providing a unique scientific environment and fantastic educational opportunities.

Website: https://chemistry.columbian.gwu.edu/

23. Georgia State University



The Department of Chemistry at Georgia State University (GSU) offers a Ph.D. in Chemistry, an M.S. in Chemistry, and an M.S. in Chemical Education. GSU has invested strategically over the past decade into its research infrastructure by developing innovative multi-disciplinary

centers and advanced labs, so this is an exciting time for students to join GSU at a time of continued research growth and development. GSU is also centrally located in Atlanta, Georgia, the city with the largest economy in the Southeastern US.

Application to the graduate program requires a baccalaureate degree in chemistry or an allied field, letters of recommendation, written responses to short-essay prompts, and completion of an application form. For applications from international universities, an English proficiency test (TOEFL or IELFS) may be required. Please refer to our "Frequently Asked Questions" link below for more information.

https://chemistry.gsu.edu/graduate/faqs-for-prospective-students/

To learn more about the Department of Chemistry at GSU, please follow the link below. Website: <u>https://chemistry.gsu.edu/graduate/</u>

24. University of Massachusetts, Amherst

The University of Massachusetts Amherst is located in the "Pioneer Valley" area of beautiful Western Massachusetts. UMass Amherst Chemistry has a strong and interactive group of faculty and graduate students with research expertise and focus in materials and biological chemistry, providing an ideal foundation

from which to pursue cutting-edge applications. We also offer traditional divisions in chemistry such as Analytical, Biological, Inorganic, Organic, and Physical Chemistry, and interdisciplinary graduate training programs. The department also participates in post-baccalaureate training via the NIH Postbaccalaureate Research Education Program (PREP) and the ACS Bridge program. The graduate application deadline is December 15 and the GRE exam is not required. An application fee waiver is available (request form link is included on the website). For any questions regarding the program or application, please contact Rebecca David (chemgpm@umass.edu).

Website: https://www.chem.umass.edu/graduate-students

25. University of Texas at El Paso



University of Massachusetts

Amherst

The Department of Chemistry and Biochemistry includes major research efforts in the areas of Environmental Chemistry, Biochemistry, Structural Biology, Materials Science, Nano-technology, as well as traditional areas of research of Organic Chemistry, Inorganic Chemistry, Organometallic Chemistry, Analytical Chemistry, Physical Chemistry, and Theoretical Chemistry.

Our department offers a Bachelor of Science degree in both chemistry and biochemistry that are certified by the American Chemical Society. The department also offers a Master of Science (M.S.) degree and a Doctor of Philosophy (Ph.D.) degree. These degrees are designed to be consistent with our student's professional goals. These include chemical or biochemical research in an industrial (agriculture, petroleum, pharmaceutical, plastics, etc.), academic, or national laboratory setting. Furthermore, a chemistry degree from our department will allow you to enter the exciting fields of environmental, forensics, health (clinical, dentistry, medicine, pharmacy, veterinary, etc.) and materials science studies.

Website: https://www.utep.edu/science/chemistry/academic-programs/graduate/index.html

26. Florida International University



The Doctoral of Philosophy (PhD) programs in the Department of Chemistry and Biochemistry at Florida International University equip students with the ability to design and execute research projects, critically evaluate scientific literature, write manuscripts for publication, make professional presentations, become effective teachers, and stay abreast of scientific progress in their areas of interest. Our programs include

traditional areas of chemistry as well as tracks emphasizing areas related to Forensic, Environmental, and Nuclear Chemistries and Chemical Education. The average time for PhD completion in our program is 5.3 years. Approximately 50 % of the current chemistry PhD students are supported through fellowships and/or external funding sources. The PhD is conferred on individuals in recognition of their demonstrated ability to master a specific field of knowledge and to conduct significant independent, original research.

Website https://case.fiu.edu/chemistry/

27. Rice University



Rice University offers a dynamic student life in the nation's fourth-largest city, and is ranked number 17nationally by the U.S. News & World Report in 2022. Rice Chemistry is sharply focused on promoting the highest level of achievement for each Rice doctoral student. The program is highly selective in admitting outstanding graduate students and ensures access to faculty time, instrumentation, and other resources. As a result, chemistry graduate

students develop strong publication records. The application fee for Fall 2023 is waived and the chemistry department provides a stipend and full-tuition waivers for those entering the program. Please contact gradchem@rice.edu for more information.

28. University of Puerto Rico, Río Piedras



The mission of the Chemistry Graduate Program at the University of Puerto Rico Rio Piedras is to educate and train professionals with knowledge in the fundamentals and application of chemistry. It consists of two-year MS and five-year PhD programs. The preparation of professionals in chemistry at an advanced level also seeks to develop in them the ability to identify major problems in the discipline and to design effective strategies for solving them

by encouraging good laboratory practices, interdisciplinarity and collaboration at the departmental, national, and international level. In a broader context, the mission of the Graduate Program is to prepare professionals to practice their profession with the firm intention of advancing knowledge in chemistry and bringing this knowledge to solve problems of daily life and human welfare to promote scientific, social, and economic development to improve the quality of life in Puerto Rico, the Caribbean, and the world.

Website: https://natsci.uprrp.edu/chemistry/

29. Tennessee Technological University



The Chemistry Department at Tennessee Tech University is pleased to offer the MS degree with 15 active research groups in all areas of chemistry, including environmental, computational, and forensic chemistry. Coursework in this two-year program emphasizes both breadth and depth, while the thesis experience equips graduates for careers in industry, top-ranked PhD programs, and alternative paths as well. Set in the beautiful hills and

mountains of middle Tennessee, Cookeville is a pleasant blend of college town and outdoor recreation, with easy access to major cities and Oak Ridge National Lab for collaboration. Interested students may seek more information from our website or by emailing: Chemistry@TnTech.edu.

Department website: http://www.tntech.edu/cas/chemistry

30 University of Memphis

31. Joint School of Nanoscience and Nanoengineering (NC A&T / UNC Greenboro)



The Joint School of Nanoscience and Nanoengineering (JSNN) in Greensboro, North Carolina, is a unique academic collaboration between North Carolina A&T State University and the University of North Carolina at Greensboro. It is a

graduate-only program with close to 160 graduate students and 19 faculty sharing state-of-theart facilities that include advanced microscopy, materials characterization, and analytical chemistry labs, a cleanroom for nanofabrication, a Biosafety Level 3 (BSL-3) lab, and a supercomputer cluster. Areas of expertise of our faculty range from materials and environmental science to synthetic biology, photonics, and computational chemistry.

We offer M.S. and Ph.D. degrees in both Nanoscience and Nanoengineering, and a range of Graduate Certificates.

Website: <u>https://jsnn.ncat.uncg.edu</u>

32. Scripps Research



The Skaggs Graduate School of Chemical and Biological Sciences offers a top-ten ranked doctoral program that empowers students to make high-impact discoveries at the interface of chemistry and biology. Students can earn their degree in 12 research areas that broadly capture the diversity

of scientific investigation undertaken by Scripps Research: Biochemistry, Cell Biology, Chemical Biology, Chemistry, Computational Biology/Bioinformatics, Genetics/Genomics, Immunology, Microbiology, Molecular Biology, Molecular Medicine, Neuroscience, and Structural Biology/Biophysics. Students design their own training program that span one or more of these areas, with access to courses, laboratories, resources, and expertise in all of them. The school also offers dual degree programs with Florida Atlantic University; University

of California, San Diego; and the University of Oxford. Approximately 325 doctoral students from diverse backgrounds are enrolled at two locations, La Jolla, California and Jupiter, Florida, working with more than 125 graduate faculty.

Website: https://education.scripps.edu/graduate/doctoral-program/

33. University of North Carolina, Greensboro (Department of Chemistry and Biochemistry)



The Department of Chemistry and Biochemistry at the University of North Carolina at Greensboro offers a Master of Science degree in Chemistry (with the option of a Concentration in Biochemistry) as well as a Ph.D. degree in Chemistry and Biochemistry. Students in these programs take several core courses designed to provide a fundamental understanding of the chemical and biochemical principles. In addition, each student's

background and research interests determine the remainder of their course of study. The program supports the students to perform original and creative scientific research, and both degrees require the writing and defense of a thesis/dissertation. In addition, opportunities to take part in internships with local companies are available as part of the training. Website: https://chem.uncg.edu/graduate/about-our-programs/

34. University of Rochester



ROCHESTER

The University of Rochester Department of Chemistry is a medium-sized department with internationally recognized research and close interaction between students and faculty. The department is a center for cutting-edge research, where graduate education focuses on research collaboration with faculty mentors leading to a PhD. Our department includes strong programs in the traditional areas of organic, inorganic, and physical

chemistry, as well as in interdisciplinary areas such as bioinorganic/bioorganic/biophysical chemistry, catalysis, chemical physics, nanotechnology, organometallic chemistry, and photochemistry. All PhD students in chemistry receive stipends, as well as full tuition waivers. Applications (no application fee, no GRE requirement) are requested by December 1. Our department is an ACS Bridge partner program, and we also consider applications submitted through the ACS Bridge Program portal.

Link: http://www.sas.rochester.edu/chm/graduate/index.html

35. University of Alabama, Tuscallosa - Chemistry and Biochemistry

THE UNIVERSITY OF The Department of Chemistry and Biochemistry at The University of Alabama offers a rigorous graduate program granting M.S. and Ph.D. degrees. Students acquire advanced competence first

through coursework, then through focused research with the direction of their chosen advisor. Financial support is provided through teaching and research assistantships, as well as through merit-based fellowships. The Department's 23 research-active faculty members and 90+ graduate students are housed in a modern dedicated structure (Shelby Hall, 2004) affording

students opportunities for collaboration and hands-on access to a wide range of updated instrumentation and shared facilities.

\Website: https://chemistry.ua.edu/graduate-program-overview/

36. Augusta University, Department of Chemistry and Physics



Augusta University is excited to offer a two-year, 36 credit hour, thesis based, Masters of Science Degree in Biomolecular Science. The program will provide education and training for careers in pharmaceutical, biotechnology, biomedical, and chemical industries or

for entry into doctoral research or professional degree programs. UNIVERSITY Through an innovative curriculum, students will gain interdisciplinary knowledge of the biological systems and responses to bioactive compounds at a physiological, cellular, and molecular level. With a requirement to complete a mentored research project, the program prepares students to investigate a wide range of biomedical-related topics including study of the mechanism of disease and development of new drugs. We offer two concentrations: medicinal chemistry or cell and molecular biology. The curriculum within the medicinal chemistry concentration focuses on drug development including synthesis and rational drug design. The curriculum within the cell and molecular biology track focuses on pharmacology, molecular physiology, and cancer biology.

Link to program website: https://www.augusta.edu/gradschool/ms-biomolecular.php

37. University of Buffalo, SUNY, Department of Chemistry



The graduate chemistry programs at the University at Buffalo provide a thriving educational and research environment that fosters the development of outstanding and competitive professionals that push the frontier of the chemical sciences. We offer a Ph.D. and M.S. in Chemistry, and Ph.D. and M.S. in Medicinal Chemistry.

Consisting of approx. 150 graduate students, our program is ideally sized to support state-of-the-art instrumentation and research programs while

maintaining a nurturing, supportive atmosphere for students. We maintain a highly interactive community in which to work with internationally recognized faculty scholars, staff, and peers at the cutting edge of research to impact science, technology and society.

UB is committed to recruiting and supporting a diverse cohort of graduates and provides resources to identify and apply for competitive internal and external support to augment fully funded assistantships (teaching or research-based) available to everyone on a Ph.D. track. Our alumni continue to secure fulfilling career outcomes in industry, academia, and government, including at top research universities, laboratories, and industries around the world.

Website: https://arts-sciences.buffalo.edu/chemistry.html

36. Massachusetts College of Pharmacy and Health Sciences (MCPHS)



and HEALTH SCIENCES

For nearly 200 years, Massachusetts MASSACHUSETTS COLLEGE of PHARMACY College of Pharmacy and Health Sciences (MCPHS) has been educating future healthcare leaders. Our singular focus on

healthcare and broad portfolio of undergraduate and graduate healthcare programs uniquely positions us to provide an innovative, interprofessional collaborative education that better prepares students to join the integrative team-based care models of today's healthcare system. Deep-rooted relationships with prestigious medical and research institutions in Boston's Longwood Medical Area, across New England, and around the globe enable students to gain the most effective clinical and non-clinical experiences available.

Graduate and professional programs include pharmacy, optometry, physical therapy, acupuncture, physician assistant studies, occupational therapy, public health, healthcare management, nursing, dental hygiene, diagnostic medical sonography, clinical research, and more. Website: www.mcphs.edu

39. University of North Carolina, Wilmington



The Department of Chemistry & Biochemistry at UNC Wilmington offers exciting, student-oriented programs that award Bachelor of Arts (BA), Bachelor of Science (BS, ACS Certified), and Master of Science (MS) degrees, as well as a PhD in Pharmaceutical Chemistry (expected Fall 2023). A significant portion of student training takes place in our laboratories, both those associated with courses, and those involving research in biochemistry, analytical chemistry,

pharmaceutical chemistry, marine and atmospheric science, organic and inorganic synthesis, computational and physical chemistry, and chemical education. The department is well equipped with state-of-the-art instrumentation, including 300-600 MHz NMR spectrometers and several mass spectrometers. Most undergraduate chemistry majors, and all local graduate students, carry out research under the direct supervision of our outstanding faculty. Graduates of UNCW chemistry programs may be found throughout the country in graduate programs, professional schools, and industrial positions.

Program link: https://uncw.edu/chem/

40. Emory University



The Emory University Department of Chemistry is committed to building a chemistry community based on respect and connection to enable success - excellence in research and teaching. Our graduate program has strengths in biomolecular, organic, physical experimental, and theoretical/computational chemistry. Come learn

Department of Chemistry about our PhD program and summer research opportunities!

Webpage: http://chemistry.emory.edu/apply
41. Middle Tennessee State University



Graduate students in the Chemistry Department at MTSU choose from an MS degree in Chemistry or interdisciplinary PhD degrees in Molecular Biosciences, Computational and Data Science, or Mathematics and Science Education. Teaching assistantships with stipends and a tuition waiver are available. Graduate students take advantage of the large collection of well-maintained instrumentation

and cutting-edge laboratories in a large modern building shared with the Biology Department, and research opportunities in specialty areas of organic, inorganic, analytical, physical, or biochemistry. The MS culminates in a thesis and the PhD degrees result in a dissertation, both based on original research under the with support from dedicated faculty and staff who prioritize student learning and well-being.

Our MS and PhD graduates have an excellent record of employment in industry, government labs, academia, or acceptance for further study in Ph.D. programs or postdoctoral appointments, respectively. The new Chemistry Analytics concentration of the MS in Professional Science degree is a non-thesis option that includes business coursework and an industry internship. *Details about each program are available on the website*. Website: https://mtsu.edu/chemistry/REU.php

The Chemistry Research Utilizing X-ray Methods (CRUX) NSF-REU program welcomes applicants to the annual 9-week summer research program. *The application deadline is February 21, 2023.*

42. University of Delaware



The Department of Chemistry and Biochemistry at the University of Delaware offers a diverse and innovative program that is dedicated to equipping the next generation of chemists, scientists, engineers, thinkers and educators with the tools they will need to tackle these 21st century challenges. Our graduate program in Chemistry and Biochemistry combines a

rich historic legacy with a strong commitment to education and innovation. Students at UD benefit from a highly supportive and collaborative environment that provides a wide array of cutting-edge Core Facilities, and dynamic initiatives focused on driving advancements across all areas of chemistry, biochemistry and related fields. The University of Delaware is situated less than an hour from Philadelphia, PA, and is within easy driving distance of New York City and Washington, D.C.

Website: https://www.chem.udel.edu

43. The University of South Florida - College of Engineering



The University of South Florida (USF) is a high-impact global research university designated as a "Preeminent State Research University" by the Florida Board of Governors and

classified by the Carnegie Foundation as both a Doctoral University with "Highest Research Activity" and as a "Community Engaged" institution by the Carnegie Classification of

Institutions of Higher Education. USF is ranked among the top 15 U.S. public universities and top 25 universities worldwide for granted U.S. patents according to the Intellectual Property Owners Association/NAI. Signature research areas include: advanced materials, biotechnology, drug delivery systems and drug discovery, energy & sustainability, materials and nanotechnology, and health of the oceans. USF is a national leader in conferring PhDs to Black and Hispanic students in engineering and the physical sciences. Visit our exhibit to learn about PhD opportunities in the Department of Chemical, Biological, and Materials Engineering, Department of Chemistry, and the College of Marine Science.

Link/URL: https://www.usf.edu/engineering/chbme/

44. Merck



Merck is a Pharmaceutical company working on inventing medicines for animal health and human diseases.

Link: https://www.merck.com

45. Texas A&M



Texas A&M University is located in College Station, a celebrated college town in Central Texas. The graduate program in the Department of Chemistry is one of the largest and most successful in the country, with 300+ PhD students. The 40+ research groups cover a wide variety of areas of chemistry sharing many interdisciplinary connections within the department, the university, and the international scientific community. The graduate program

in chemistry is designed to provide students with a solid grounding in the fundamentals of the broad field of chemistry, as well as rigorous training in research and communication skills. Our research endeavors are supported by world-class facilities and outstanding scientific and administrative staff. Our graduates pursue careers across the world in academia, government, and industry.

Website: https://www.chem.tamu.edu/graduate/

46. Vanderbilt



At Vanderbilt, undergraduates, graduate students, post-docs, and faculty work together and with other leading national and international scientists. We build intellectual relationships across disciplines—working with the College of Arts and Science, the School of Engineering, and the Vanderbilt University School of Medicine—with particular emphasis on chemical biology, structural

biology, molecular toxicology, materials chemistry, and nanotechnology. Website: https://www.vanderbilt.edu/chemistry/liv

47. AbbVie LTD

We're a company that takes on the toughest health challenges. But we do more than treat diseases, we aim to make a remarkable impact on people's lives. Today, our 48,000 employees around the world focus on discovering and delivering transformational medicines and products in our key therapeutic areas: immunology, oncology, neuroscience, eye care, virology, and women's health, as well as through our Allergan Aesthetics portfolio. The pursuit of scientific breakthroughs is more important than ever. It takes unwavering commitment and confidence to bring solutions from the petri dish to patients and it requires a continued investment in innovation to address the known and unknown challenges of tomorrow. Since our launch in 2013, we have invested over \$50 billion in research to discover, develop, and deliver new medicines. We care deeply for patients and customers, their families, our employees, and our communities. We strive to always do the right thing, pursuing the highest standards in quality, compliance, safety, and performance. We embrace diverse backgrounds and perspectives and treat everyone equally, with dignity and respect, allowing us all to achieve our best. Our commitment to health doesn't stop with our medicines.

For more information about AbbVie or career opportunities, please visit us at <u>www.abbvie.com</u>.

48. University of Vermont



The Department of Chemistry at the University of Vermont offers M.S. and Ph.D. graduate programs in the traditional disciplinary areas (analytical, inorganic, organic or physical chemistry). The department occupies a new state-of-the-art \$104 million STEM complex and our analytical facilities are

outstanding and include the brand new Agilent Laboratory for Chemical Analysis. Our graduate program is on the smaller size with ~45 to 50 graduate students enrolled —the size of the student body makes for close faculty-student contacts and an informal, stimulating atmosphere. Many faculty run interdisciplinary research programs and the UVM College of Medicine is a 5-minute walk from our building, which makes for easy and frequent collaborations.

Link: https://www.uvm.edu/cas/chemistry/graduate-program-overview

49. Claflin University, M. S. in Biotechnology



Our program is housed in the Biology Department where our students are engaged into the scientific world through Biology, Chemistry, Bioinformatics, and Engineering. This excellent 2-year program is evolving daily through cutting-edge research. We strive to prepare diverse graduates introducing them to modern research

methods, which invigorates biotechnological development allowing them to make contributions to the field. On ground: coursework and research, culminating with a production of a master's thesis. According to interests, backgrounds and career goals, students can choose from three parallel tracks. Online: specifically focused on the use of biotechnology to mitigate the effects of climate change. Courses can be taken synchronously (live) or watched online asynchronously.

SERMACS 2022 EVENTS FLYERS



SERMACS 2023, OCTOBER 25-28, DURHAM, NC



CLIMATE SCIENCE WORKSHOP, OCTOBER 15, 2022



YCC & PUERTO RICO LOCAL SECTION POWER HOUR, OCTOBER 19, 2022

Younger Chemists Committee Puerto Rico local section invites you to:

Power Hour with Senior Chemists Committee: Journey to Success



Christina Bodurow Ph. D. Stanford University



Victor McCrary Ph. D. National Science Board



Aniversario

ACS Local Section

Lisa Houston Petroleum Analyzer Company, LP



Christopher Bannochie Ph. D. Savannah River National Lab



Robert A. Yokley Ph. D. Senior Chemists Committee

Wednesday, October 19, 2022 2:00 pm (AST) Puerto Rico Convention Center Room 104-C



WOMEN CHEMIST DEIR LUNCHEON, OCTOBER 20, 2022





Special Keynote Address Dr. Laura Castillo-Page National Academies' Chief Diversity and Inclusion Officer

73rd Southeastern Regional ACS Meeting Women Chemists Diversity, Equity, Inclusion and Respect (DEIR) Luncheon

Thursday, October 20, 2022 12:00 – 1:30 pm Puerto Rico Convention Center, Room 208B Sponsored by ACS Women Chemists Committee & NOBCChE **Ticketed Event**





Scan & Register

FESTIVAL DE QUÍMICA, OCTOBER 21, 2022



CHEMICAL BUSINESS ROUNDTABLE



Fideicomiso para Ciencia, Tecnología e Investigación de Puerto Rico

SCHB

Involved in Chemical Business? Curious about it? Join us at SERMACS for the SCHB Chemical Business Roundtable!



FRIDAY OCTOBER 21

2:30 - 5:30 P.M.

PUERTO RICO CONVENTION CENTER - ROOM 104 B

*FEEL FREE TO ATTEND ANY PART OR ALL OF THE EVENT AS SCHEDULES PERMIT.

RSVP TO <u>XUFITS@GMAIL.COM</u> APPRECIATED BUT NOT REQUIRED.

This chemical business peer group roundtable will provide a platform to:

- 1) explore resources to help develop business models and plans
- 2) learn best practices from others
- 3) engage in peer-to-peer chemical business development
- 4) discuss the myriad of concerns, frustrations, and strategies to overcome

This event will encourage dialog and problem solving among participants with varied experience and roles in chemical business. Sponsored by ACS Division of Small Chemical Businesses (SCHB). Refreshments will be provided.

http://www.sermacs2022.org

http://www.acs-schb.org

COMMITTEE ON PROFESSIONAL TRAINING (CPT), OCTOBER 21, 2022





SERMACS 2022 GENERAL PROGRAM

SATURDAY OCTOBER 15

11:00a - 1:00p	Virtual Pre-Meeting Workshop: Climate Science (Check SERMACS 2022 webpage)	Virtual
	WEDNESDAY OCTOBER 19	
8:30a - 5:00p	Workshops	CC Rooms
8:30a - 12:05p	Concurrent Sessions AM	CC Rooms
10:00 - 10:25a	Coffee Break	Ballroom Foyer
1:30 - 3:30p	ACS on Campus Workshop: Careers in Industrial Chemistry: Identifying Your Role in the Industrial Value	209 A/B
2:00 – 4:00p	Chain YCC Power Hour with SCC: Journey to Success	104 C
1:25 - 4:30p	Concurrent Sessions PM	CC Rooms
3:15 - 3:40p	Coffee Break	Ballroom Foyer
5:00p	SERMACS 2022 Opening Ceremony Plenary Speaker 1 – Angela Wilson, Ph.D.	Ballroom A
6:30p	Exhibition Opening	Ballroom Foyer

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Ballroom B

THURSDAY OCTOBER 20

7:30 - 8:30a	Student Gathering with Merck Representatives (Continental Breakfast (only for students)	208 B
9:30a - 7:00p	Exhibition	Ballroom Foyer
9:00a - 5:00p	Graduate School Fair	CC Grounds
8:30 - 9:30a	Plenary Speaker 2 – Isaiah Warner, Ph.D.	Ballroom A
9:30 - 9:55a	Coffee Break	Ballroom Foyer
9:30a - 12:00m	ACS on Campus	209 A/B
9:30 - 9:45a	Check In	209 A/B
9:45 - 9:55a	Opening Remarks - Angela Wilson	209 A/B
9:55 - 10:45a	10 Tips for Scholarly Publishing (Erick Carreira & Monica Olvera, mod. Carlos Toro)	209 A/B
10:45 - 11:00a	Networking Break	209 A/B
11:00 - 11:45a	Concurrent Session A: ChemIDP Concurrent Session B: Library Session: ACS	209 A/B
11:45 - 11:55a	Publications & CAS ACS Resources to Grow Your Future + Closing Remarks	209 A/B
9:55a - 12:05p	Concurrent Sessions AM	PRCC
10:00a - 12:00p	Sci-Mix Poster Session II	Ballroom B
12:00 - 1:30p	DEIR/WCC Luncheon (Ticketed event)	208 B
1:15 - 4:30p	Undergraduate Oral Presentations	209 A/B
1:25 - 4:40p	Concurrent Sessions PM	PRCC

2:00 – 4:00 p	Meeting with Puerto Rico Representatives, Victor R. McCrary, Jr.	Room 209 A/B
3:00 - 5:00p	Undergraduate Poster Session I	Ballroom B
1:25 - 4:40p	Concurrent Sessions PM	PRCC
3:15 - 3:40p	Coffee Break	Ballroom Foyer
5:00p	Plenary Speaker 3- Victor R. McCrary, Jr, Ph.D.	Ballroom A
6:00p	Board Reception	Ballroom Foyer
7:00p	Puerto Rican Night (Ticketed Event)	CC Terrace
	FRIDAY OCTOBER 21	
8:30 - 11:30a	Festival de Química	PRCD Grounds
8:30a - 5:00p	K-12 Teachers and Students Day	209 C
8:30a - 5:00p	Workshops	CC Rooms
8:30a - 5:00 pm	Exhibition	Ballroom Foyer
8:30a - 12:05p	Concurrent Sessions AM	CC Rooms
10:00 - 10:25a	Coffee Break	Ballroom Foyer
12:00 - 1:30p	Awards Luncheon (Ticketed Event)	208 B
10:25-12:00a	CPT Listening Session - ACS Graft Guidelines for Undergraduate Programs	104 C
1:30 - 2:30p	Regional Leaders and Members Discussion	104 C
2:30 - 4:45p	Concurrent Sessions PM	CC Rooms
2:30 - 5:00p	Graduate School Fair	Ballroom A

3:20 - 3:45p	Coffee Break	Ballroom Foyer
3:00 - 5:00p	Sci-Mix Poster Session IV	Ballroom B
3:00 - 6:30p	ACS on Campus	209 A/B
4:55 - 5:30p	Ask Me Anything Live (Erick Carreira, David MacMillan, Monica Olvera, Kathy Canul) Erick Carreira, David MacMillan, Monica Olvera, Kathy Canul	209 A/B
5:00 - 6:00p	SERMACS 2022 Plenary Speaker 4 David MacMillan, Ph.D.	Ballroom A
6:15 - 7:15p	1 hr. reception for ACSOC attendees and speakers	209 A/B
	SATURDAY, OCTOBER 22	
8:00a - 12:00m	SERMACS' Board Meeting	208 B
8:30 - 9:30a	Plenary Speaker 5 – Erick Carreira	Ballroom A
8:30 - 9:30a	AAAs Annual Conference	Ballroom A
9:30 - 9:55a	Coffee Break	Ballroom Foyer
9:55a - 12:05p	Concurrent Sessions AM	PRCC
10:00a - 12:00p	Sci-Mix Poster Session V	Ballroom B
10:00a - 12:00p	Sci-Mix Poster Session V	Ballroom B
1:25 - 4:40p	Concurrent Sessions PM	CC Rooms
1:30 - 5:00p	AAAs Annual Conference	209 A/B
2:55 - 3:20p	Coffee Break	Ballroom Foyer



SERMACS 2022 SPECIAL EVENTS

Saturday, October 15, 2022

11:00a - 1:00p	Virtual Pre-Meeting Workshop: Climate Science (Check	Virtual
	SERMACS 2022 webpage)	

Wednesday, October 19, 2022

1:30p - 3:30p	ACS on Campus Workshop: Careers in Industrial Chemistry: Identifying Your Role in the Industrial Value Chain	209 A/B
2:00-4:00p	YCC Power Hour with SCC: Journey to Success	104 C
5:00p	SERMACS 2022 Opening Ceremony Plenary Speaker 1 – Angela Wilson	Ballroom A
6:30 - 8:3p	Exhibition Opening/	Ballroom Foyer
6:30 - 8:30p	Sci-Mix Poster Session I	Ballroom B

Thursday, October 20, 2022

7:30a -8:30a	Student Gathering with Merck Representatives (Continental Breakfast (only for students)	208 B
9:30a - 7:00p	Exhibition	Ballroom Foyer
9:00a - 5:00p	Graduate School Fair	Ballroom B

8:30a - 9:30a	Plenary Speaker 2 – Isaiah Warner	Ballroom A
9:30a - 12:00m	ACS on Campus	209 A/B
10:00a - 12:00m	Sci-Mix Poster Session II	Ballroom B
12:00m - 1:30p	DEIR/WCC Luncheon (Ticketed event)	208 B
2:00 – 4:00 p	Meeting with Puerto Rico Representatives, Victor R. McCrary, Jr.	Room 209 A/B
3:00p - 5:00p	Undergraduate Poster Session	Ballroom B
5:00p	Plenary Speaker 3 - Victor R. McCrary, Jr.	Ballroom A
6:00p	ACS Board Reception	Ballroom Foyer
7:00p	Puerto Rican Night (Ticketed Event)	CC Terrace

Friday, October 21, 2022

3:00p - 5:00p	Sci-Mix Poster Session III	Ballroom B
2:30p – 5:00p	Graduate School Fair	Ballroom B
1:30p – 2:30p	Regional Leaders and Members Discussion	104 C
12:00m - 1:30p	Awards Luncheon (Ticketed Event)	208 B
10:25-12:00a	CPT Listening Session - ACS Graft Guidelines for Undergraduate Programs	104 C
8:30a - 5:00p	Exhibition	Ballroom Foyer
8:30a - 5:00p	K-12 Teachers and Students Day	209 A/B 202 C
8:30a - 11:30a	Festival de Química	PRCC Grounds

5:00p - 6:00p	SERMACS 2022 Plenary Speaker 4 David MacMillan	Ballroom A
3:00p - 6:30p	ACS on Campus	209 A/B
Saturday, Octo	ober 22, 2022	
8:00a - 12:00p	SERMACS' Board Meeting	208 B
8:30a - 9:30a	AAAS Plenary Speaker 5 - Erick Carreira	Ballroom A
8:30 - 9:30a	AAAs Annual Conference	Ballroom A
10:00a - 12:00p	Sci-Mix Poster Session V	Ballroom B
10:00a - 12:00p	i-RIPS Live (Virtual) Poster Session	Ballroom B
1:30 - 5:00p	AAAs Annual Conference	209 A/B



Convención Anual 2022

PUERTO RICO ANTE EL CAMBIO CLIMÁTICO

22 de octubre de 2022 8:00AM - 6:00PM Centro de Convenciones de Puerto Rico Registro: https://bit.ly/3rbUeyi







The SERMACS 2022 Organizing Committee is pleased to include <u>ACS on Campus</u> as part of its program and activities. ACS on Campus is the American Chemical Society's initiative dedicated to helping students advance their education and careers. It provides resources for participants to develop professional skills and partner with schools around the world to bring leaders in chemistry, publishing, career development, research, and science communication right to your doorstep.

ACS ON CAMPUS PROGRAM

Puerto Rico Convention Center - Room 209-A/209-B.

Wednesday

8:30 - 11:30 am	Finding Yourself: Identifying a Career that Matches your Strengths and Values (<i>in Room 208 B</i>)
	Mary Engelman, ACS Career Consultant
	John Engelman, ACS Career Consultant

1:30 - 3:30 pm Careers in Industrial Chemistry: Identifying Your Role in the Industrial Value Chain (in Room 208 B) Mary Engelman, ACS Career Consultant John Engelman, ACS Career Consultant

Thursday

9:30 - 9:45 am	Check In	
9:45 - 9:55 am	Opening Remarks	

9:55 - 10:45 am	 10 Tips for Scholarly Publishing Ben Garcia, Ph.D. Associate Editor, <i>Analytical Chemistry</i> Jenny Y. Yang, Ph.D., Associate Editor, <i>Journal of the American Chemical</i> <i>Society</i> Carlos Toro, Ph.D., Senior Managing Editor, ACS Publications
10:45-11:00 am	Networking Break
Friday	
1:45 - 4:55 pm	Hangout with ACS on Campus at Sci-Mix (in Ballroom B)
6:15 - 7:15 pm	Ask Me Anything Live!
	David MacMillan, Ph.D., Nobel Laureate and James S. McDonnell Distinguished University, Professor of Chemistry, Princeton University
	Erick M. Carreira, Ph.D., Editor-in-Chief, <i>Journal of the American Chemical Society</i>
	Jenny Y. Yang, Ph.D., Associate Editor, Journal of the American Chemical

Kathleen Canul, Ph.D., ACS Publications Ombudsperson

Society



SERMACS 2022 HYBRID/VIRTUAL PROGRAM



All plenary talks + two full symposia per day + all remote poster presentations. ...from the comfort of your home, your office, or preferred coffeeshop! Full hybrid program online: www.sermacs2022.org



SERMACS 2022 HYBRID/VIRTUAL PROGRAM

Puerto Rico Convention Center Ball Room A

SATURDAY OCTOBER 18

11:00 - 1:00 Virtual Pre-Meeting Workshop:

Climate Science (Check the SERMACS 2022 webpage to register)

Dr. Bassam Z. Shakhashiri, Department of Chemistry, University of Wisconsin-Madison and Dr. Jerry Bell.

WEDNESDAY MORNING

Nanotechnology Approaches to Biology and Medicine

P. S. Weiss, Organizer, Presiding

8:30 Opening Remarks.

8:40 Nanotechnology Approaches to Biology and Medicine. P.S. Weiss

9:20 Carbohydrate-based Ionic Liquid Coated Polymer Nanoparticles for Selective Targeting of Cancer Cell. **G. Singh**, E.E. Tanner, G. Dasanayake

9:40 Targeted ligand design of N-heterocyclic carbenes for biological applications on gold surfaces. I.M. Jensen, G. Kaur, J.P.

Camden, D.M. Jenkins

10:00 Ionic Liquid-Coated Polymeric Nanoparticles for Targeted in situ Hitchhiking on Blood Components. **E.E. Tanner**

10:20 Coffee Break.

10:45 Choline carboxylic ionic liquid-based gold nanoparticles for biomedical applications. **P. Vashisth**, E.E. Tanner, C. Smith

11:05 Application of DMPO-nitrone adduct aided nano-bioassay for quantifying Particulate Matter (PM)-induced oligomerization process of Amyloid Beta proteins. **J. Bang**, J. Wei, K. Omar, R. Hawkins, D.K. Taylor, B.K. Dey

11:25 EPR Spectroscopy in Studies of Nanomaterials. **A.I. Smirnov**

11:45 Ionic liquid to invade skin barriers to improve topical drug delivery. **M. Nurunnabi**, M. Huda

WEDNESDAY AFTERNOON

The Chemistry of Solar Fuels I

J. L. Dempsey, J. Velazquez, J. Y. Yang, *Organizers* J. L. Colon, *Presiding*

1:25 Opening remarks.

1:35 The LiSA Roadmap: Routes to selective synthesis of liquid solar fuels via coupled microenvironments. **H. Atwater**

1:55 CO₂ electrochemical reduction mechanism on copper electrodes: Intrinsic kinetics and the role of mass transport. J. Jang, **C.G. Morales-Guio** **2:15** Chemical challenges facing scalable hydrogen production with alkaline membrane electrolyzers. **S.W. Boettcher**

2:35 On the mechanism of water oxidation in nickel-iron layered double hydroxides. **B.M. Hunter**

2:55 Earth-abundant electrocatalysts for the oxygen evolution reaction of water splitting using nanostructured layered inorganic materials. J.L. Colon, M. Ramos-Garcés, J. Sanchez, K. La Luz-Rivera, A. Cortés-Ortiz, V.M. Figueroa-Lozada, Y. Serrano-Rosario, Y. Wu, I. Barraza-Alvarez, D. Villagran, T.F. Jaramillo

3:15 Coffee Break.

3:40 Withdrawn

4:00 Contactless Measurement of the quasi Fermi levels in illuminated Films of BiVO4, GaP, and CuGa3Se5in Contact with Aqueous Electrolytes. **F.E. Osterloh**, K. Becker, A.C. Kundmann, S. Daemi, Y. Cheng

4:20 How the Surface Chemistry of Tungsten Oxide Influences its Activity for the Oxygen-Evolution and Chlorine-Evolution Reactions. **B.M. Bartlett**

5:00-6:00 - Plenary Lecture I. Future of the Chemical Sciences: The Transformative Age of Chemistry. Angela Wilson

THURSDAY MORNING

8:30-9:30 – Plenary Lecture II. Model Programs for Broadening Diversity and Participation in STEM. Isiah M. Warner

DEIR Symposium: Building Inclusive DEIR Communities through Societal Organizations

B. Shannon, *Organizer* R. A. Robinson, *Presiding*

9:55 Introduction.

10:05 The state of science and the need for STEM advocacy. **J. Seth**

10:45 Systematizing Change and Altruism through Ecosystems focused on Broaden Participation in STEM. **T. Williams**

11:05 What about persons with disabilities in the DEIR discussion? **M.R. Cummings**

11:25 Working from the bottom up: When the top is conflicted on DEI for LGBTQ+ individuals. **C.J. Bannochie**

11:45 Importance of affinity organizations in corporate environments for growth and retention of diverse talent. **S. Kennedy**

12:05 Professional societies: Paving pathways and empowering legacies, an IDEAL journey. **C. Grant**

THURSDAY AFTERNOON

Interdisciplinary Science for Arid Lands Energy and Water Sustainability II

V. Bermudez Benito, J. D. Kubicki, Organizers

C. R. Cabrera, Presiding

1:25 Opening Remarks.

1:35 Diversification of Water Supplies for Longterm Sustainability in El Paso. **S. Reinert**, I. Santiago

1:55 Removal of endocrine disruptors in wastewater treatment plants: a binational study along the US-Mexico border region. **W. Lee**, B. ROCHA-GUTIERRE, R. De La Torre-Roche

2:15 Nano-enabled composite materials for water treatment: adsorption, electrochemical degradation, and detection methods. **D**.

Villagran, M. Marcos, S. Yin, N. Ocuane, A. Castillo, J. Calvillo, J.L. Gardea-Torresdey

2:35 Oil spill contaminate removal by novel nanofiber-based membranes. **Z. liu**, R. Alrewaily

2:55 Phytoremediation using mangroves and iron-based nanomaterials for contaminated environments. **K. Soto-Hidalgo**

3:15 Coffee Break.

3:40 From Glow-Sticks to Sensors: Single-Electrode Electrochemical Detection for PaperBased Devices. E.M. Vidal, C. Domini, D.C. Whitehead, **C.D. Garcia**

4:00 Density Functional Theory computation of adsorption of H2O and carbon bearing species to clay mineral surfaces. **L. Tribe**

4:20 Organic-mineral interactions at the molecular level: impacts and research needs. **J.D. Kubicki**

5:00-6:00 – Plenary Lecture III. NSB Vision 2030: A Call to Action. Victor R. McCrary, Jr.

FRIDAY MORNING

Ligand and Biomolecular Contributions to Metal Bioactivity and Therapeutic Potential

A. D. Tinoco, Organizer, Presiding

8:30 Introductory Remarks.

8:40 Transport of chromium(III) by transferrin with aid from low-molecular-weight chromium-binding substance. **J.B. Vincent**

9:00 Measuring Biological Thiols: Examining Metal Effects on Glutathione Oxidation. N.L. Finch, L.A. Broughton, **J.L. Brumaghim**

9:20 Illuminating the Role of Magnesium(II) in Liver Disease. M. Brady, J. Gruskos, K.H. Chu, **D. Buccella**

9:40 Lessons learned from exploring the insulin enhancing properties of vanadium phosphatase inhibition. A.D. Tinoco, **D.C. Crans**, O.O. De Leon, J.A. Benjamin-Rivera, K. Gaur, S. Markham

10:00 Coffee Break.

10:25 Exciting anti-cancer results with cobalt(III) and copper(II) complexes: In vitro studies on a triple negative breast cancer cell line. **A. Holder**, D. Alajroush, C.B. Smith, B. Anderson, S.J. Beebe

10:45 Synthesis, structure, and applications of ferrocene-hormone conjugates in breast cancer. **E. Melendez**

11:05 Protic ruthenium anticancer compounds: Describing the role of ligand charge in both photodissociation and singlet oxygen production. **E.T. Papish**, O. Oladipupo, S. Das **11:25** Illuminating Heme Trafficking and Signaling in Health and Disease. **A.R. Reddi**

FRIDAY AFTERNOON

Symposium on Sustainable Green Chemistry III

- J. C. Colberg, Organizer
- H. Cheng, Presiding
- 2:30 Opening Remarks.

2:40 New materials and methods to address polymer sustainability. **J.N. Brantley**, A.D. Fried, N.G. Galan, B.J. Wilson

3:00 Dynamic Covalent Chemistry in Polymers for Improved 3D Printing. **R. Smaldone**

3:20 Intermission.

3:45 Simplifying the Synthesis of Conjugated Polymers with Electron-Rich Pyrrolopyrroles. **G.S. Collier**

4:05 Impact of side chain modification of donor polymer on optical and thermal properties of polymer non-fullerene blends. **B.R. Gautam**, S. Jones, Z. Kelly, S. Han, B. Kim

4:25 Sustainable Applications of Banana Skin. **L. Liu**, P. Van den Abbeele

5:00–6:00 – Plenary Lecture IV. The Development of Asymmetric Organocatalysis and Metallaphotoredox. David McMillan

SATURDAY MORNING

8:30–9:30 – Plenary Lecture V. Chemistry and Biology of Natural Products. Erick M. Carreira

10:00-12:00-i-RIPS (Remote International Poster Session)

Determination of the adsorption rate of atrazine in a passive-type atmospheric aerosol sampler in a wind tunnel. **Z. Ayala** Optimization of a method for extraction and analysis of polybrominated diphenyl ethers in passive resin adsorption samplers. **R. Ayala Guzman, I, Gavilan Garcia, E. Beristain**

Design, synthesis and biological evaluation of quinazoline derivatives as potential inhibitors of Lactate Dehydrogenase A. L. D. Chavez

Vargas

Polypyrrole-based materials as electrochemical capacitors. C. C. Moreno Gualtero

Prediction of the resistome of family of sporeforming bacteria of the gut microbiome. **B. M.** Espino Jurado

Conventional microwave-assisted Fisher esterification: An alternative for organic synthesis in laboratory courses. **A. Fabian Salinas, M. Ameri Morales**

Electronic compatibility of unnatural nucleotides in the DNA double helix. **C. Hernandez**

Periodycart: An interdisciplinary activity proposal for the teaching of Periodicity through Art. **J. Junior**

Field work, my experience in the Environmental Chemistry course in the Chemistry school at

UNAM. Z. Lopez Vega

Design of a low cost and low volume active sampler. **F. Maqueda**

Bioremediation of soil polluted with oil by Pleorutus ostreatus. **G. Marquez Portillo**

Development of time and resource diagrams for the costing of the productive process of local agroindustrial companies. **P. Martinez Guendulain**

BODIPYS molecular rotors as viscosity sensors. **I. D. Martinez Sulvaran**

Reactivity and detection methods of Gammahydroxybutyrate. **F. May Moreno**

Sustainable source of electrical energy from chemical reactions in organic matter. **P. M. Peña Resendiz**

Cheap and easy colorimetric biosensor made from curcumin: A home lab experience. **E. Perez**

Female undergraduate students leaders experience and achievements in the ACS Student Chapter, UNA. **M. Porras**

Single-step production of green butadiene over bimetallic silica-supported catalysts. **S. Silva**

Introducing green chemistry to undergraduate students: a mentoring project on green polyamide routes. **S. Silva**

Development and validation of analytical method for quantification of ethanol on a 70% alcohol base. H. J. Solis Xicara

First Central American Woman in Chemistry. **Y. Tzian**

Nanoprecipitation and characterization of PMMA and PVC nanoparticles for biological and chemical testing. **B. A. Ulate Caballero**

Optimization of an extraction method for the quantification of metribuzin, atrazine and 2,4dichlorophenol in agricultural soils and their leachates from an agricultural area of CDMX (Mexico City). **K. Valtierra**

Evangelina Villegas: Woman who developed QPM. **K. Vazquez-Cervantes**

In vitro study of the effect of Parietaria officinalis extracts obtained by different methodologies on calcium oxalate and its antibacterial activity against E. coli and S. aureus. **S. Velasguez**

Simultaneous determination of aspirin and paracetamol content in commercial tablets by UV-Vis Spectroscopy and Multiple Linear Regression Analysis. **T. Velez Puyen, S. Aphang, K. Mollo**

Portable sustainable practicals in college experimental chemical education. **K. Villalobos Morera,** S. Sandi-Urena

SATURDAY AFTERNOON

Symposium on Sustainable Green Chemistry V

J. C. Colberg, *Organizer* H. Cheng, *Presiding* **1:25** Introductory Remarks. **1:35** Development and application of selfassembled active agents to create sustainable green materials. W. Hart-Cooper, J. McManus, K. Johnson, L. Torres, **W.J. Orts**

1:55 Reversible actives: Disinfectant applications, hazard analysis and use in agriculture to prevent mastitis and heal

wounds. **W. Hart-Cooper**, J. Wilson-Welder, J. McManus, L. Torres, X. He, W.J. Orts

2:15 Fabrication of water treatment membranes using eco-friendly solvents and recycled polyethylene terephthalate. D.J. Lu, **I.C. Escobar**

2:35 Biodegradable mulch films produced from soy-filled polymer resins. K. Candlen, M. Haque, S. Martey, J. Ratto, **W. Chen**

2:55 Intermission.

3:20 Recycling polypropylene: A balance between stiffness and impact and story of compatibilizers. **H.B. Nulwala**, C. Diaz-Acosta

3:40 Sophorolipids and their component hydroxy fatty acid amide derivatives as antimicrobial compounds. **R. Ashby**, J. Msanne, H. Yosief, M. Olanya, X. Fan

4:00 Polymer Blends as a Platform for Sustainable Green Chemistry. **H. Cheng**, Z. He, K. Klasson, A. Biswas

SERMACS-2022 I-RIPS I-RIPS Inclusive - Remote International Poster Session Sponsored by the ACS International Activities Committee

through a Global Initiative Grant

Asynchronous session padlet	Synchronous What? session	27 POSTERS
VouTube	Who?	>30 STUDENT AUTHORS
	Where	from?
		/ COUNTRIES
Puerto Rico	Rest of the World When?	SATURDAY, OCTOBER 22, 2022 10:00H-12:00H EDT SYNCHRONOUS INTERACTION
Moderator Attendee	Remote Presenter 2	EVERYWHERE! POSTER DISPLAY @ MEETING VENUE IG: @sermacs.i.irips YOUTUBE: SERMACS-i-Rips



K-12 TEACHERS AND STUDENTS DAY PROGRAM

Friday, October 21, 2022

Morning, Room 209 A/B

8:00 am-11:30 am Chemistry Festival

8:00 am-3:00 pm

Exhibit: Latin Women in Science and their contributions to ODS

In this exhibit the public will know about over 50 different latin female scientists and how their research contribute to the sustainable development.

8:30 am-9:30 am

Coffee Break/ Visit Chemistry Festival Activities

10:30 am-12:00 pm

Concurrent workshops for teachers

Free Tools to Integrate into Labs and Research Process in a Classroom

Dr. Yajaira Torres, Society for Science Expansion Lead Advocate Description: This workshop will introduce participants to different free tools and apps that facilitate the data collection, documentation and analysis during laboratory and research activities. Capacity: 25 participants.

Arduino for sustainable Development

Dr. Liz Diaz and Mr. Carlos Malca Capacity : 20 teachers Description: Arduino is an 'Open-Source Embedded Development Board'- uses sensors. actuators and an integrated development environment for developing different types of projects. The workshop will help teachers learn the principles associated with Arduino hardware and software. Training emphasis is given to applied knowledge of the principles by exposing the teachers to working projects. Examples of how to integrate the technology in students' projects will be presented.

Afternoon, Room 202 C

2:30 pm-4:00 pm STEAM Education for Sustainability

Presentation of teacher's projects and activities From the classroom: STEAM teaching strategies to introduce the principles of sustainable development in the classroom. (10 minute presentations)

2:30 pm-4:00 pm

Concurrent workshops for teachers and students

Monitoring Water Quality

Coordinator: Center for the Innovation Research and Education in Environmental Nanotechlogy Description: Participants will be introduced to water quality methodologies and challenges. Different opportunities to collaborate with nonprofit organizations and activities to introduce this important topic in STEM courses will be presented. Capacity : 20 participants (teachers or students)

How to teach chemistry in a fun way when you don't have a lot of resources?

Dr. Kariluz Davila, Dr.Liz Diaz, Dr. Lorell Munoz, Prof. Uriel Rivera Description: Participants will be presented with different alternatives to introduce chemistry concepts with fun demonstrations using household materials and free digital tools including simulators and smartphone apps.

Capacity 20 teachers participants:

4:00 pm- 5:00 pm Sustainability Innovation Challenge

The videos submitted by high school students to the contest will be presented and the winners will be announced.

K-12 TEACHERS AND STUDENTS DAY FLYERS

EDUCATING FOR SUSTAINABILITY SYMPO FOR K-12 TEACHERS AND STUDENTS

GENERAL DESCRIPTION: In 2015, the United Nations approved an agenda with 17 goals and 169 targets for Sustainable Development. This agenda is a plan of action in favor of people, the planet, and prosperity. Understanding the need to empower vulnerable populations, this symposium addresses the need to include the discussion of sustainable development and the incorporation of the goals developed by the United Nations in classrooms. Topics related to sustainable development will be discussed, and teachers will have the opportunity to present their experiences and strategies for introducing the topic in their STEM courses. There will also be an opportunity for students to showcase their knowledge and interests in the topic. Attendees can ask questions and interact with a panel of scientific experts who address and work with sustainable development issues in Puerto Rico. To encourage participation and outreach, the teacher with the most innovative teaching strategies and the students who present the most complete and innovative proposals for solutions to sustainable development goals will be awarded prizes. The best presentations will be invited to submit a paper or activity to be published in a book related to sustainable education practices in chemistry.



PROGRAM OF ACTIVITIES

8:00am a 11:30am -Chemistry Festival

8:00 am - 3:00pm Exhibit: Latin Women in Science and their contributions to ODS. In this exhibit the public will know about over 50 different latin female scientists and how their research contribute to the sustainable development.

8:30dm- 9:30dm Discussion Panel: Sustainable Development: Experts in sustainable development that lead different projects and member of P.R Sustainable Development Committee will share the local and global challenges they face in their agenda to attain the sustainable development goals (ODS)

10:00am-10:25am Coffee Break/ Visit Chemistry Festival Activities

10:30am -12:00 pm Concurrent workshops for teachers

- Free Tools to Integrate into Labs and Research Process in a Classroom. Dr. Yajaira Torres, Society for Science Expansion Lead Advocate Description: This workshop will introduce participants to different free tools and apps that facilitate the data collection, documentation and analysis during laboratory and research activities. Capacity : 25 participants.
- Arduino for sustainable Development

Dr. Liz Diaz and Mr. Carlos Malca

Capacity: 20 teachers

Description: Arduino is an 'Open-Source Embedded Development Board'- uses sensors, actuators and an integrated development environment for developing different types of projects. The workshop will help teachers learn the principles associated with Arduino hardware and software. Training emphasis is given to applied knowledge of the principles by exposing the teachers to working projects. Examples of how to integrate the technology in students' projects will be presented. D2:30pm - 4:00 pm STEAM Education for Sustainability - Presentation of teacher's projects and activities - From the classroom: STEAM teaching strategies to introduce the principles of sustainable development in the classroom. (10 minute presentations)

 $2{:}30\,\text{pm}$ –4{:}00\,\text{pm} Concurrent workshops for teachers and students

Monitoring Water Quality

Coordinator: Center for the Innovation Research and Education in Environmental Nanotechlogy Description: Participants will be introduced to water quality methodologies and challenges. Different opportunities to collaborate with nonprofit organizations and activities to introduce this important topic in STEM courses will be presented. Capacity : 20 participants (teachers or students)

How to teach chemistry in a fun way when you don't have a lot of resources?

Dr. Kariluz Davila, Dr.Liz Diaz, Dr. Lorell Munoz, Prof. Uriel Rivera Description: Participants will be presented with different alternatives to introduce chemistry concepts with fun demonstrations using household materials and free digital tools including simulators and smartphone apps. Capacity 20 teachers participants:

4:00pm- 5:00pm- Sustainability Innovation Challenge: The videos submitted by high school students to the contest will be presented and the winners will be announced.

SUSTAINABILTY AND INNOVATION CHALLENGE



SUSTAINABILTY CHALLENGE

Chemistry - Science - Technology - Engineering - Math



Do you have an idea on how to use chemistry and other STEM discipline to contribute to achieve the sustainable development goal?

This is your opportunity to show your ideas or project. Submmit a 3 minute video explaining your idea or project

Registration | SERMACS 2022 - ACS SOUTHEASTERN REGIONAL MEETING

Deadline September 20, 2022 send your proposal to: sermacschallenge@gmail.com

Above the Challenge

High school students are asked to choose one of the seven sustainable development goals aligned to the ACS mission to research, imagine and design their own STEM solution to contribute to the reach these ODS, then create a video presentation to share their ideas in a fun, engaging way. Send your video to



3 GOOD HEALTH AND WELL-BEING

AFFORDABLE AND CLEAN ENERGY

DI

The contest is open to students in grades 9-12 in Puerto Rico and U.S. Both individuals and teams of up to four students are welcomed. Participating students must have an adult mentor (18 years or older).

Video must be less than 3 minutes, audible, credit your funder and have a coherent narrative. It should be a video and NOT solely a PowerPoint with narration. Be creative and feel free to incorporate video footage, stills, stock footage, animation, graphics, Zoom interviews, etc. The video mut be in mp4 format . Send your video to sermacschallenge@gmail.com

Prizes awarded for the best three projects



CLEAN WATER AND SANITATION







73rd Southeastern Regional ACS Meeting

Chemistry transcending boundaries for a sustainable future

SYMPOSIA / SESSIONS BY DATE

PUERTO RICO CONVENTION CENTER, SAN JUAN, PUERTO RICO Hosted by the ACS-Puerto Rico Section



WEDNESDAY 8:30 am - 12:05 pm Concurrent Sessions AM

Advances in Nanomaterials for Biomedical and Biomedical Applications (104-A) Analytical Chemistry - Remediation (201-A) Biochemistry I – Structure/Dynamics (202-A) Green Chemistry- Workshop (208-B) Inorganic Chemistry I – Inorganic Materials (201-B) Inorganic Porous and Layered Materials Symposium I (204) Leadership – Workshop (208-C) Nanotechnology Approaches to Biology and Medicine – Ballroom A Organic Chemistry I -Organic Reagents (202-B) Surface Chemistry: Polymer Science, Self-Assembly, and Bio-interfaces (203) Trends in Chemistry Education (208-A)

1:25 - 4:45 pm Concurrent Sessions PM

3rd Users' Meeting of the UPR's MSRC X-Ray Diffraction Facility (203) ACS Chemistry Festivals, Non-formal Chemistry Education around the World (104-B) ACS on Campus – Workshop (209-A) Analytical Chemistry - Sensors (201-A) Biochemistry II – Biosensors /Signaling (202-A) **Discovery and Production of Bioactive Marine** Natural Products (202-C) Enabling Technologies for Drug Discovery and Development (209-C) **Evaluation and Assessment in Chemical Education** (208-A) Green Chemistry- Workshop (208-B) Inorganic Chemistry II - Synthesis (201-B) Inorganic Porous and Layered Materials Symposium II (204) Leadership Workshop (208-C) Organic Chemistry II - Synthesis (202-B) Senior Chemists Committee (SCC) and Younger Chemists Committee (YCC) Panel (209-B) Sustainable Nanotechnology (104-A) The Chemistry of Solar Fuels I – Ballroom A

Sci-Mix Poster Session I (Ballroom B) – 108- 6:30 pm – 8:30 pm ACS on Campus – Workshop (209-A) Analytical Chemistry -Optical (201-A) Chemical Business Best Practices (104-B) **DEIR Symposium: Building Inclusive DEIR** Communities through Societal Organizations -Ballroom A Innovative Ways to Communicate the Value of Chemistry to the Public (104-C) Inorganic Porous and Layered Materials Symposium III (204) Interdisciplinary Science for Arid Lands Energy and Water Sustainability I (208-B) Symposium on Sustainable Green Chemistry I (208-C) The Chemistry of Solar Fuels II (208-A) Unusual Structure and Reactivity of Inorganic Molecules I (209-C) WCC Symposium: Crossing boundaries: the resilience of women chemists Acá y Allá I (209-B) XRD in the Southeast - Advances in X-Ray Crystallography in Research I (203)

Sci-Mix Poster Session II (Ballroom B) -105- 10:00 am - 12:00 pm

1:25 - 4:40 pm Concurrent Sessions PM

Biochemistry III – Drug Discovery (202-A) Frontiers in Nucleic Acids (104-B) Innovative Ways to Communicate the Value of Chemistry to the Public (202-C) Inorganic Porous and Layered Materials Symposium IV (204) Interdisciplinary Science for Arid Lands Energy and Water Sustainability II - Ballroom A La Historia de Pioneros y Descubridores en Química I (208-B) Leveraging Diversity and inclusion for Educational Excellence (208-C) Photoinduced Processes in Macroscopic, Supramolecular and Nanoscale Inorganic Materials I (201-B) Puerto Rico NSF-PREMs Symposium I (104-A) Symposium on Forensic Chemistry I (201-A) The Chemistry of Solar Fuels III (208-A) Undergraduate Oral Session I (202-B) Unusual Structure and Reactivity of Inorganic Molecules II (209-C) WCC Symposium: Crossing boundaries: the resilience of women chemists Acá y Allá II (209-B)

XRD in the Southeast - Advances in X-Ray Crystallography in Research (203)

Undergraduate Poster Session I (Ballroom B) -104-3:00 pm - 5:00 pm

FRIDAY

8:30 am - 12:05 pm Concurrent Sessions AM

ACS- Committee on Professional Training (CPT) Orientation (202-A)

High School Teachers' Day (209A + 209B + 209C classroom)

Ligand and Biomolecular Contributions to Metal Bioactivity and Therapeutic Potential – Ballroom A Mass Spectrometry: Transcending Boundaries with Innovations in Methods & Technology (204) Novel strategies for Localized Drug Delivery I (104-B)

Organic Chemistry III – Physical Organic (202-B) Photoinduced Processes in Macroscopic, Supramolecular and Nanoscale Inorganic Materials II (201-B)

Puerto Rico NSF-PREMs Symposium II (104-A) Symposium on Forensic Chemistry (201-A) Symposium on Sustainable Green Chemistry II (208-C)

Technology and its Different Paths into the Chemistry Classroom (202-C) The Chemistry of Solar Fuels IV (208-A) XRD in the Southeast - Advances in X-Ray Crystallography in Research III (203)

2:30 - 4:45 pm Concurrent Sessions PM

ACS on Campus- Workshop (209-A) Chemical Business Round Table (104-B) High School Teachers' day (209B + 209C classroom) History of Chemistry - Puerto Rico's Impact on Chemistry (202-B)

La Historia de Pioneros y Descubridores en Química II (208-C)

Mass Spectrometry: Transcending Boundaries with Innovations in Methods & Technology (204) Novel Strategies for Localized Drug Delivery II (202-A)

Photoinduced Processes in Macroscopic, Supramolecular and Nanoscale Inorganic Materials III (201-B) Project SEED Symposium I (203) Puerto Rico NSF-PREMs Symposium III (104-A) Symposium on Sustainable Green Chemistry III -Ballroom A The Chemistry of Solar Fuels V (208-A)

Sci-Mix Poster Session III (Ballroom B) -108- 3:00 pm - 5:00 pm

SATURDAY

9:55 am - 12:05 pm Concurrent Sessions AM

AAAS Symposium – Ballroom A Analytical Chemistry – Mass Spectrometry (201-A) Inorganic Chemistry III – CO₂ Catalysis (201-B) Leadership – Workshop (203) Organic Chemistry IV – Chemical Biology (202-C) Physical Chemistry I (204) Symposium on Sustainable Green Chemistry IV (208-C) Undergraduate Oral Session II (202-B)

Sci-Mix Poster Session IV (Ballroom B) -135 - 10:00 am - 12:00 pm

1:25 - 4:40 pm Concurrent Sessions PM

AAAS Session (209-A/B) Analytical Chemistry – Spectroscopy (201-A) Biochemistry IV – Enzyme Activity/Kinetics (202-A) Inorganic Chemistry IV - Catalysis (201-B) Leadership – Workshop (208-C) Organic Chemistry V - Catalysis (202-C) Physical Chemistry II (203) Project SEED Symposium II (204) Symposium on Sustainable Green Chemistry V -Ballroom A Undergraduate Oral Session III (202-B)



73rd Southeastern Regional ACS Meeting

Chemistry transcending boundaries for a sustainable future

PLENARY LECTURES & SYMPOSIA (with Abstracts & Dates)

PUERTO RICO CONVENTION CENTER, SAN JUAN, PUERTO RICO Hosted by the ACS-Puerto Rico Section





SERMACS 2022 PLENARY LECTURES

NOBEL LAUREATE LECTURE

David W. C. MacMillan, Ph.D., McDonnell Distinguished University Professor of Chemistry at Princeton University, Merck Center for Catalysis, Princeton University, Princeton, NJ 08544

Friday, Oct. 20, 5:00 pm, Ballroom A



The Development of Asymmetric Organocatalysis and Metallaphotoredox

This lecture will first discuss the advent of organocatalysis in my laboratory. As part of this overview, we will highlight why organic catalysts have become widely explored in modern synthetic chemistry

This lecture will also discuss the application of visible light photocatalysis to the discovery or invention of transformations that will be conceptually or synthetically valuable (and sometimes hopefully both). We will describe why a healthy balance of reaction discovery and mechanistic understanding has been important to the development of a field of research that is now being widely adopted in both industrial and academic settings. In particular, we will discuss the application of photocatalysis to the development of new metallaphotoredox reactions involving copper, a development that we hope will have an impact on the discovery of new biologically relevant molecules.
PLENARY SPEAKERS

Future of the Chemical Sciences: The Transformative Age of Chemistry

Angela K. Wilson, Ph.D. 2022 President, American Chemical Society

Wednesday, Oct. 19, 5:00p, Ballroom A



Throughout history, periods of time have been marked by human progress – the Iron Age, the Bronze Age, the Industrial Age, and, in more modern times, the Information Age. For chemistry, several periods have been referred to as the "Golden Age" - the golden age of alchemy (~1300-1700), the Golden Age of Science and Technology (~780-1248 CE), the Golden Age of Science (~1950's), Gold Age of Chemistry (~1920's-1960's), and numerous references to the Golden Age of Chemistry. Looking into the next decades, we are ushering in a new age - the Transformative Age of Chemistry -with vital global challenges that must be addressed worldwide. Challenges such as the growing need for food, water, and energy; increasing scarcity of vital elements; melting of the polar ice caps; addressing sustainable processes and products; and so many more, call for chemical solutions. The American Chemical Society provides critical linkages and resources that

enable us to meet the challenges of the present and future, providing scientific resources, development of our future workforce, global engagement, and encouragement of budding scientists to ultimately improve people's lives through the transforming power of chemistry.

Model Programs for Broadening Diversity and Participation in STEM

Isiah M. Warner, Ph.D.Office of Strategic Initiatives, Louisiana State University, Baton Rouge, LA

Thursday, Oct. 20, 8:30a, Ballroom A

In the United States, less than half of the students who enter into science, technology, engineering, and



mathematics (STEM) undergraduate curricula as freshmen will graduate with a STEM degree. For under-represented groups, that number is considerably less. An increased need for innovative initiatives that promote undergraduate retention and achievement within STEM The exists. Louisiana Science, Technology, Engineering, and Mathematics (LA-STEM) Research Scholars Program at Louisiana State University has developed a premier model for increasing persistence and achievement within the STEM disciplines. For more than a decade, LA-STEM has holistically provided quality mentoring, effective learning strategies, unique undergraduate research opportunities, leadership and professional development, and intensive graduate school preparation to a diverse population of STEM undergraduates. Program success has included an 89% overall graduation rate in STEM, considerable national award/fellowship recognition, high matriculation of students into post-graduate programs, as well as notable reduction in the achievement gap between underrepresented and female participants in comparison to majority males. At the graduate level, the Department of Chemistry at Louisiana State University has developed a model program for retaining under-represented students at the doctoral level. The undergraduate and graduate programs will be discussed in this talk

NSB Vision 2030: A Call to Action

Victor R. McCrary, Ph.D. Vice President for Research, Professor of Chemistry, Office of University Research, The University of the District of Columbia and Vice-Chair National Science Board

Thursday, Oct. 20, 5:00p, Ballroom A



In May 2020, the National Science Board published Vision 2030, which articulates a roadmap for the Nation to follow to maintain its position as a global innovator over the next decade. This includes investments and advocacy for defining the benefits of research to our society, expanding the geography of innovation in our country, fostering a global community in science and technology, and most importantly the development of STEM talent. Over the past two years, the urgency has increased concerning the economic and national security of the United States in terms of global competitors and our ability to maintain our competitive posture as we face a 'Sputnik II' moment in our history. This presentation will describe the challenges we face, the elements of Vision 2030 which can help

restore our science and technology leadership, and the importance of developing a diverse, domestic STEM talent base as the country's top priority.

Chemistry and Biology of Natural Products

Erick M. Carreira, Ph.D.

Head of Department of Chemistry and Applied Biosciences at ETH Zürich

Saturday, Oct. 22, 8:30a, Ballroom A



The lecture will include discussion and analysis of recent natural product targets that have been synthesized in the group. It will focus on target-oriented synthesis as a driver for the generation of novel bioactive agents, methods and approaches. The methods involve novel and unexpected reactivity as well as unusual building blocks that are fully integrated to produce efficient synthetic pathways.

SPECIAL EVENT



Meeting with Puerto Rico Representatives

*Victor R. McCrary, Jr., Ph.D.,*Vice President for Research, Professor of Chemistry, Office of University Research, The University of the District of Columbia and Vice-Chair National Science Board

Thursday, Oct. 20, 2:00 - 4:00 pm, Room 209 A/B

Main Topics: Challenges

The U.S. is at an inflection point in science and engineering. We face multiple, significant challenges.

Because countries around the world, especially China, are investing in science and engineering, the US is less dominant on important measures of scientific and engineering performance. These include patenting and publications. The US global share of investment in research and development and its global share of knowledge and technology intensive services are also declining. However, the U.S. still leads in both of these areas.

We're not doing nearly enough to develop our domestic STEM talent. US science and mathematics test scores are weak compared to America's main peer countries and our math scores have been stagnant for years. We also have significant and long-standing disparities in K-12 STEM education by race, by socio-economic status, and by region. And in higher education, cost is a barrier for many Americans.

While the U.S. needs to do more to develop domestic STEM talent, we also need to attract international STEM talent that has long been critical to U.S. S&E leadership.

To recap: we must address these challenges. Developing Diverse domestic STEM talent, and attracting the best and brightest from abroad, and keeping U.S. leadership on key measures of S&E performance are not "nice-to-haves." They are essential to our future prosperity, our health, and our national security.

Opportunities

Despite these challenges, we have great opportunities to strengthen U.S. science and engineering. STEM is a driver of our economy. STEM jobs represent a growing share of all jobs; 23% of all jobs nationwide are STEM jobs. These jobs are key to individual prosperity and opportunity; they offer better pay and job security relative to other jobs available at similar educational levels and are more recession-proof. And more than half of the 35 million STEM jobs nationwide do not require a bachelor's degree. How are we developing the Skilled Technical Workforce?

States play a vital role in our S&E enterprise. They are engines of education, workforce development, and economic growth. All 50 states shape and contribute to our nation's strength in S&E. Each state has unique S&E assets and expertise. Some states have a high proportion of skilled technical workers, people without bachelor's degrees who work in STEM jobs. Other states have a high proportion of workers with S&E degrees at the bachelor's level or above. Across the country, higher education institutions receive a substantial amount of federal R&D funding for research and developing the STEM workforce. Some states have high rates of patenting. And many states have combinations of all these features.

SERMACS 2022 SYMPOSIA



Forensic Science

Symposium on Forensic Chemistry (I and II)

Organizer: Jose Almirall, Florida International University (FIU)

(I) Thursday, Oct. 20, 1:25 – 4:20p, Room 201 A, and (II) Friday, Oct. 21, 8:30a – 12:20p, Room 201 A

This symposium will focus on new developments in forensic and analytical chemistry innovations that address current challenges in forensic chemistry practice. The presentations will highlight novel research findings, the importance of the establishment of the Organization of Scientific Area Committees (OSAC) and the impact of standardization on the practice of forensic chemistry. Other presentations will include research funded by the National Science Foundation-funded Center for Advanced Research in Forensic Science, the only Industry University Cooperative Center (IUCRC) devoted to forensic science. Several topic areas within forensic chemistry will be highlighted including drug analysis, toxicology, materials characterization and the use of chemometrics for interpreting data for use in court.

Surface Chemistry

Surface Chemistry: Polymer Science, Self-assembly, and Biointerfaces (I and II)

Organizers: Rosalynn Quiñones, Associate Professor, Marshall University

(I) Wednesday, Oct. 19, 8:30a -12:05p, Room 203 A, and (II) Thursday, Oct. 20, 8:30a -12:20p, Room TBA

This symposium will focus the importance and the function of colloid and surface science in conjunction with polymer, self-assembly techniques, and formation of interface for biological functions. Surface, interface, and polymer sciences are research areas that encourage global and multidisciplinary collaborations by encouraging scientific discussions. Research is moving towards the relationship of surface modification with the addition of engineering of polymers, and the dynamic interactions between surfaces and the surfaces of biological components relevant for medical, pharmaceutical fields.

Sustainability and Green Chemistry

Symposium on Sustainable Green Chemistry (I, II, III, IV, V)

Organizer: H. N. Cheng, 2021 ACS President and USDA Agricultural Research Service (ARS), and J. C. Colberg, Pharmaceutical Sciences Small Molecules, WRDM, Pfizer Inc.

(I) Wednesday, Oct. 19, 2:30 – 4:55p, Room TBA; (II) Thursday, Oct. 20, 9:55a – 12:25p, Room 208-C; (III) Friday, Oct. 21, 8:30a – 12:25p, Room 208-C; (IV) Saturday, Oct. 22, 9:55a – 12:55p, Room 208-C; (V) Saturday, Oct. 22, 1:25 – 5:00p, Ballroom A

Sustainable Green Chemistry is a valuable platform for the reduction of energy, materials, waste, and hazards on the bench and in industry. The purpose of this SERMACS 2022 symposium is to gather leading researchers, practitioners, and company representatives together to present their data, share their experiences, and discuss new products or processes relating to sustainability and green chemistry. A particular emphasis will be placed on applications in pharmaceutical chemistry and biobased materials. It is hoped that this forum can provide a good source for useful information as well as a good opportunity for networking and collaboration. The symposium will consist of invited and contributed talks. Each speaker will be given 30 minutes, including a short Q/A section.

Sustainable Nanotechnology

Co-Organizers: Rigoberto Hernández (Johns Hopkins), Christy L. Haynes (University of Minnesota) and Sara E. Mason (University of Iowa)

Wednesday, Oct. 19, 2:25 - 4:40p, Room 104-A

With the ever increasing use of engineered nanoparticles (ENPs) to address grand challenges in energy, water, agriculture, and human health, it becomes imperative to ensure that ENPs are benign and sustainable. The characterization and prediction of ENP properties and functions at multiple space and time scales has emerged from synergistic application of computational and experimental tools. Chemical expertise is particularly critical to understand the molecular drivers of interactions between ENPs and biological or ecological systems. Speakers in this session will present the latest advances in this area, providing broad perspectives on innovation in the development and applications of ENPs that are also sustainable while considering the long-term legacy of sustainable nanotechnology.

We would like to support early-career scientists and students. We would also like to include coffee and such during the session and information on pricing would be helpful. We are also interested in staging a subsidized banquet. We have estimated our budget to be about \$12K, and will be seeking support from several sources.

The Chemistry of Solar Fuels (I, II, III, IV & V)

Co-organized by Dr. Jenny Yang (UC-Irvine), Dr. Jorge L. Colón (UPR-Río Piedras), Dr. Jillian Dempsey (UNC-Chapel Hill), and Dr. Jesús Velázquez (UC-Davis). Duration: 2.5 days

(I) Wednesday, Oct. 19, 1:25 – 4:40p, Ball Room A; (II) Thursday, Oct. 20, 9:55a – 12:55p, Room 208 A; (III) Thursday, Oct. 20, 1:25 – 4:40p, Room 208 A; (IV) Friday, Oct. 21, 8:30a – 12:20p, Room 208 A; (V) Friday, Oct. 21, 1:25 – 3:40p, Room 208 A

The conversion of solar energy into chemical fuel is one of the "Holy Grails" of 21st Century Chemistry. *The Chemistry of Solar Fuels* symposium will cover the most-current fundamental research and contributions being made to solve the energy and climate crisis tapping solar energy as a sustainable energy source. Chemistry is providing innovation through creative, new ideas to improve our life and secure a clean and sustainable future through solar energy. The symposium will consist of five sessions on (a) heterogeneous catalysis, (b) molecular catalysis, (c) light-induced water splitting, CO₂ reduction and N₂ reduction, (d) membranes and electrolytes, (e) DFT/Machine Learning. Topics to be covered include the latest research on artificial photosynthesis, multielectron catalysis, hydrogen production, oxygen-evolving catalysts, carbon-dioxide reduction, and photoelectrochemical cells.

Interdisciplinary Science for Arid Lands Energy and Water Sustainability (I and II)

Co-Organizers: Verónica Bermúdez (QATAR Environment and Energy Research Institute (QEERI)), Carlos R. Cabrera (University of Texas at El Paso (UTEP)), James Kubicki (UTEP), Jenney Lawler (QEERI), and Mark Pederson (UTEP)

(I) Thursday, Oct. 20, 9:55a - 12:25p, Room 208 B; (II) Thursday, Oct. 20, 1:25 - 4:40p, Room 202 A

Various regions in the world, including the Southwestern US and Qatar, features over 300 days of full sunlight per year and most of its water comes from aquifers or seawater. This symposium will focus on the research and technology being developed to achieve energy and water sustainability in these arid lands. The symposium will be divided in four sessions: (1) Solar Energy Nanomaterials for Arid Lands, (2) Biosensors for Environmental Water Monitoring, (3) Wastewater Remediation, and (4) modeling of quantum processes. The symposium will promote the exchange of ideas on the development of new robust and reliable systems for solar energy applications, biosensing devices, water remediation, and computational applications designed to work under the high temperature and low humidity conditions found in arid lands. Speakers in this session will present the latest advances in these research areas for energy and water sustainability. The participants will provide broad perspectives on innovation and applications of novel technology.

Industrial Chemistry

Enabling Technologies for Drug Discovery and Development

Organizer: Alec H. Christian, Discovery Chemistry, Merck Research Laboratories, Boston, MA

Wednesday, Oct. 19, 1:25 – 4:40p, Room 209 C

This symposium will cover new modalities, approaches, and methods that help progress the discovery and development of novel therapeutics. Areas of focus will include experimental and computational

approaches that aid in drug discovery and development. Potential topics may include but are not limited to synthetic methodology towards medicinally-relevant scaffolds, novel lead and target-identification platforms, and structure-based drug design.

Diversity, Equity, Inclusion and Respect

Project SEED Symposium

Organizers: Ajay Mallia (<u>amallia@ggc.edu</u>), Douglas Masterson (<u>douglas.masterson@usm.edu</u>)- Half day (preferably on Saturday)

(I) Friday, Oct. 21, 2:30 – 4:45p, Room 203 and (II) Saturday, Oct. 22, 1:25 – 4:20p, Room 204

Starting from 1968, ACS Project SEED helped more than 11,000 high school students to participate in a summer research program at academia, industry, or government institutions. This symposium will showcase presentations from project SEED coordinators, mentors, and committee members about successfully planning and organizing the SEED program. This symposium will also highlight the research poster presentations of Project SEED HS students.

Poster session organizers: Ajay Mallia, Georgia Gwinnett College (<u>amallia@ggc.edu</u>) and Douglas Masterson, The University of Southern Mississippi (<u>douglas.masterson@usm.edu</u>) Date to be announced

ACS Chemistry Festivals, non-formal chemistry education around the world

Organizer: Santiago Sandi-Ureña, PhD, School of Chemistry, University of Costa Rica, <u>www.santiagosandi-urena.com</u>

Wednesday, Oct. 19, 1:25 – 5:00p, Room 104 B

The *"Festival de Química"* founded in Puerto Rico in 2005 by Dr. Ingrid Montes has spread to Latin America, Africa, Asia, Middle East, and Europe. Since 2010 it is an official ACS Program, and since 2015 it has reached more than 3,000 volunteers and over 45,000 attendees in multiple cities in 33 countries, and through more than 80 ACS grants. The program's Festival Training Institute, FTI, has assembled a solid network of volunteers that promotes global sustainability. The ACS Chemistry Festivals support community engagement through a purposefully designed, non-formal learning environment. The festivals celebrate the role of chemistry in daily life through safe, hands-on activities accessible for the general public. This symposium will combine talks by Festival organizers describing the design of their activities and events, and their rationale and assessment. Student organizers' participants will find a space to collaboratively develop skills to improve their festival iterations (fundraising, event planning, design, implementation and assessment, etc.). Presenters and participants are invited to partake in a local Festival celebrated during SERMACS.

DEIR Symposium: Building inclusive DEIR communities through societal organizations

Organizers: Renã AS Robinson (NOBCChE, Vanderbilt University) and Bridgette Shannon (NOBCChE, 3M)

Thursday, Oct. 20, 9:55a – 12:25p, Ball Room A

Building truly inclusive communities within an organization (academic, government, industrial, privatesector, non-profit) requires both top-down and grass roots efforts. Agendas of organizational leadership inform how diversity, equity, inclusion and respect are valued and prioritized. However, whether these values are translated throughout the organization and embedded into the daily culture of the organizational constituents is also reliant on grass roots efforts that come from the bottom up. This symposium will provide several examples of how inclusive DEIR communities have been established through various organizations and importantly share best practices that can be considered by others. Additionally, the symposium will highlight challenges that still remain and prevent organizations from fully realizing inclusive DEIR communities. To close out the session a roundtable discussion will be facilitated.

WCC Symposium: Crossing Boundaries: the Resilience of Women Chemists Acá y Allá (I and II)

Organizer: Lorena Tribe, Penn State Berks, ACS WCC, lut1@psu.edu and Co-Organizer: Kelley Caflin, ACS WCC, caflinacs@yahoo.com

(I) Thursday, Oct. 20, 9:55a – 12:05p, Room 104 C; (II) Thursday, Oct. 20, 1:25 – 4:20p, Room 104 C

This symposium is to discuss the challenges and issues germane to women in the chemical enterprise, with a focus on colleagues' experiences in Latin America and in the United States. This a follow-up to a successful symposium at the Atlanta ACS meeting, where we found that common experiences transcended geographical locations and cultural differences during the pandemic. Some presentations could resonate with attendees' professional experiences and provide context for them, fostering a sense of community that exists beyond borders and language barriers. Highlighting unperceived or unresolved challenges in our communities is also a goal of this symposium, as is providing a space for interaction and development of networks.

WCC and the ACS Puerto Rico Local Section invites you to the **Power House with Senior Chemist Committee Panel** on Wednesday, October 19, 2022 at 2:00 pm in Room 104-C.

Leveraging Diversity and Inclusion for Educational Excellence

Organizers: Ben Garcia, Washington University, email: <u>bagarcia@wustl.edu</u>, Reni Joseph, St Louis Community College, email rjoseph15@stlcc.edu

Thursday, Oct. 20, 1:25 - 4:20p, Room 208 C

The symposium titled 'Leveraging Diversity and Inclusion for Educational Excellence' will discuss important topics related to diversity and inclusion through keynote speakers, panel discussions, and dialogues. Participants gather for facilitated discussions on critical issues affecting higher education, such as retention of underrepresented students, student success for marginalized students, and unconscious bias.

Sponsor: Committee on Minority Affairs/ American Chemical Society Duration: Half-day symposium

History of Chemistry

La Historia de Pioneros y Descubridores en Química (I and II)

Organizers: Mary Virginia Orna, ChemSource, Inc., 1338 North Avenue, New Rochelle, NY 10804, Phone: (914) 310-0351, email: maryvirginiaorna@gmail.com; mvorna@protonmail.com; Daniel Rabinovich (Joint School of Nanoscience and Nanoengineering, 2907 E. Gate City Blvd, Greensboro, NC 27401, Phone: (336) 285-2800, email: Dan.Rabinovich@uncg.edu).

(I) Thursday, Oct. 20, 2:05 – 4:40p, Room 202 C and (II) Friday, Oct. 21, 2:30 – 5:05p, Room 208 C

The theme of the 2022 Southeastern Regional Meeting of the ACS (SERMACS 2022) is "Chemistry Transcending Boundaries for a Sustainable Future." The projected **half-day symposium**, **La Historia de Pioneros y Descubridores en Química**, will focus on: (a) discoveries of elements (platinum, tungsten and vanadium), (b) nanotechnology prior to 500 CE, and (c) Nobel prizewinning work in the Hispanic world that transcended cultural boundaries and continue to contribute to the sustainability of research today.

History of chemistry – Puerto Rico's impact on chemistry.

Organizers: Cliff Padgett, Georgia Southern University, Tad Whiteside, Savannah River

Friday, Oct. 21, 2:30 – 5:05p, Room 202 B

National Laboratory. This symposium will highlight contributions to chemistry with ties to Puerto Rico. The symposium will focus on discoveries made in Puerto Rico and how Puerto Rican scientists have influenced the world. Topics of interest may include: *Discoveries in the Medical and pharmaceutical industries, stemming from the diverse botanical and marine environments of the island * Aerospace and Astrochemistry focusing on contributions from Arecibo * Contributions to Agriculture and Biochemistry, notably the sugarcane industry which extends back to the 15th century.*Studies of Geochemistry and other Earth systems, locally and with NASA.

Current Trends in Inorganic Chemistry

XRD in the Southeast - Advances in x-ray crystallography in research

Organizer: Will Lynch and Cliff Padgett, Georgia Southern University; Dalice Pinero Cruz (UPR RP)

Thursday, Oct. 20, 9:55a – 12:05p, Room 203

This symposium will highlight the use of x-ray diffraction in the southeast region to evaluate inorganic materials, organic compounds and biomolecules. XRD plays a vital role in structure elucidation for scientists in all areas of chemistry from solid state to biochemistry. Topics of interest will include the use of crystallography to further the understanding of complex structures and the role they play in chemical and biochemical processes.

Ligand and biomolecular contributions to metal-based therapeutics

Organizer: Arthur Tinoco (UPR-RP)

Friday, Oct. 21, 8:30 - 11:45a, Ball Room A

Metals exist in all facets of the composition of the human body. While not all metals are essential for our survival, many have shown very important biological activity that can be quite useful in maintaining our health and in treating and diagnosing disease. In recent decades, there has been much work toward elucidating the mechanisms by which metals are regulated to exhibit important roles and in developing metal compounds as therapeutic drugs for a wide range of clinical applications including anticancer, antidiabetes, antibiotic, amongst others. This expansive body of work reveals that metal ions do not operate alone in the body. Their bioavailability and bioactivity are directly related to their coordination chemistry as influenced by the heterogeneity of the physiological environment. This symposium will reveal the utility of biomolecular coordination of metals and of the ligands of therapeutic metal compounds in enabling and finetuning the functionality of the metal ions and identify key physiological interactions that attenuate metal toxicity and maximize their benefit.

Inorganic Porous and Layered Materials Symposium

Organizers: **Dr. Luyi Sun** (U. Connecticut), **Dr. Jorge L. Colón** (UPR-Río Piedras), **Dr. Mario V. Ramos-Garcés** (Penn State), **Dr. Monica Pica** (U. Pirugia, Italy)

Wednesday, Oct. 19, 8:30a -12:05p, Room 204

The symposium will consist of two sessions that will include the chemistry of nanosized layered inorganic compounds, the nanostructure and heterogeneity of materials, functional inorganic layered materials, layered organic–inorganic hybrid materials, novel layered copper–lithium phosphonates, bioinspired catalysts, inorganic solid-state chemistry, industrially significant catalysts and catalytic properties, multifunctional nanostructured materials, high performance functional materials for nanotechnology, biotechnology and micro/nano-electronics, and metal organic frameworks.

Photoinduced Processes in Macroscopic, Supramolecular and Nanoscale Inorganic Materials (I, II & III)

Organizer: Angel Martí (Rice University)

(I) Thursday, Oct. 20, 1:25 – 4:20p, Room 201 B; (II) Friday, Oct. 21, 8:30 – 11:55a, Room 201 B and (II) Friday, Oct. 21, 2:30 – 4:25p, Room 201 B

This symposium will highlight research from a variety of photophysical and photochemical processes in inorganic materials. Inorganic materials will be broadly defined as nanomaterials, such as metal nanoparticles, semiconductors, nanotubes, and sheets; soft matter such as inorganic surfactants and liquid crystals; and supramolecular materials such as MOFs, zeolites, clays and layered materials. The study of photoactive organic and inorganic molecules encapsulated, adsorbed or associated with inorganic materials is also of interest for this symposium. We anticipate topics related to sensing, solar fuels, energy transfer, electron transfer, photochemical transformations, photodynamic therapy, quantum dots, and photoluminescent materials, among others.

Unusual Structure and Reactivity of Inorganic Molecules (I and II)

Organizers: Caleb Martin (Baylor University) and Stephen Westcott (Mount Allison University)

Thursday, Oct. 20, 9:55a - 12:05p, Room 209 C & (II) Thursday, Oct. 20, 1:25 - 4:40p, Room 209 C

The symposium will be focused on unique molecules which do not conform to traditional bonding theories. These span transition metals and the main group elements. Areas that will be of focus include aromatic and anti-aromatic heterocycles, unusual element-element bonds, and molecules that oppose their typical energetic minima. Encompassed in this realm is their electronic properties and reactivity.

3rd Users' Meeting of the UPR's MSRC X-Ray Diffraction Facility

Organizer: Dalice Pinero Cruz (UPR RP)

Wednesday, Oct. 19, 1:25 – 5:00p, Room 203

The symposium will highlight crystallographic data and published results obtained from students and researchers absorbed as users of the University of Puerto Rico's Molecular Sciences Research Center Single Crystal X-ray Diffraction Facility. For the occasion, we will have various activities of interest to the local crystallography community. Graduate and undergraduate students, as well as research staff, will be the main presenters. There will also be a presentation on new technological advances on single crystal and powder XRD by our current instrument service provider. With this half a day symposium I aim to attract the attention of participants from the Southeast region and local pharmaceutical and biotech industires attending the conference to request services and instrument time to achieve sustainability and economical growth of the UPR's MSRC Single Crystal X-ray Diffraction Facility.

This is a separate symposium is a separate symposium from the one on X-ray Diffraction since it will be highlighting the work of our students and researchers, and they will be the main presenters.

Nanotechnology Nanosciences, Health and Well-Being

Puerto Rico NSF-PREMs Symposium (I and II)

Co-organized by Dr. Idalia Ramos (UPR-Humacao), Dr. Jorge L. Colón (UPR-Río Piedras), and Dr. Ubaldo Córdova (UPR-Mayagüez).

(I) Thursday, Oct. 20, 1:25 – 4:20p, Room 104 A and (II) Friday, Oct. 21, 8:30 – 11:25a, Room 104 A

The National Science Foundation Partnerships for Research and Education in Materials (NSF-PREM) program's purpose is developing the next generation of materials researchers by enhancing diversity in materials research and education. PREM achieves this goal by stimulating the development of formal, long-term, collaborative research and education partnerships between minority-serving colleges and universities and the NSF Division of Materials Research (DMR)-supported centers and facilities. In Puerto Rico there are currently three active NSF-PREM programs: (a) the University of Puerto Rico at Humacao-University of Pennsylvania (UPenn) PREM program (PREM UPRH-UPENN), a partnership between the UPR Humacao and Cayey campuses and the UPenn Materials Research Science and Engineering Center (MRSEC), which began in 2004; (b) the Wisconsin-Puerto Rico PREM program, a partnership between the UPR-Mayagüez, Río Piedras and Medical Sciences campus and the University of Wisconsin-Madison (PREM-UPRM), which started in 2018, and (c) the PREM Center for Interfacial Electrochemistry of Energy Materials (CIE²M) program, a partnership between UPR-Río Piedras campus, the Ana G. Méndez University Cupey and Gurabo campuses, and the Cornell High Energy Synchrotron Source (CHESS) at Cornell University (NSF-PREM CIE²M), established in 2018. The *Puerto Rico NSF-PREMs* symposium will highlight the progress made by these three programs in

providing research and educational opportunities in materials research to undergraduate and graduate students from Puerto Rico, including the outreach efforts made with elementary, middle, and high school teachers and students on the island.

The symposium will consist of **three half-day sessions** on (1) nanostructured multi-functional materials, (2) nanoscale interactions of macromolecules and organic molecules, and (3) non-equilibrium studies of interfaces. Topics to be covered include the latest research on single-atomic-layer materials and nanofibers of electro-active polymers; nanoparticle-protein interactions; catalytic materials with controlled sites by atomic layer deposition; flexible porous coordination polymers for gas capture; crystallization, polymorphism, dynamics, and structures of active pharmaceutical ingredients; dynamics of active particles in anisotropic media; active colloids templated from liquid crystals; collective behaviors of active colloids; oxygen-reduction and evolving electrocatalysts, nanostructured materials for dye-sensitized solar cells, and hybrid solid-state supercapacitors.

Nanotechnology Approaches to Biology and Medicine

Paul S. Weiss, California NanoSystems Institute and Departments of Chemistry & Biochemistry, Bioengineering, and Materials Science & Engineering, UCLA, Los Angeles, CA 90095

Wednesday, Oct. 19, 8:30a -12:05p, Ball Room A

Biology functions at the nanoscale. Thus, there are special opportunities not only to make biological measurements using nanotechnology, but also to interact directly in order to influence biological outcomes. I describe how we fabricate and use nanostructures to advance high-throughput gene editing for cellular therapies targeting genetic diseases and cancer immunotherapy. We also use microfluidics and functionalized nanostructured features in the selective capture, probing, and release of single circulating tumor cells in liquid biopsies in order to diagnose cancers and to assess the efficacy of treatments. We exploit supramolecular assembly, acoustofluidics, specific surface functionalization, and plasmonics to enable these processes. Nanoscience and nanotechnology developed from chemistry, physics, biology, engineering, medicine, toxicology, and a host of other fields. Along the way, we taught each other our problems, challenges, and approaches. The interdisciplinary communication skills that were developed and are now part of our training remain unique to the field. As a result, nanoscience contributes to a wide range of other fields, such as neuroscience and the microbiome.

*We have a global effort in nano for sustainability: <u>https://network4sustainablenano.org/</u>

Novel Strategies for Localized Drug Delivery (I and II)

Current Organizers: Bob Kane, Baylor University, Waco TX (<u>Bob_kane@baylor.edu</u>) and Asier Unciti-Broceta, University of Edinburgh <u>asier.ub@ed.ac.uk</u>

(I) Friday, Oct. 21, 8:30 – 11:45a, Room 202 A and (II) Friday, Oct. 21, 2:30 – 5:25p, Room 202 A

Most therapeutics have adverse dose-limiting side effects. These 'off-target' effects can be minimized if the therapeutic is localized where (and when) it is needed, limiting systemic exposure. Antibody-drug conjugates (ADCs) represent a mature example of targeted drug delivery, with eleven ADCs approved and utilized in the clinic. Besides antibody-based strategies, a wide variety of innovative approaches to localized drug delivery are being actively explored. This research is characterized by exciting multidisciplinary approaches including the development and characterization of new nanoparticles and macroscopic materials, the discovery and utilization of biorthogonal reactions and catalysts, and the design and synthesis of innovative prodrugs and linkers. This symposium will feature leading researchers presenting a broad survey of recent developments from around the world into the chemistry of localized drug delivery.

Advances in Nanomaterials for Biomedical and Biomedicinal Applications Co-Organizers: Md Nurunnabi (University of Texas at El Paso (UTEP) and Mahesh Narayan (UTEP)

Wednesday, Oct. 19, 8:30a-12:20p, Room 104 A

Nanomaterials have attracted the attention of the biomedical community over the last few years and have since found wide-spread applications in the field of nanomedicine, as also evidenced by the approval of nanoparticle-based COVID-19 vaccines. The proposed symposium will focus on the recent advances on nanotechnology-based biomedical tools and biomedicine and their translational potential for advancing health-care and management. The symposium will consist of four sessions: (1) *Nanomaterials for Biomedical Applications, (2) Biosensors for Disease Detection, (3) Nanomaterials for Drug/Vaccine Delivery, and (4) Nanomaterials for "Wearable" Devices.* The symposium will promote the exchange of ideas among a broad spectrum of researchers and facilitate collaborative opportunities among interdisciplinary teams. Speakers for this season will be selected based on their submitted abstracts. Our objective is to invite pioneer nano-scientists from biomedical, chemical and bioengineering fields. The participants will provide broad perspectives on the innovation and applications of nanomaterials.

Current Trends in Analytical Chemistry

Mass Spectrometry: Transcending Boundaries with Innovations in Methods & Technology (I and II)

Organizer: Christopher Chouinard (Florida Institute of Technology)

(I) Friday, Oct. 21, 8:30a – 12:05p, Room 204 and (II) Friday, Oct. 21, 2:30 – 4:55p, Room 204

Mass spectrometry remains the gold-standard analytical technique across several important fields including clinical analysis, biomedical research, and environmental monitoring. The last decade has seen an explosion of new technologies including the emergence of ion mobility spectrometry, ambient ionization sources, and novel fragmentation methods. Furthermore, advances in informatics, computational modeling, and even the incorporation of machine learning have provided a means to more comprehensively study such complex systems of interest. This symposium will showcase recent cutting-edge mass spectrometry approaches and how they can be used to transcend traditional chemical boundaries.

Current Trends in Biochemistry

Frontiers in Nucleic Acids Symposium

Organizer(s): Randy M. Wadkins (University of Mississippi) and tentatively Michael P. Stone (Vanderbilt University)

Thursday, Oct. 20, 1:25 – 4:20p, Room 104 B

For nearly four decades, the "Frontiers in Nucleic Acids" symposium has been a staple at SERMACS, where scientists from around the region and country have gathered to present talks on the current trends in biochemistry related to nucleic acids. Topics have ranged from the cellular functions of nucleic acids to their structural polymorphisms to their use as nanomaterials. Historically, this has been a well-attended symposium at SERMACS. The hiatus of the symposium due to Covid-19 was ended when the symposium began again at SERMACS 2021 in Birmingham, Alabama, co-hosted by Randy Wadkins (University of Mississippi) and Kate Hayden (Birmingham-Southern College.) Here, we propose to continue holding the Frontiers symposium into the 2020s by holding it in Puerto Rico. While the 2021 symposium was heavy with more established investigators who participated many times before, in 2022 we look forward to bringing in younger investigators and more students.

Current Trends in Organic Chemistry

Discovery and production of bioactive marine natural products

Organizer: Yousong Ding (University of Florida) YDing@cop.ufl.edu

Wednesday, Oct. 19, 1:25 – 4:40p, Room 202 C

The marine environment is a prolific but poorly explored source of natural products possessing tremendously diverse structures and biological activities. The last decade has witnessed an explosion of new technologies in the discovery and production of bioactive marine natural products, including genome-based discovery, new sourcing strategies, advanced methods for structural determination, updated biosynthesis understanding, and new organic synthesis and synthetic biology approaches for chemical synthesis. This symposium will highlight these recent developments and showcase how they have advanced marine natural product research.

SCHB Division: Chemical Business Best Practices

Organizer: Joseph Sabol, jsabol@chem-consult.com and Organizer and Presider: Xu Simon, xufits@gmail.com

Sponsored by the ACS Board Committee on Corporation Associates Sponsorship for Chemical Business

Thursday, Oct. 20, 9:55a – 12:25p, Room 104 B

Chemical Business: Resources and Best Practices (oral, poster, flash.) Entrepreneurs share their best practices and lessons learned in starting, running, and growing a chemical business. This symposium holds critical, must-know information and narrative success stories from chemical professionals.

There will be a SCHB Chemical Business Roundtable on Friday, October 21, 2:30 - 5:00 pm, Convention Center Room 104 B.

There will be a SCHB Chemical Business Roundtable on Friday, October 21, 2:30 - 5:00 pm, Convention Center Room 104 B.

Chemical Education

Symposia: Innovations in Chemical Education

Sponsored by CHED Chair: Maria Oliver-Hoyo NC State University, <u>mtoliver@ncsu.edu</u>

Trends in Chemistry Education

Organizer: D. Cruz-Ramirez de Arellano, University of South Florida

Wednesday, Oct. 19, 8:30a – 12:05p, 208 A

As the field of chemistry education matures, practitioners and researchers approach the processes of instruction and learning via new lenses including: the use of resources, curricula, new educational technologies, and assessment at various levels, from individuals to academic institutions. This symposium highlights the latest trends towards these efforts of updating, invigorating, and evaluating chemistry education projects.

Evaluation and Assessment in Chemistry Education

Organizer: D. Cruz-Ramirez de Arellano, University of South Florida

Wednesday, Oct. 19, 1:25 – 4:40p, 208 A

Instruction without evaluation and/or assessment cannot determine if educational goals have been met. Therefore, these are critical components guiding improvements whether at the individual (e.g. learning gains), or program levels. This simposium includes evaluation and assessments efforts at different levels of instruction and academic units.

Birds of Feather session

This session calls all chemistry educators to discuss matters of transfer and translation between practice and research to improve cross-polination, therefore bridging the current gap that exists between these spaces. Towards the same goal, discussions will include how the scholarship of teaching and learning (SoTL) is contributing to these efforts.

Wednesday Evening – Chemical Education Poster Session

Wednesday, Oct. 19, 6:30 – 8:30p, Ball Room B



73rd Southeastern Regional ACS Meeting

Chemistry transcending boundaries for a sustainable future

WORKSHOPS

PUERTO RICO CONVENTION CENTER, SAN JUAN, PUERTO RICO Hosted by the ACS-Puerto Rico Section



WORKSHOP: SERMACS - OCTOBER 2022 - PUERTO RICO

Climate Science (Virtual Pre-Meeting Workshop)



Saturday, October 15, 11:00 AM (Separate free registration required, check SERMACS 2022 webpage)

Dr. Bassam Z. Shakhashiri, Department of Chemistry, University of Wisconsin-Madison and Dr. Jerry Bell

"What we do in our chemistry classrooms and research laboratories can have profound effects on the minds of students, staff, and the campus community. What we do outside the classroom in reaching the public-at-large can also influence attitudes and behavior. Let us all strive to: reduce our dependence on fossil fuels for daily life needs; adopt a diet with less stress on natural resources; address the economic impacts of climate change; engage in civil and respectful conversations about all matters affecting the quality of life locally and globally; and demand government action locally and nationally to preserve and improve the quality of water, land, and air. Let us become better at connecting chemistry to society."

Audience: Two-hour virtual workshop on climate change. The workshop is aimed at college faculty and high school teachers, but we welcome everyone with an interest of deepening their understanding of the science of climate change and in helping affect meaningful change

Green Chemistry Workshop



Wednesday, October 19, 8:30 AM – 12:00 PM, Room 209 A/B

Dr. Juan Colberg, Pharmaceutical Sciences Small Molecules, WRDM, Pfizer Inc.

This workshop will be focusing on education on, green innovation, the use of safer chemistry, greener processes, and cost savings. In this workshop we will have presentations on various topics involving the application of green chemistry in the development drugs. The workshop will include breakout sessions to give participants the opportunity to apply their knowledge of green chemistry in case studies.

The format of the workshop in addition to discussion on the basic application of the 12 Principles of Green Chemistry, will also include applications of novel, greener technologies of interest to the Pharma and Chemical Industry. Among the technologies to be discussed are:

Biocatalysis: The use of enzymes in drug manufacturing has seen resurgence in recent years thanks to enzyme engineering, resulting in highly-active and versatile biocatalysts that enable highly efficient processes. In addition, due to the chiral nature of enzymes, these catalysts are particularly well-suited for the generation of chiral centers in the products, which is of special interest in the pharmaceutical industry. Several examples will be discussed.

Flow chemistry: Most of the current processes under development or at the commercial stage in the pharmaceutical industry are run in batch mode. One reason for this is familiarity – process chemists are more familiar with batch processing and the large investment made over years in the existing batch process infrastructure at pharmaceutical plants. However, it is becoming increasingly evident that processes on flow have many advantages over batch mode, including improved safety when dealing with unstable reagents, smaller investments in equipment, lower solvent consumption, and efficient heat removal from exothermic reactions. The pharmaceutical industry and academic institutions are investing heavily in this technology to manufacture drugs "on-demand" and reduce cost, in addition to improve carbon footprint. Introduction of this area and applications to Pharma will be discussed.

Catalysis Using Non-precious Metals: Catalysis is one of the 12 Principles of Green Chemistry and is frequently used in the synthesis of drug candidates. Unfortunately, most of the metals currently used in catalysis are precious metals, such as palladium, iridium, rhodium, platinum, and ruthenium. Besides cost, a concern related to the use of these metals is their toxicity, which requires extensive purification protocol to bring levels down to acceptable values with the concomitant increase in waste, as well as their long-term supply due to their scarcity in the Earth's crust.

The Pharma Industry has embarked in ambitious programs to replace those precious metals with more sustainable alternatives, such as iron, nickel and copper. These three metals are abundant, inexpensive, and display lower toxicity than precious metal catalysts, which contribute to turning catalysis into an even more attractive technology for the synthesis of drug candidates. Discussions around success stories and future work will be included in this workshop.



Practical Green Chemistry Tools and Techniques for Research & Development Scientists

Dr. Isamir Martinez, ACS Green Chemistry Institute, and ACS Green Chem Institute Pharmaceutical Roundtable members

Wednesday, October 19, 1:30 – 5:00 PM, Room 209 A/B

This workshop will equip industry-based R&D chemists and engineers as well as graduate students with practical GC tools, methods, and metrics. The content of this workshop will cover

green chemistry basics through to the most recent innovative tools and metrics widely used in the pharmaceutical industry. The workshop will be tailored toward scientists and engineers working in batch chemical operations in common use within the pharma industry, but the tools may be applied to other allied chemical industries.

What you will learn:

Fundamentals of green chemistry and engineering.

Tools that the pharma industry routinely uses to optimize their synthetic chemical processes. How to use these tools to make "greener" decisions in synthetic drug design and process development.

Real-world applications from experienced pharma industry process development chemists.

Audience: Graduate students (chemists and chem engineers) and industrial scientists

ACS Career Pathways[™] Workshops



Finding Yourself: Identifying a Career that Matches your Strengths and Values

Wednesday, October 19, 8:30 AM – 11:30 PM, Room 208-B

Finding Yourself: Identifying a Career that Matches Your Strengths and Values allows you to self-assess your career values and strengths. Participants will also learn how the four sectors of chemistry employment compare and contrast. This course will also help you determine which sector best aligns to your values and strengths and plan your next steps to obtaining an ideal position

Networking: How to Get Started

Wednesday, October 19, 3:45 – 4:45 PM, Room 208-C

Networking: How to Get Started will help participants utilize networking to enhance their job search. Participants will also learn which types of questions to create a natural flow in a networking conversation. The course will also help you create a networking plan to locate and obtain your ideal job in the federal government.





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Pamela Leggett-Robinson Starley C. Israel Regional Award for Advancing Diversity in the Chemical Sciences



Robert W. Ayton, Jr. Regional Awards for Excellence in High School Teaching



Dr. Linette Watkins Stanley C. Israel Regional Award for Advancing Diversity in the Chemical Sciences





Allan M. Ford Ann Nalley Regional Award for Volunteer Service to the American Chemical Society



Dr. Bindu Krishnan SERMACS Industrial Innovation Award

Regional Awards

Excellence in chemistry

Friday, October 21, 2022 Awards luncheon, PRCCC Room 208 B San Juan, Puerto Rico

2022 Southeastern Regional ACS Awards Program



2022 SERMACS AWARDS COMMITTEE

Cedric Pearce Pravin Kotian Mitk'El B. Santiago-Berríos

SERMACS 2022 Southeast Regional Awards Program Agenda Puerto Rico Convention Center, Room 208 B

- 12:00 pm Welcome Remarks and Meal Service
- 12:30 pm Introduction of Keynote Speaker

Keynote Speaker:

Paul W. Jagodzinski Chair, ACS Board of Directors Professor Department of Chemistry & Biochemistry Northern Arizona University

1:00 pm Presentation of Southeast Regional Awards Presentation of Local Section awards Recognition of Local SERMACS Organizing Committee

1:30 pm Closing Remarks

2022 Southeastern Regional ACS Awards Descriptions

Ann Nalley Regional Award for Volunteer Service to the American Chemical Society

This award was instituted in 2006 by ACS Past President E. Ann Nalley as part of her presidential initiative to recognize ACS volunteerism.

Stanley C. Israel Regional Award for Advancing Diversity in the Chemical Sciences

The Stanley C. Israel Regional Award recognizes individuals and/or institutions that have advanced diversity in the chemical sciences and significantly stimulated or fostered activities that promote inclusiveness within the ACS Regions.

Partners for Prosperity (P3) Award

This award recognizes 1) improving the public perception and appreciation for chemistry, 2) promoting chemical career advancement or entrepreneurship, 3) advancing chemical enterprise advocacy, or 4) supporting STEM education and/or research.

Regional Awards for Excellence in High School Teaching

The Division of Chemical Education (DivCHED) established an endowment to support Regional Awards for Excellence in High School Teaching in each of the ACS Regions.

SERMACS Industrial Innovation Award

The award celebrates the successful innovations of industrial chemists and chemical engineers that contribute to the health of their local and regional economy and the corporate leadership for its advancement of a healthy economy.



Keynote Speaker

Paul W. Jagodzinski, Ph.D

Paul W. Jagodzinski is Professor of Chemistry at Northern Arizona University in Flagstaff, Arizona. He was the Dean of the College of Engineering, Forestry & Natural Sciences at NAU for 10 years. Jagodzinski is currently the Chair of the Board of Directors of the American Chemical Society after having served in a variety of leadership roles within ACS. He earned a Bachelors degree in Chemistry from the Polytechnic Institute of Brooklyn and a Ph.D. in Physical Chemistry from Texas A&M University. He was a postdoctoral fellow at the University of Oregon.

AMERICAN CHEMICAL SOCIETY STANLEY C. ISRAEL REGIONAL AWARD FOR ADVANCING DIVERSITY IN THE CHEMICAL SCIENCES



Pamela Leggett-Robinson

Pamela Leggett-Robinson has led the Georgia Local Section's Minority Affairs Committee to win multiple ChemLuminary awards for their membership programming and service to the community. Most notably, Pamela's leadership on MAC has resulted in some of the longest running programs in the local section, including scholarships for high schoolers, annual networking events, and career panels.

With Pamela at the helm of MAC, ACS Georgia Local Section has consistently engaged in conversations related to DEIR, and in particular, equity and inclusion

Pamela's leadership has resulted in consistently active and reliable MAC participation, and notably serves as a core leadership development pipeline for the local section. This has resulted in a local section leadership team that is uniquely diverse and inclusive; this supports meaningful and impactful outreach to Atlanta's communities.

Pamela has served as the coordinating chair of the Percy Julian Scholarship program. This scholarship, organized through the Minority Affairs Committee of the Georgia Local ACS Section, has provided financial support and ACS membership to graduating high school students attending a four-year university or college and majoring in a field related to the chemical sciences.

AMERICAN CHEMICAL SOCIETY STANLEY C. ISRAEL REGIONAL AWARD FOR ADVANCING DIVERSITY IN THE CHEMICAL SCIENCES



Dr. Linette Watkins

Dr. Linette Watkins is recognized for dedication to broadening participation and advocation of DEI and underrepresented groups at the national level and local level. She has served on several ACS committees, working groups, and in divisions, organizing workshops, and symposia, and mentoring dozens of young women. Dr. Watkins's service to ACS was recognized in 2014 when she was named an ACS Fellow. She was recognized for her broader work in diversity and education when named an AAAS Fellow in 2018. For example, as a member and chair of the NSF Chemistry Research Experience for Undergraduate (REU) Leadership Group, she helped ensure that broadening the participation of minorities, women and persons with disabilities was at the forefront of the chemistry REU mission. She has presented talks, co-edited books, mentored faculty in Coach workshops, within the STEM Women of Color Conclave, and at PKAL. In these arenas, Dr. Watkins emphasizes the importance of listening to and appreciating different viewpoints in order to effect social change in higher education. Since coming to JMU in 2014, Dr. Watkins has conceived and pushed into action multiple initiatives on DEI issues that have transformed her department into one that is more attuned with social milieu of the surrounding community, and therefore more effective in all kinds of outreach - within JMU, to the scientific community, and to the local community. Her capacity to inspire others has greatly magnified the effects of her excellent service work and inspired change at JMU and across the region.

E. ANN NALLEY REGIONAL AWARD FOR VOLUNTEER SERVICE TO THE AMERICAN CHEMICAL SOCIETY

Recognizes the volunteer efforts of individuals who has served the ACS, contributing significantly to the goals and objectives of the Society through their regional activities.



Dr. Allan M. Ford

Dr. Allan M. Ford is the former Director of Monsanto Company's Environmental Sciences Center and the former Director of the Texas Gulf Coast Hazardous Substance Research Center. He is the past editor of the journal Waste Management for Pergamon Press. Dr. Ford is past Chair of the American Chemical Society's Committee on Environmental Improvement (CEI), where he served for 20 years. He was ACS's liaison to the committee for the formation of the National Institute for the Environment. He has served on both Environmental Protection Agency (EPA) and Department of Energy peer review committees and EPA's long-range planning committee, where he became chair of the ACS Presidential Task Force on Credentialing and Chair of the ACS Task Force on Indoor Air Pollution and of the ACS Task Force on Environmental Research Funding. Dr. Ford was very active in organizing several symposia including the first Green Chemistry Symposia held at a National ACS meeting. He received a Hammer Award from U.S. Vice President AI Gore for his role in bringing forth Green At ACS, Dr. Ford is the past Chair of the ACS Division of Environmental Chemistry. Chemistry, the ACS Committee on Public Relations, and Communications (CPRC), and on the ACS Committee on Professional Relations. He has been Chair of the St. Louis, Sabine-Neches, and Pensacola sections of the American Chemical Society and served for many years as the Councilor to the St. Louis section, and the Pensacola Section of the ACS. His professional activities in recent years include serving on the Boards of the NW Florida Diplomacy Council, which entertains foreign visitors for the U.S. State Department, and the NW Florida Economics Council. Dr. Ford earned his B.S. from Iowa State University and his Ph.D. from Kansas State University.

ACS DIVISION OF CHEMICAL EDUCATION SOUTHEAST REGIONAL AWARD FOR EXCELLENCE IN HIGH SCHOOL TEACHING

Recognizes, encourages, and stimulates outstanding teachers of high school chemistry.



Robert W. Ayton, Jr.

Robert Ayton is an AP Chemistry, AP Physics C, and AP Calculus AB teacher at Redeemer Christian School in Ocala, Florida. He is currently in his 19th year of teaching. He has previously been named the ACS Florida Chemistry Teacher of the Year in 2014 and FAST Florida High School Science Teacher of the Year in 2017. Robert manages a website, <u>www.mrayton.com</u>, that serves hundreds of teachers and students each year in their content knowledge and understanding of science and mathematics. Prior to teaching, he was an analytical chemist and laboratory manager for 7 years at PMRS, Inc., a pharmaceutical company in Philadelphia, PA. He is married to Elizabeth and between them they have 4 boys that help keep life entertaining.

SOUTHEAST REGIONAL AWARD FOR INDUSTRIAL INNOVATION

Recognizes innovations of industrial chemists and chemical engineers that contribute to the health of their local and regional economy and the corporate leadership for its advancement of a healthy economy.



Dr. Bindu Krishnan

Dr. Bindu Krishnan, R&D/TS&D Fellow in the Polyurethane Business is responsible for the strategy and technology development of adhesives and sealants for the construction, infrastructure, and mobility market. Annual sales of products she has developed in these markets at DOW has exceed \$10MM/year. Prior to this she was a Research Scientist in Dow Automotive, driving the development of next generation automotive adhesive to help automakers meet globally legislated mandates for emissions and fuel efficiency. Bindu started her career with Dow Polyurethane in 2006, developing coatings designed to enhance synthetic leathers and wood. In 2007 she joined Application Technology Development (ATD) where she led the expansion and commercialization of numerous VORAMER[™] binders for indoor and outdoor applications. Bindu also commercialized two fully formulated 1K polyurethane resilient and hardwood flooring adhesives – DIAMONDLOCK™ RFA 300 and DIAMONDLOCK™ FCA 500. This product was recently honored with the Edison Award [™] for excellence in new product development. Bindu's technical contribution has been honored with the prestigious AIChE Industrial Progress Award for her career accomplishments, service to society and service to the Institute. She also received the 2019 Excellence in Science Award bestowed by the DOW's Gulf Coast and Latin America Scientist Organization. She is passionate about science as well as "Women in the Chemical Industry". She was recognized with the "DOW's North America 2017 WIN Champion Award" for advocacy of gender diversity. She has chaired American Institute of Chemical Engineer's Women's Initiative Committee. She is currently on

the Directorial Board of DOW's Women's Innovation Network (WIN-Freeport Chapter) and PMSE's (ACS), executive committee member and leads the communication initiative. She is also a STEM ambassador, steering the STEM activities throughout Brazoria County.

Bindu holds a Ph.D. in Organic Polymer chemistry from University of Bordeaux, France. Bindu has authored 11 peer reviewed Journal articles, 15 granted patents in US, EU, and CN, over 90 DOW internal publications and numerous pending patent applications.



2021-22 ACS Southeastern Student Chapters Awards Winners



Outstanding

- Augusta University Student Chapter*
- Belhaven University Student
 Chapter
- Georgia College & State
 University Student Chapter
- Georgia Gwinnett College Student Chapter*
- High Point University Student
 Chapter
- Inter American University of Puerto Rico Ponce Campus Student Chapter*
- Mississippi College Student
 Chapter
- Randolph-Macon College Student Chapter
- Tennessee Technological University Student Chapter*
- The Pontifical Catholic University of Puerto Rico Student Chapter*
- Union University Student Chapter
- University of Central Florida Student Chapter

- University of Florida Student Chapter*
- University of Mary Washington
 Student Chapter
- University of Puerto Rico at Cayey Student Chapter*
- University of Puerto Rico-Aguadilla Student Chapter*
- University of Puerto Rico-Mayaguez Campus Student Chapter
- University of Puerto Rico-Rio Piedras Campus Student Chapter*
- University of Tennessee at Martin Student Chapter*

Commendable

- Barry University Student Chapter
- Catawba College Student Chapter
- Dalton State College Student Chapter
- Erskine College Student Chapter
- Florida Gulf Coast University Student Chapter

- Francis Marion University Student
 Chapter
- Georgia State University Student
 Chapter
- Middle Tennessee State University Student Chapter
- Nova Southeastern University Student Chapter
- Tuskegee University Student Chapter
- University of Alabama at Birmingham Student Chapter*
- University of Mississippi Student Chapter
- University of Puerto Rico at Arecibo Student Chapter
- University of Puerto Rico-Humacao Student Chapter
- University of West Florida Student Chapter
- Valdosta State University Student
 Chapter
- Western Kentucky University Student Chapter
- Wingate University Student
 Chapter

Honorable Mention

- Austin Peay State University
 Student Chapter
- Berry College Student Chapter

- Birmingham-Southern College Student Chapter
- Eckerd College Student Chapter
- Emory University Student Chapter
- Florida Southern College Student Chapter
- Inter American University of Puerto Rico San German Campus Student Chapter
- Mercer University Student
 Chapter
- Mississippi State University Student Chapter
- Morehead State University Student Chapter
- North Carolina Agricultural and Technical State University Student Chapter
- North Carolina State University Student Chapter
- The University of Memphis Student Chapter
- University of South Florida Student Chapter
- University of Tampa Student
 Chapter
- University of Virginia Student
 Chapter
- Western Carolina University Student Chapter

AAAS Caribbean Division Annual Conference

Saturday, October 22, Puerto Rico Convention Center

Morning: The plenary lecture and the morning session will be held in Ballroom A.

Afternoon: The afternoon session will be help in Room 209-A/B.

The AAAS-Caribbean Division will hold its 37th Annual Conference (AAAS-CD 22) titled "Puerto Rico Confronts Climate Change" jointly with SERMACS 2022 on Saturday, October 22. The plenary speaker will be Professor Erick M. Carreira, Head of the Department of Chemistry and Applied Biosciences at ETH Zürich. In addition, this year's conference will be dedicated to the Puerto Rican ecologist and engineer Dr. Carl Soderberg, former Director of the EPA Region 2 Caribbean Environmental Protection Division, and an advocate for environmental science in the Caribbean. The AAAS-CD 22 will also include two panels, one on how Puerto Rico confronts climate change, and another on sustainable energy alternatives. Additionally, and as a tradition in AAAS-CD annual conferences, the group will present the Lucy Gaspar Award for Excellence in Science Education,. We are pleased to join the AAAS-Caribbean Division in celebrating such a significant year for science!

Caribbean Divisio	S
2022 Anni	al Conference
PUER	TO RICO
CONF	RONTS
CLIMATE CHANGE	
	김 아파 가슴이 가슴 집을 봐.
AGEN	NDA
AGEN 07:30 AM	NDA Registration
AGEN 07:30 AM 08:25 AM	NDA Registration Welcoming Remarks
AGEN 07:30 AM 08:25 AM 08:30 AM	NDA Registration Welcoming Remarks Plenary Lecture (SERMACS & AAAS Plenary Speaker)
AGEN 07:30 AM 08:25 AM 08:30 AM	NDA Registration Welcoming Remarks Plenary Lecture (SERMACS & AAAS Plenary Speaker) – Erick Carreira, Ph.D. Coffee Brook
O7:30 AM 08:25 AM 08:30 AM 09:30 AM	NDA Registration Welcoming Remarks Plenary Lecture (SERMACS & AAAS Plenary Speaker) – Erick Carreira, Ph.D. Coffee Break Dedication Engr. Carl-Axel Soderberg
AGEN 07:30 AM 08:25 AM 08:30 AM 09:30 AM 10:00 AM	NDA Registration Welcoming Remarks Plenary Lecture (SERMACS & AAAS Plenary Speaker) - Erick Carreira, Ph.D. Coffee Break Dedication Engr. Carl-Axel Soderberg Panel "Puerto Rico confronts climate change"
AGEN 07:30 AM 08:25 AM 08:30 AM 09:30 AM 10:00 AM 10:10 AM	Registration Welcoming Remarks Plenary Lecture (SERMACS & AAAS Plenary Speaker) - Erick Carreira, Ph.D. Coffee Break Dedication Engr. Carl-Axel Soderberg Panel "Puerto Rico confronts climate change" Poster Session + Lunch
O7:30 AM 08:25 AM 08:30 AM 09:30 AM 10:00 AM 10:10 AM 11:30 PM	Registration Welcoming Remarks Plenary Lecture (SERMACS & AAAS Plenary Speaker) - Erick Carreira, Ph.D. Coffee Break Dedication Engr. Carl-Axel Soderberg Panel "Puerto Rico confronts climate change" Poster Session + Lunch
AGEN 07:30 AM 08:25 AM 08:30 AM 09:30 AM 10:00 AM 10:10 AM 11:30 PM 01:30 PM	Registration Welcoming Remarks Plenary Lecture (SERMACS & AAAS Plenary Speaker) - Erick Carreira, Ph.D. Coffee Break Dedication Engr. Carl-Axel Soderberg Panel "Puerto Rico confronts climate change" Poster Session + Lunch Panel "Communicating Climate Change to Diverse Audiences"
O7:30 AM 08:25 AM 08:30 AM 09:30 AM 10:00 AM 10:10 AM 11:30 PM 01:30 PM	Registration Welcoming Remarks Plenary Lecture (SERMACS & AAAS Plenary Speaker) - Erick Carreira, Ph.D. Coffee Break Dedication Engr. Carl-Axel Soderberg Panel "Puerto Rico confronts climate change" Poster Session + Lunch Panel "Communicating Climate Change to Diverse Audiences" Lucy Gaspar and Robert I. Larus Awards' <u>Ceremony</u>



73rd Southeastern Regional ACS Meeting

Chemistry transcending boundaries for a sustainable future

TECHNICAL PROGRAM

PUERTO RICO CONVENTION CENTER, SAN JUAN, PUERTO RICO Hosted by the ACS-Puerto Rico Section



WEDNESDAY MORNING

Puerto Rico Convention Center 202 A

Biochemistry I Structure / Dynamics

E. I. Pares-Matos, *Organizer* X. Liu, *Presiding*

8:30 Introductory Remarks.

8:40 20. Structural Characterization of Superoxide Dismutase Amyloid Fibrils in the Presence of H₂S. **P.M. Miranda-Castrodad**, T. Victor, R. Pietri

9:00 21. Importance of Hsp60's C-terminal tail in refolding of misfolded substrates. **D.H. von Salzen**

9:20 22. Withdrawn

9:40 23. Molecular docking studies between Ras2p, the cytoplasmic domain of three members of the Wsc-family and several therapeutic drugs. **E.I. Pares-Matos**, K. Carrasquillo-Carrión, A. Roche Lima, J. Rodríguez Medina

10:00 Coffee Break.

10:25 24. Withdrawn

10:45 25. Disease-associated non-coding variants alter NKX2-5 DNA binding affinity. E.G. Peña-Martínez, D.A. Pomales-Matos, A. Rivera-Madera, L. Sanabria, B.M. Rosario, J.A. López Gonzales **11:05 26.** The role of flanking residues on AT hook motif activity. **K.L. Buchmueller**

11:25 27. Beyond the End Replication Problem: Using smFRET to investigate the formation and dynamics between G Quadruplexes and T-Loops in Human Telomeres. **A. Lacen**, H. Lee

Puerto Rico Convention Center 104 A

Advances in Nanomaterials for Biomedical and Biomedicinal Applications M. Nurunnabi, *Organizer* M. Narayan, *Presiding*

8:30 Introductory Remarks.

8:40 1. Nanoprobe mediated non-invasive imaging of cardiotoxicity induced by chemotherapeutic. **M.** Nurunnabi

9:00 2. An electrochemical biosensing strip for telomerase activity detection: as a translational research alternative in oncology. **R. Diaz-Ayala**, L. Cunci, C.I. González, C.R. Cabrera

9:20 3. Withdrawn

9:40 4. Withdrawn

10:00 Coffee Break.

Our deepest gratitude goes to our Diamond Sponsor Oakwood Chemical

Supporting Scientific Discovery. It's in our Chemistry



WENESDAY MORNING

10:25 5. Advancing Carbon Nano Materials to intervene in the structural-drivers of neurodegenerative onset and progress. **M. Narayan**

10:45 6. Bioactive electrospun cellulose acetate scaffolds for bone tissue engineering applications. **S.A. Bello**, O.A. Rodriguez-Rivera, E. Nicolau

11:05 7. Combining Bioorthogonal Chemistry with Fluorescent Silica Nanoparticles for the Ultrasensitive Detection of HIV-1 p24 Antigen. S.S.
Iyer, T. jia, V. Saikam, Y. Luo, X. Sheng, J. Fang, J. Natekar, M. Kumar

11:25 8. Nanomaterials dynamics in Soil-plant continuum. **M. Shrivastava**

11:45 9. Synthesis and characterization of different morphologies of iron oxide nanoparticles for biomedical applications. **A. Lavin, G. Morell**, W.S. Pantoja Romero, N. Medina, B. Weiner

12:00 10. Bioconjugation of enveloped viruses as nanovectors for immunotherapy applications. M. Kingsak, K. Metavarayuth, **Q. Wang**

Puerto Rico Convention Center 201 A

Analytical Chemistry I – Remediation

L. Cunci, Organizer L. V. Fernandez-Vega, Presiding

8:30 Introductory Remarks.

8:40 11. Electrochemical Bioremediation of Uranium (VI) Using Geobacter sulfurreducens on Boron-Doped Diamond Electrode Surface. A.J. Acevedo, E.G. Rosario-Cruz, J.R. Caicedo-Villamil, G.A. Toranzos-Soria, C.R. Cabrera

9:00 12. Chronoamperometric detection of glutathione using copper nanoparticle electrodeposition at graphene oxide modified electrode. **M.B. Wayu**

9:20 13. Assessing and rationalizing the electrocatalytic activity of bimetallic nanocarbides towards the oxygen evolution reaction. **R. Lazenby**, A. Ritz, I.A. Bertini, E.T. Nguyen, G.F. Strouse

9:40 14. Deciphering Aggregation Induced Electrogenerated Chemiluminescence Mechanism of

9,10-Diphenylanthracene Derivatives. J.A. MOTCHAALANGARAM, K. Aumick, W. Miao

10:00 Coffee Break.

10:25 15. Naproxen removal from water using Ca-Fe(III) alginate beads. **D. Sanchez**

10:45 16. Withdrawn

11:05 17. Multicomponent deoxyribozymes for identification of pathogenic mycobacteria. R. Connelly, K. Rodriguez, J. Ahn, A. Fergus, K. Rohde, **Y. Gerasimova**

11:25 18. Effect of gamma irradiation on Vitamin D stability in salmon. P.R. Calvo, J.S. Brown

11:45 19. Historical variation of trace metals in sediments from Deering Bay waterways (South Florida). **M. Ceccopieri**, P.R. Gardinali

Puerto Rico Convention Center 201 B

Inorganic Chemistry I - Inorganic materials M. B. Santiago-Berrios, *Organizer*

E. Melendez, Presiding

8:30 Welcoming remarks.

8:40 28. Valence-to-core x-ray emission spectroscopy as a probe of platinum catalysis. C.J. Pollock, L.M. Debefve

9:00 29. The class of sulvanites Cu_3MX_4 (M = V, Nb, Ta; X = S, Se, Te) at the nanoscale: Synthesis and applications. **D.R. Radu**, C. Lai

9:20 30. The Influence of Covalency on Magnetic Exchange in Manganese Monochalcogenides. J.K. Clark, V. Garlea, **M. Shatruk**

9:40 31. Understanding Phase Control in the synthesis of Iron Sulfides. **J. Espano**, J. Macdonald

10:00 Coffee Break.

10:25 32. Reorganization Energy and Charge Transfer from Quantum Dots. M.J. Fort, S.M. Click, E.H. Robinson, F. He, P.V. Bernhardt, S.J. Rosenthal, **J. Macdonald**

WENESDAY MORNING

10:45 33. Withdrawn

11:05 34. The advantages of passivation layer on the top of perovskite layer by organic molecules. **M.H. Alotaibi**, h. alhajri, e. alharbi, F. Alasmari, M. Ajarim, H. Albrithin, S. Zakeeruddin, M. Graetzel

11:25 35. Withdrawn

11:45 36. Automated generation and theoretical predictions for dye sensitized solar cell dyes. **T. Santaloci**, A. Wallace, J.H. Delcamp, R.C. Fortenberry

Puerto Rico Convention Center 204

Inorganic Porous and Layered Materials Symposium I

M. Pica, M. Ramos-Garcés, L. Sun, *Organizers* J. L. Colon, *Presiding*

8:30 Opening remarks.

8:40 37. Resilience of inorganic layered materials: the case of nanocrystalline zirconium phosphate and its use for the synthesis of functional derivatives. **M. Pica**, A. Donnadio, M. Nocchetti, R. Vivani, M. Casciola

9:00 38. Surface modification of layered structured nanomaterials for drug delivery. **J. González-Villegas**, K. Salazar-Ayala, A. Velázquez-Matos, J.L. Colon

9:20 39. Multitechnique insight into an unusual cooperative CO2 absorption mechanism in a perfluorinated CeIV MOF. **F. Costantino**, M. Taddei, D. Morelli Venturi, V. Crocellà, M. Signorile, C. Atzori, L. Calucci, M. Cavallo, M. Geppi

9:40 40. Designing Electrocatalytic MOFs: Considerations from Redox Hopping Electron and Ion Transport. **A.J. Morris**

10:00 Coffee Break.

10:25 41. Hierarchically Porous Metal–Organic Frameworks: Preparation, Properties, and catalytic Performance. **Q. Zhang** **10:45 42.** Metal-modified zirconium phosphate electrocatalysts for the oxygen evolution reaction. **M.V. Ramos-Garces**, J. Sanchez, T.F. Jaramillo, J.L. Colon

11:05 43. Design of processable polymeric carbon nitride for a range of photo(electro)catalytic applications. **S. Garcia-Granda**, I. Krivtsov, C. Adler, A. Vazirani, D. Mitoraj, R. Beranek

11:25 44. A Hierarchical Activated Carbon – Silicoaluminophosphate Composite Prepared via Confined Space Synthesis for the Deep Removal of Carbon Dioxide from Humid Gas Phase. **G. del** Valle Perez, J.C. Muñoz-Senmache, P.E. Cruz Tato, E. Nicolau, A.J. Hernandez

11:45 45. Withdrawn

Puerto Rico Convention Center Ball Room A

Nanotechnology Approaches to Biology and Medicine

P. S. Weiss, Organizer, Presiding

8:30 Opening Remarks.

8:40 46. Nanotechnology Approaches to Biology and Medicine. **P.S. Weiss**

9:20 47. Withdrawn

9:40 48. Targeted ligand design of N-heterocyclic carbenes for biological applications on gold surfaces. I.M. Jensen, G. Kaur, J.P. Camden, **D.M. Jenkins**

10:00 49. Ionic Liquid-Coated Polymeric Nanoparticles for Targeted in situ Hitchhiking on Blood Components. **E.E. Tanner**

10:20 Coffee Break.

10:45 50. Choline carboxylic ionic liquid-based gold nanoparticles for biomedical applications. **P. Vashisth**, E.E. Tanner, C. Smith

11:05 51. Application of DMPO-nitrone adduct aided nano-bioassay for quantifying Particulate Matter (PM)-induced oligomerization process of Amyloid Beta proteins. **J. Bang**, J. Wei, K. Omar, R. Hawkins, D.K. Taylor, B.K. Dey

WENESDAY MORNING

11:25 52. EPR Spectroscopy in Studies of Nanomaterials. **A.I. Smirnov**

11:45 53. Ionic liquid to invade skin barriers to improve topical drug delivery. **M. Nurunnabi**, M. Huda

Puerto Rico Convention Center 202 B

Organic Chemistry I Organic Reagents D. J. Sanabria-Rios, *Organizer* J. A. Prieto, *Presiding*

8:30 Opening Remarks.

8:40 54. Overriding Embedded Heteroatoms: A Gateway to Alternate Selectivity in Lithiation Reactions. **A.A. Thomas**

9:00 55. Synthesis and Application of Organic Ferrocene Derivatives in Perovskite Solar Cells. **A. Burgos Suazo**, E. Ortiz Muñoz, I. Montes, D.M. Pinero Cruz, J.L. Colon

9:20 56. Selective microwave heating of homogeneous organic reaction mixtures. **G.B. Dudley**

9:40 57. Withdrawn

10:00 Coffee Break.

10:25 58. Design and Optimization of Potent Cereblon-Recruiting HaloPROTACs. **S. Nelson**, B. Ody, R. Liu, S. Whitzel, C. Dodd, L. Williams, J. Yin, M.L. Turlington

10:45 59. Styrene synthesis via crossed aldehydealdehyde aldol coupling promoted by trimethylsilyl trifluoromethanesulfonate. **C.W. Downey**

11:05 60. Dipyridinium thiazolothiazoles photochemical sensors. **T.J. Adams**, M. Acharya, Q. Nguyen, M.G. Walter

11:25 61. Cycloaddition Reactions with Organocobaloximes. **O. Ahrens**, D.M. Diaz, J. Lagana, K. Cartwright

11:45 62. Using Cobaloximes as "Directing Groups" for Chiral Ligands. **J. Lagana**, K. Cartwright

12:05 End of Session.

Puerto Rico Convention Center 203

Surface Chemistry: Polymer Science, Self-Assembly, and Bio interfaces R. Quiñones, Organizer, Presiding

8:30 Opening remarks.

8:40 63. Synthesis of metal-binding polymers for water purification. **P.R. Calvo**

9:00 64. Withdrawn

9:20 65. Biomolecular Attachment Yield Analysis on Surface Structurally Diverse Microgel Particles. **M. Gaines**, J. Kamuche, L. Norris, I. Page, S. Oliveros Gomez, M. Grover

9:40 66. Surface enhanced self-limiting growth of one-dimensional arrays of DNA Origami dimers. N. Shin, D.P. Neff, **M.L. Norton**

10:00 Coffee Break.

10:25 67. DNA aptamers for material targets. V. **Milam**, M. Tapp, P. Dennis, R. Naik

10:45 68. Protein Stability on Nanoparticle Surfaces: A Material Difference. **N.C. Fitzkee**, R. Somarathne, C. Kariyawasam, R. Yadav

11:05 69. Zinc triggered release of encapsulated cargo from liposomes via a synthetic lipid switch. **R.** Sagar, J. Lou, A. Watson, M. Best

11:25 70. Friction of fatty acids at different sliding speeds. R. Cui, G. Diaz De la Cruz, **M. Ruths**

11:45 71. High-temperature fluoropolymers, aromatic networks, and carbon therefrom for advanced composites & energy applications. **D.W. Smith**, G. Munoz, E. Borrego, S. Athukorale, K.M. Mukeba, C.U. Pittman

Puerto Rico Convention Center 208 A

Trends in Chemistry Education D. Cruz-Ramirez de Arellano, *Organizer* M. Oliver-Hoyo, *Presiding*
WENESDAY MORNING

8:30 Introductory Remarks.

8:30 72. Analysis of representations in chemistry textbooks: A literature review. **B. Thompson**, Z. Bunch, M. Popova

8:30 73. Reconceptualizing representational competence through the analysis of student reasoning about representations of molecular structure. **M. Popova**

8:30 74. Embedding Team Science in Course-based Undergraduate Research Experiences. **J.P. Walker**, C.I. Andersen

8:30 75. Withdrawnr

8:30 Coffee Break.

8:30 76. Withdrawn

8:30 77. Development of interactive pre-laboratory assignments and their impact on the laboratory experience. L.L. Serbulea, N. Jannatifar, S. Stegner

8:30 78. Infusion of Organic Synthesis Research into Organic Chemistry I lab at WSSU. **F. Guo**

8:30 79. Incorporating proteomics into introductory analytical laboratories during COVID-19. **S. Verberne-Sutton**, K. Stepler, K. Kapp, R.A. Robinson

8:30 80. Design and implementation of an interdisciplinary course in chemical biology. **A. Fikes**, M.C. Srougi



WEDNESDAY AFTERNOON WEDNESDAY AFTERNOON



Puerto Rico Convention Center 203

3rd Users' Meeting of the UPR MSRC X-Ray Diffraction Facility D. M. Piñero Cruz, *Organizer, Presiding*

1:25 Introductory remarks.

1:35 81. Recognizing Synthetic Pathways with the use of Crystallography: Crystal Structures of 4-methylbenzene-1,2-dithiol derivatives. **V.Y. Soto-Diaz**, D.M. Pinero Cruz

1:55 82. Synthesis, characterization, and Hirshfeld surface analysis of dithiolene systems as potential chelating ligands. **K.T. Cordero-Gimenez**, D.M. Pinero Cruz

2:15 83. Crystallographic and computational calculations of Pd and Pt non-innocent salen-like complexes. **J.O. Rivera**, J. Jones, D.M. Pinero Cruz

2:35 84. Crystal structure of novel ferrocenyl-ureachalcones. **J.A. Mendez Roman**, D.M. Pinero Cruz, I. Montes

2:55 85. Structural Modification Phenomena in Bromine Substituted Ferrocenyl Chalcones. **A. Burgos Suazo**, E. Ortiz Muñoz, I. Montes, D.M. Pinero Cruz

3:15 Intermission.

3:40 86. Polymorphism and chemical properties in Ferrocenyl Furan Chalones isomers. **A.S. Rodriguez Rolon**, S. Delgado, J.J. Soto Perez, D.M. Pinero Cruz, C.R. Cabrera, I. Montes

4:00 87. Crystal structure and Hirshfeld surface analysis of three novel substituted phthalonitriles. **J.A. Cruz-Lozada**, D.M. Pinero Cruz

4:20 88. X-Ray crystallography of heterocyclic ferrocenyl chalcones. **A.M. Sanchez**, P.M. Bonilla Crespo, D.M. Pinero Cruz, I. Montes

4:40 Concluding remarks.

Puerto Rico Convention Center 104 B

ACS Chemistry Festivals, Non-formal Chemistry Education around the World

- S. Sandi-Ureña, Organizer
- I. F. Cespedes-Camacho, Presiding



1:25 Introductory remarks.

1:35 89. "Festival de Química" a model to globally communicate the value of chemistry in our daily lives: history and impact. **I. Montes**, L. Raines

2:15 90. Improving All People's Lives through the Transforming Power of Chemistry Outreach. L. **Raines**, P. Galvan, N. Bakowski, T.M. Chambers

2:35 91. The first ACS Chemistry Festival in Costa Rica: a general overview. **I.F. Cespedes-Camacho**

2:55 92. Chemistry outreach initiatives and student engagement in Jamaica. **A. Goldson-Barnaby**

3:15 Coffee Break.

3:40 93. Earth Week during the pandemic: An international collaboration. **B.C. Galarreta**, C.V. Gauthier

4:00 94. Girls in science day. **C. Guzman-Quilo**, G. Monzón

4:20 95. More chemistry, better life - Festival - Más Química, Mejor vida: A Festival for the student volunteers! **S. Sandi-Urena**

4:40 Final remarks.

Puerto Rico Convention Center 201 A

Analytical Chemistry II - Sensors L. Cunci, Organizer, Presiding

1:25 Introductory Remarks.

1:35 96. Mycotoxin screen test using aptameric plasmonic nanosensors. **B.C. Galarreta**, Y. Hernández, A. Saldaña, S. Córdova, M. Licuona Puma

1:55 97. Chemical fingerprinting sensors in aqueous and environmentally relevant media. **M. Bonizzoni**, X. Yao, Y. Xu, M. Ihde

2:15 98. Electrochemical aptamer-based sensor for the measurement of Neuropeptide Y using methylene blue as a label redox probe. **L.F. Lopez**, L. Martinez, L. Cunci

2:35 99. Simultaneous Electrochemical Detection of Multiple Neurotransmitters. **K. Xu**, E.S. McClain, D.R. Miller, D.E. Cliffel

2:55 100. Enhancement of paper-based biosensors for sweat with guanosine-based supramolecular particles. **D.L. Rodriguez Ayala**, J.M. Rivera

3:15 Coffee Break.

3:40 101. Electrochemical flexible biosensor development for neuropeptides and neurotransmitters detection in sweat. **A. Espinosa Vazquez**, E. Vazquez, L. Acosta, J. Diaz, K. Vicente Ramos, L. Cunci

4:00 102. DNA based microparticle molecular tension sensors for mapping cell mechanics in non-planar geometries and for high-throughput quantification. **Y. Hu**, V. Ma, R. Ma, W. Chen, Y. Duan, R. Glazier, B. Petrich, R. Li, K. Salaita

4:20 103. Novel screening method for fish exposed to Perfluoroalkyl substances (PFAS): Raman spectroscopy of blood plasma and machine learning. **L. Pérez Almodovar**, I.K. Lednev

Puerto Rico Convention Center 202 A

Biochemistry II Biosensors / Signaling

E. I. Pares-Matos, *Organizer* A. Baerga-Ortiz, *Presiding*

1:25 Introductory Remarks.

1:35 104. Bacterial Glycan Enrichment and Immobilization for Glycan Interacting Partner Analysis. **A. Murray**, J.M. Troutman

1:55 105. Withdrawn

2:15 106. In-cell mixture synthesis for profiling lipid metabolism and signaling. Q. Zhang, Y. Zhang, Z. Han, **Q. Zhang**

2:35 107. Linearly polarized and integrating sphereassisted resonance synchronous spectroscopies as bioscience tools: An example application with protein and silver nanoparticle interactions. **K.R. Carter**, M. Wamsley, J. Emerson, D. Zhang

2:55 108. Withdrawn

3:15 Coffee Break.

3:40 109. The release of the sulfonamide Toll-Like Receptor-4 inhibitor TAK-242 from surface modified cell surfaces attenuates allogenic immune responses in a in vitro co-culture model. **J. Mattke**, S. Vasu, C. Darden, M.A. Plunk, M.C. Lawrence, R.R. Kane, B. Naziruddin

Puerto Rico Convention Center 202 C

Discovery and Production of Bioactive Marine Natural Products

Y. Ding, Organizer, Presiding

1:25 Introduction.

1:35 110. What have we learned in the Caribbean about marine α -methoxylated fatty acids. **N.M.** Carballeira

1:55 111. Friomaramides. J. Bracegirdle, D. Casandra, P. Subramani, J. Rocca, J. Adams, N. Wilson, **B. Baker**

2:15 112. Bioactive marine algae natural and pseudo-natural products. M.L. Matos-Hernandez, W.O. Mendoza-Morales, G. Dyer, J. Cassel, I. Tietjen, T. Messick, **E.J. Caro-Diaz**

2:35 113. Discovery and production of bioactive marine natural products through genome-based and synthetic biology approaches. **Y. Ding**

2:55 114. Biosynthetic diversification of diketopiperazine natural products. **A.L. Lane**

3:15 Coffee Break.

3:40 115. Under the hood: surprises in biosynthesis of pyrrolic polyketides. **V. Agarwal**

4:00 116. Investigating the Effects of Heterologous Expression on Folding and Function of Actinomycetal Megasynthases. **T. Sword**

Puerto Rico Convention Center 209 C

Enabling Technologies in Drug Discovery and Development

A. Christian, *Organizer, Presiding* T. J. Henderson, *Presiding*



1:25 Introduction.

1:35 117. Withdrawn

1:55 118. Withdrawnr

2:15 119. Manufacturing Process Development of Nemtabrutinib (MK-1026). **N.R. Deprez**

2:35 120. Procedures and Concerns for the Industrial Synthesis of Isocyanates and Isothiocyanates. **T.T. Romoff**, B.J. Marchyshyn, A. Smith, G. Butler

2:55 121. Novel antibiotics target BamA lateral gate opening as mechanism of action. **K.M. Kuo**, J. Liu, A. Pavlova, J. Gumbart

3:15 Coffee Break.

3:40 122. Molecular hybridization: An effective and potential tool for the development of therapeutic agents. **S.S. Panda**

4:00 123. Structure-based approaches to inhibit Streptococcus mutans cariogenic virulence. **S.E.** Velu

4:20 124. Betulinic Acid Derivatives as Potential Anti-Cancer Agents. **S.C. Jonnalagadda**

Puerto Rico Convention Center 208 A

Evaluation and Assessment in Chemistry Education

M. Oliver-Hoyo, *Organizer* D. Cruz-Ramirez de Arellano, *Presiding*

1:25 Introductory remarks.

1:35 125. Reflections on using a Specifications Grading approach for organic chemistry I & II courses at Georgia Gwinnett College. **M.S. Morton**, M. Anzovino, o. Villanueva

1:55 126. Exploring student engagement in self-assessment through a two-tiered general chemistry instrument. **M. Balabanoff**

2:15 127. Fundamentals of chemistry: course impact and retention. **P.A. Shelton**, A.H. Shelton

2:35 128. Decoupling upper level labs from lecture courses in favor of a course-based research model. **L.B. Thompson**, S. Frey

2:55 129. Design and assessment of virtual cell culture laboratory training experiences for undergraduate and graduate students. D. Tredwell, D. Spencer, C. McKeown, B. Huckaby, A. Wiedner, J. Dums, N. Sudduth, E. Brown, P. Albright, A. Jhala, M.C. Srougi

3:15 Coffee Break.

3:40 130. Withdrawn

4:00 131. Key Stakeholders' Interpretations of Scientific Information Literacy: A Survey of Orange and Seminole County K-16 Educators. **M. Lam**, **C. Randles**

4:20 132. Creating a culture of assessment within the university and chemistry department. **H.V. Clontz**

Puerto Rico Convention Center 204

Inorganic Porous and Layered Materials Symposium II

J. L. Colon, M. Ramos-Garcés, L. Sun, *Organizers* M. Pica, *Presiding*

1:25 Opening remarks.

1:35 142. Imaging and Dynamics of 2-Dimensional H-BN Nanosheets in Aqueous Solution. U. Umezaki, A. Smith McWilliams, Z. Tang, A. Kolomeisky, M. Pasquali, **A.A. Marti-Arbona**

1:55 143. Controlling the formation of 2D MOFs versus 1D metal organic nanotubes (MONTs). J.A. Barrett, P. Nalaoh, **D.M. Jenkins**

2:15 144. Multivariate metal-organic frameworks as organic based solid-solution crystals with predictable structure, variable composition, and tunable fluorescent, redox, and photoredox properties. **F.J. Uribe-Romo**

2:35 145. Synthesis and Characterization of Zeolite-Encapsulated Organometallic Complexes for Oxidation Chemistries. E. Iaia, A. Shrestha, A. Soyemi, J.L. Groeber, G.R. Rana, A. Chowdhury, C.R. Diemer, T. Szilvasi, M.G. Bakker, **J.W. Harris**

2:55 146. Withdrawn

3:15 Coffee Break.

3:40 147. Modulation of Ruthenium (II) Tris-(2,2'bipyridine) Photophysics through Cavity Size in Zn (II) and Zr (IV) Metal Organic Frameworks. **R.W.** Larsen, J.M. Mayers

4:00 148. Nanoconfined catalytic sites in 2D layered metal oxides for the electrocatalytic oxygen evolution reaction. **D.R. Strongin**, U. Kakati, J. Ning, B. Roe, J. Sun

4:20 149. Andrographolide encapsulation in metalorganic frameworks as a drug delivery system for cancer applications. **W.S. Pantoja Romero**, Y. Aysa, A. Lavin Flores, N. Medina, G. Morell, B. Weiner, J. Coronas

Puerto Rico Convention Center 202 B

Organic Chemistry II Synthesis

D. J. Sanabria-Rios, Organizer, Presiding

1:25 Opening Remarks.

1:35 150. Synthetic efforts towards the total synthesis of Balgacyclamide's A & B. **S.M. Rivera Gotay**, A. Torres Hernandez, P.K. Desman, R. Rafferty

1:55 151. Enantioselective Synthesis of Triarylmethanes via Dirhodium Diaryl Carbene Compounds. **M. Lee**, H.M. Davies

2:15 152. Synthesis of Flavonoid 7-O-Glycosides. **L. Cai**

2:35 153. Design and synthesis of potential drug candidates for SARS-CoV-2. L. Brown, S.S. Panda

2:55 154. Synthesis and characterization of a Triapine azo compound as a potential anti-cancer drug. **A.E. Cardona Rivera**, N.K. García, R. Rodriguez, A.D. Tinoco

3:15 Coffee Break.

3:40 155. Discovery and Development of a Scalable Asymmetric Synthesis of Complex Cyclopropyl Boronates. **A. Gutierrez Bonet**

4:00 156. Ferrocenyl-urea-chalcones as potential anticancer agents. **J.A. Mendez Roman**, E. Peterson-Peguero, I. Montes

4:20 157. Building a toolkit of catechols to probe dioxygenase activity. **L.W. Peterson**, J. Steiner, E.G. Gruss, G. Xhafkollari, K.L. Nyamkondiwa, T.R. Squires, D. Strzeminski, S. Leyes-Porello, H. Caplan, K.L. Colabroy

4:40 End of Session.

Puerto Rico Convention Center 104 A

Sustainable Nanotechnology

C. L. Haynes, R. Hernandez, S. E. Mason, *Organizers* L. Echegoyen, *Presiding*

1:25 Opening remarks.

1:35 159. Exohedral and endohedral fullerene derivatives for applications in perovskite solar cells and as electrocatalyts for the Hydrogen evolution Reaction (HER) and Oxygen Reduction Reaction (ORR). **L. Echegoyen**

2:15 160. Density Functional Theory Simulation of Metal-Supported Metal Nanoparticles. **J.A. Santana**

2:35 161. Functional Nanocomposites for Energy Applications. **X. Zhang**, S. Sarwar, H. Du, Y. Liang, H. Wang, M. Flores

2:55 162. Green Molecular-Microwave Synthesis of Oxidation-Resistant Copper Nanoparticles for Air-Stable Printed Electronics. **L.J. Treadwell**, H. Lee

3:15 Coffee break.

3:40 163. Removal of arsenic, vanadium, and emerging organic pollutants (triclosan, organic dyes, benzene and derivatives, polyaromatic hydrocarbons) from water using nanomaterials, bionano composites, bio-beads, and recycled crumb rubber. **F.R. Roman**

4:00 164. Rational Design of Zeolites to Remove Siloxanes with High Adsorption Loading and Enhanced Adsorption Energy. **B. Liu**, Z. Chen

4:20 165. Withdrawnr

Puerto Rico Convention Center Ball Room A

The Chemistry of Solar Fuels I

J. L. Dempsey, J. Velazquez, J. Y. Yang, *Organizers* J. L. Colon, *Presiding*

1:25 Opening remarks.

1:35 166. The LiSA Roadmap: Routes to selective synthesis of liquid solar fuels via coupled microenvironments. **H. Atwater**

1:55 167. CO₂ electrochemical reduction mechanism on copper electrodes: Intrinsic kinetics and the role of mass transport. J. Jang, C.G. Morales-Guio

2:15 168. Chemical challenges facing scalable hydrogen production with alkaline membrane electrolyzers. **S.W. Boettcher**

2:35 169. On the mechanism of water oxidation in nickel-iron layered double hydroxides. **B.M. Hunter**

2:55 170. Earth-abundant electrocatalysts for the oxygen evolution reaction of water splitting using nanostructured layered inorganic materials. **J.L. Colon**, M. Ramos-Garcés, J. Sanchez, K. La Luz-Rivera, A. Cortés-Ortiz, V.M. Figueroa-Lozada, Y. Serrano-Rosario, Y. Wu, I. Barraza-Alvarez, D. Villagran, T.F. Jaramillo

3:15 Coffee Break.

3:40 171. Aqueous interfaces and energy transformations: first principles studies. **G.A. Galli**

4:00 172. Contactless Measurement of the quasi Fermi levels in illuminated Films of BiVO₄, GaP, and CuGa3Se5in Contact with Aqueous Electrolytes. **F.E. Osterloh**, K. Becker, A.C. Kundmann, S. Daemi, Y. Cheng

4:20 173. How the Surface Chemistry of Tungsten Oxide Influences its Activity for the Oxygen-Evolution and Chlorine-Evolution Reactions. **B.M.** Bartlett

Puerto Rico Convention Center 201 B

Inorganic Chemistry II -Synthesis

M. B. Santiago-Berrios, *Organizer* J. Roque, *Presiding*

1:25 Welcoming Remarks.

1:35 133. Designing stable and efficient hydrogen evolution catalysts. **C.A. Mebi**

1:55 134. Accessing new quaternary Chevrel phase compositions (AxByMo6S8) via electrochemical intercalation. **K. Ritter**, E. Cortez, J. Velazquez

2:15 135. Ferrocenyl diphosphine nickel and platinum carbonyls: a comparative study. **A. Z. Leal, S. Schreiner**

2:35 136. Nickel Complexes with Redox Active and Pendent Bases for Light-Driven Hydrogen Production. **W.T. Eckenhoff**

2:55 137. Graphene composite materials to enhance photoelectrochemical performance for water splitting. **G.K. WATIRO**

3:15 Coffee Break.

3:40 138. Synthesis and Analysis of Chromium (III) Phosphate. **J.W. Hall**, S.K. Hutchison, M. Subramaniam

4:00 139. The mechanism to metastability in copper selenides. **A. Koziel**, R.B. Goldfarb, E.J. Endres, J. Macdonald

4:20 140. Simulating photophysical properties of d6 and d8 organometallic qubits candidates using ORCA, DFT and Post-Hartree-Fock methods, at a high-performance computing environment. **D.C. Alamo**, D.A. Hrovat, T.R. Cundari

4:40 141. When congeners are not comparable: The case of the bulky tetra(allyl) germanium, [Ge{1,3-(SiMe3)2C3H3}4]. **L. Wenger**, T.P. Hanusa

Puerto Rico Convention Center Ball Room B

6:30 - 8:30 Sci-Mix Poster Session I N. M. Carballeira, *Organizer* M. J. Bayro, D. Cruz-Ramirez de Arellano, R. Quinones, B. J. Ramos-Santana, M. B. Santiago-Berrios, *Presiding*

6:30 - 8:30

Chemical Education.

179. Creating Community and Encouraging Professional Development in Undergraduate Research Programs. **V.P. McCaffrey**

180. Withdrawn

181. Withdrawnr

182. Empowering students to take ownership of learning: Impact of algorithmic questions and retakes in general chemistry assessments. **M. Mendez Polanco**

183. Withdrawn

184. Helping students bridge the gap between general chemistry and organic chemistry: Introduction of mindful doodling into organic chemistry I courses at Georgia Gwinnett College. **M.S. Morton**

185. EPRI|U: A Snapshot of the Education and Training Continuum in the Energy Sector. **B.A. Maynard**, P. Schwenk, T. Green, T.E. Slayton, K. Hallman, C. Fitzsimmons, C. Lease

186. Career Soft Skills Workshop Targeted for STEM Majors. **N.O. Flynn**

187. Professional STEM Identity: Exploring how students identify within their profession and factors

that impact it. C. Bechard, A. Castillo, T. Legron-Rodriguez, **N. Lapeyrouse**

188. Connecting the Community to the Chemistry of Fashion: A Conversation Grounded in Diversity, Equity, and Inclusion. **P.M. Leggett Robinson**, L.A. Royer, T. Blue, M. Kelley, J. Robinson, N.L. Powell, F. Doxie

189. ACS resources for risk- based safety education. **M. Gmurczyk**

190. Withdrawnr

191. Get involved with the ACS Division of Chemical Education. **D. Cruz-Ramirez de Arellano**

192. Comics and Superpowers: A Hook for Student Engagement in a General Chemistry Course. **A.L. Patrick**

193. Molecules that changed the world: Enhancing chemical literacy through a first-year seminar course for all majors. **A.C. Gaquere**

194. Development and application of a threshold concept scoring rubric. **A. Bly**, S. Nkomo

195. C.H.E.M. Leaders: Soft skills and leadership training program outside a chemistry curriculum. **B.L. Butler**

196. William Kelly pneumatic iron processrevisited. **B.G. Loganathan**

197. Development of Modern Virtual Scientific Instruments for use in Chemical Education. L. **Slaber**, R. Gomez, B. Sermania, S. Shamloo, N. VanFossen, M. Stewart, P. Raston

198. Relationship of Fatty Acid Structure and Soap Properties: Inquiry Based Lab Experiment for Undergraduate Chemistry. **F.F. Marques Burke**, A. Klazinga

199. Development of new laboratory practices for the organic chemistry course focused on the synthesis of ferrocenyl derivatives using Friedel-Craft and esterification reactions. **U. Maldonado**, **R. Perez-Martinez**, G. Narvaez, R.R. Rodriguez Berrios

200. Progress Towards an Aqueous Thermally Regenerative Electrochemical Cycle (TREC) Cell. **R.A. Girgis**, R.J. Noll

201. Withdrawn

202. Promoting -inclusion- through active learning to improve students' performance and perception of the General Chemistry course. **B. Castillo**, R. Tremont, J. Vedrine-Pauleus, L. Casillas-Martinez

203. Quantitative look at how students fared in two chemistry classes during COVID-19 hybrid instruction. **D.R. Zuidema**

204. Creating successful student chapters workshop. **S. Hutchison**, **L. Woods**, J.M. Hanna, W. Case, J.L. Brumaghim, J.G. Kaup

205. Hypervalent iodine mediated 6-endo alkoxyamination. **J. Carter**, D. Liskin

206. "Chemistry in your life": non-formal educational experiences designed for community outreach activities. M.H. Moreno, E. Duclos Polanco, Y. Ortega Avilés, A. Llanos De Jesus, I. Montes Gonzalez

207. Design of an inclusive Pre-semester STEM bootcamp experience for Latinxs. **I.I. Rodriguez-Velez, S.I. Rodriguez-Maldonado**, P.X. Rosario-Nieves, K.M. Alicea-Torres, M. Morales-Burgos, L. Casillas-Martinez

208. Development of selective oxidation of primary and secondary alcohols in undergraduate organic chemistry laboratory. **M. Long**, R.A. Quinlan, D.V. Liskin

209. Overcoming the challenges of virtuality to impact our members and community through the transforming power of chemistry. E. Almanzar, G. Bosques, A. Conde, **O.A. Conde**, C. Cruz, C. Cruz, N. Lebron Acosta, **A. Llanos De Jesus**, U. Maldonado, **M. Rodríguez**, J. Rosa, Y. Vélez, I. Montes Gonzalez

210. The Transformation of the General Chemistry Course in the University of Puerto Rico, Río Piedras Campus from Face-to-face to an Online Course. **K. Davila-Diaz**

211. Lewis-Acid controlled endo hydroxyamination of tethered aminoalkenes. **S. Stock**, D. Liskin

212. Buffer-free Quantification of Iron in Ferrous Sulfate Supplements Using Cyclic Voltammetry. L. **Eubanks**, I. Agyekum

213. Withdrawn

214. Research for improved student experiences in Science Technology Engineering and Math (RISE in STEM). **M.P. Alvarez**, D.I. Torres-Padilla, G. Haynes

215. Withdrawn

216. Multi-step synthesis of phenylalanine and related amino acids for the organic chemistry laboratory. **K. Shehata**, **C. Clinger**

217. Withdrawn

Surface Chemistry.

218. Studying the ecotoxicity of algal polysaccharide-gold nanoparticles in marine ecosystems. **M. Torres**, L.M. Diaz

219. Molecular Dynamics Simulation of Poloxamer 188 and POPC Membranes. **M. Turnipseed**

220. Sargassum sp., Jania sp., and Ulva sp.- based fashion nanostructured textiles. **J. Luciano**, L.M. Diaz

221. Engineering a new class of structurally and electronically robust supramolecular-based light-harvesting materials with optimized charge carrrier mobilities through covalent confiment of non-equilibrium self-assemblies. **V.A. Paulino**, O. Jean-Hubert

222. Tuning the structure-function properties of chromophoric states of an NDI-based redox probe to dictate the potentiometric properties of n-type hybrid Si interfaces. **I. Tsironi**, A. Mukhopadhyay, O. Jean-Hubert

223. Withdrawn

224. Rylene dye-based out-of-equilibrium semiconducting transient self-assemblies driven by

the consumption of carbodiimide fuels. **I. Tsironi**, **J. Maleszka**, R. Wilson, O. Acevedo, O. Jean-Hubert

225. Compilation and update of scientific articles focused on nanostructured materials for hydrogen production. **E. RODRIGUEZ-HERNANDEZ**, J. MENDOZA NIETO

226. Dicyclopentadiene Aerogels via Chemically Induced Phase Separation (CIPS). **Z.J. Fossitt**, K.E. Johnson, R.M. Mayville, H.J. Schanz

227. Cyclic disulfide liposomes for membrane functionalization and cellular delivery. **M. Qualls**, J. Lou, D. McBee, J.A. Baccile, M. Best

228. Dynamic cell adhesion studies on novel touch spun nanofibers. **V.N. Mohakar**, V. Reukov, S. Minko

229. Analyzing Growth of B35 Neuroblastoma Cells on Nitinol Nanoparticles Modified with Antibiotics. **A. Damai**, R. Quinones, N. Spitzer, B. Crockett

230. Morphological and Physiochemical Effect of Cellulose Polymerized Ionic Liquid as a function of Alky Chain Length. **K. Nguyen**, L. Freeman, T. Summers-James, K.M. Miller, D. Salas-De la Cruz

231. Evaluation of Halogen Macroinitiators using Atom Transfer Radical Polymerization (ATRP) to Develop Zwitterionic Membranes. **A.S. Rodriguez Rolon**, E. Nicolau

232. 3D printed sound absorber panels. **N. Gama**, G. Pinheiro, I. Cardoso, R. Ribeiro, P. Pinto, V. Freitas, A. Ferrira

233. Preparation and characterization of chitosancoffee silverskin composites. **Y. Cortes Rosario**, O.M. Suárez

234. Machine-learning enabled design of polyolefin deconstruction processes. **P. Gonzalez**

235. Novel Dual Drug Loaded Chitosan - Graphene Quantum Dots Composite for Therapeutic Delivery and Tracking Through Enzymatic Stimuli Response. **K. B N**, R. Shambu, S. k

236. Mechanically Active Depolymerizable Polymer. **J. Rivera**, H. Tze-Gang, J. Wang

237. Withdrawnr

238. Withdrawn

Biochemistry

239. Backbone Functionalization and Morphology of HEC in response to Ionic Liquids. **T. Summers-James**, K. Nguyen, K.M. Miller, D. Salas-de la Cruz

240. Effect of silver nanoparticles on migratory properties of cultured fibroblasts. **B. Sharma**

241. Development of DNA aptamers against structural proteins of SARS-CoV-2. R. Velazquez Roig, J.A. López Gonzales

242. Structural heterogeneity in the HIV-1 capsid: Microcrystallization and NMR analysis. Guivert Michel, Raixie Melendez, Jeremy Gonzalez, Marvin J. Bayro. **G. Michel**

243. Isolation and characterization of protein complexes of overexpressed Human Serum Amyloid A from citokines-inducedHepG2 cells. **C.G. Garcia-Cortes**

244. Use of biocompatible and antimicrobial superficial coating using a peptide polymer conjugate to combat biofilm formation. V. Ortiz Gomez, A. Gomez Cardona, R. Maldonado Hernandez, E. Nicolau

Inorganic Chemistry.

245. Crystal Structure, Hirshfeld Analysis, and DFT calculations of Ferromagnetically-Coupled CuII3–Pyrazolato Polymorphs. **K. Rue**, G. Mezei, L. Mathivathanan, A.M. Mebel, R. Raptis

246. Synthesis, Characterization, and Reactivity of New Pincer Ligands for Forming Ruthenium Catalysts for Carbon Dioxide Reduction. **W. Silprakob**, S. Das, d. nugegoda, J.H. Delcamp, E.T. Papish

247. Stilbene-based metal-organic frameworks: synthesis, structure carbon dioxide adsorption properties. **C. Ingram**, **S. Golafale**, **D. Veazie**

248. Halogen Bonding of Triiodide Anions with Organoiodine Molecules. **M.M. Bandara**, K. Kobra, A. Peloquin, R. Dean, S.R. Watts, B. Sebastian-

Olazabal, E. Haines, A. Cobb, A. Miller, C.D. McMillen, W.T. Pennington

249. Novel two-dimensional metal metalloporphyrin framework films for the photocatalytic degradation of mustard simulant via singlet oxygen generation. **Z.L. Magnuson**, R.W. Larsen

250. Metal binding properties and cytotoxic activity of a potential inhibitor of ribonucleotide reductase. **I. Rodriguez**, C. Nieves, E. Almanzar, A. Soto-Millan, E. Strangmark, A.D. Tinoco

251. Withdrawn

252. Solution based synthesis of black indium oxide nanoparticles. **C.S. Armstrong**, K. Otero, E.A. Hernandez-Pagan

253. Withdrawn

254. Room Temperature Gas Sensor Based on Peripheral Tetrasubstituted Cobalt Phthalocyanines for the Detection of ppm Levels of Nitrogen Dioxide. **J.A. Cruz-Lozada**, D.M. Pinero Cruz, S. Flores

Undergraduates.

255. Lunar Basil: An Analysis of Basil by Inductively Coupled Plasma Optical Emission Spectroscopy (ICP-OES) and Solid-Phase Microextraction (SPME) to Gas Chromatography Mass Spectrometry (GC-MS). **K. Harper**, N. Kriegel, F. Miccolis, G. Young, K.W. Barnes

256. Pedagogical approach to the simultaneous analysis of acetaminophen and caffeine in analgesics. **F. Pereira**, A. Ross, K.W. Barnes

257. Diffusion studies of liquid state quinidine compounds. **W.L. Collier**, T.D. Robertson, O.A. Cojocaru

258. MALDI mass spectrometric approach for understanding metal speciation. **A. Vargas Figueroa**, A.D. Tinoco

259. Atomic and Molecular Investigation of Corrosion Using Handheld Instrumentation After Accelerated Weathering of Steel and Aluminum Substrates. **L. Kogan**, K.M. Bucholtz, J.D. Keene **260.** Optimization of SPME Arrow Sampling for In-Situ Floral Scent Analysis. L. Melton, C. Grabbe, **B.O. Obi-Johnson**

261. What's the 4-1-1 on 4:20? Comparison of analysis methods for THC and CBD quantitation in hemp hearts and other products derived from cannabis. A. Brown, L. Reynolds, **M.J. Vergne**

262. Withdrawn

263. Identification of Heroin, Morphine, and Novel Synthetic Opioids using Thin Layer Chromatography for a Presumptive Field Test Kit. **C. McDavid**, J.O. Boles

264. Withdrawn

265. Efficiency of Solid Phase Extraction for the Quantitative Analysis of Poison Frog Alkaloids. **S. Moreau**, R.W. Fitch

266. Thermodynamic analyses of papGII, an E. coli adhesin. **S.A. Hinson**, M.T. Regaa, A.C. Sarcona, A.T. Mikaeel, T.B. Cavitt

267. Thermodynamic analyses of fimH, an E. coli adhesin. **A.C. Sarcona**, A.T. Mikaeel, S.A. Hinson, M.T. Regaa, T.B. Cavitt

268. Withdrawn

269. Testing the model of Nur function using nonstandard amino acids. **V. Lightfoot**, N.E. Grossoehme

270. Extraction and in vitro evaluation of proteins obtained from endemic Puerto Rican flora for the treatment of Alzheimer's disease. D.J. Sanchez Rodriguez, M.P. Alvarez, **M. Sosa-Sanchez, I. Gonzalez Figueroa**

271. Determining the optimal nanodisc lipid to protein ratio for lipid mixes of varying lipid head groups and tail features. **K. Nguyen**, **K. Nguyen**, K. Strickland

272. Isolation of soil microbes and screening for antimicrobial activity against ESKAPE pathogens. J. Miller, E. Kim, J.D. Dattelbaum

273. How is the enolase enzyme capable of deprotonating 2-phosphoglycerate in the glycolysis

pathway? Contributions by resonance and inductive effects. **C. Urquhart**, A. Weinberg, J.M. Karty

274. Quantification of Bromotyrosine as a Biomarker for Pediatric Eosinophilic Esophagitis. **M.E. Thomas**, J.M. Woollery, W.M. Gilliland

275. ZCZ011 binding to the CB1 Receptor and G protein stabilization. J. Shim, A. Hernandez, F. Goodman

276. 2D-NMR Characterization of liquid state thioridazine drugs. **C.E. Rust**, O.A. Cojocaru

277. Transition state calculations for the possible synthesis of 10,11diphenylcyclobuta[5,6]pyrazino[2,3f][1,10]phenanthroline. **J. Powell**, S. Nkomo

278. Efficient NiFe electrocatalysts for oxygen evolution reactions. R. Lange, **A. Snyder**, F. Zuo

279. Synthesis and Characterization of 9,10-Bis-(iodoethynyl)anthracene for 2D Molecular Crystals from Halogen-Bonding. **N. Antoine**, **M. James**, J.A. Pienkos, K. Dungey, C. McMillen

280. Iridium-diphosphine carbonyl and hydride complexes: synthesis and structure. **B. Wargo**, **S. Schreiner**

281. Determining how the N-oxide functional group impacts the properties of transition metal compounds. **M. Shevlin**, V. Goodwin, C. McMillen, J.A. Pienkos

282. Synthesis and characterization of new complexes of ruthenium (II) with chelating phosphine ligands: structures and cytotoxic studies.I. McNulty, S. Schreiner

283. Withdrawn

284. Computational Study of structure and reactivities of free Radicals in the presence of different organic moieties. **K. Ra**, B.K. Dey

285. Emissive platinum complexes and the photophysical impact of the trifluoropropynyl ligand. **M. Thomas**, J. McCarthy, P.S. Wagenknecht

286. (Diethylaminosulfur) trifluoride (DAST)mediated sulfonation of carboxylic acids with dimethyl sulfoxide. **S. Hutchins**, T. Porter, M.A. Lnu

Puerto Rico Convention Center 201 A

Analytical Chemistry III - Optical

L. Cunci, *Organizer* L. F. Lopez, *Presiding*

9:55 Introductory remarks.

10:05 287. Synthesis of an asymmetric thiazolo[5,4-d]thiazole fluorescent dye library: From molecular design to biosensing applications. **P. Chakraborti**, O. Mikula, N. Sayresmith, M. Walter

10:25 288. Fluorescent silica nanoparticles having variable surface and internal properties for bioanalytical applications. **G. Patonay**, M. Henary

10:45 289. De Novo Construction of Fluorophores: A Chemical Strategy Towards Highly Sensitive and Highly Selective Turn-on Fluorescent Probes for Carbon Monoxide. **X. Yang**

11:05 290. Investigating cellulose nanoresin for extracting drinking water contaminants of per- and polyfluoroalkyl substances at picomolar scale. **R. Dosi**, S. Schmal, J.C. Poler

11:25 291. Binding interactions between colorimetric indicators and metal ions. A.D. Dukes, W.R. Craig, A. Labra-Arteaga, R. McPherson

11:45 292. Chemical and physical properties of unmodified and modified ground peanut hulls and their relation to biosorption applications. **C.L. Huffman**, S.W. Huffman, C. Knobeloch, H. Truluck, M.J. Sands, M. Glatte

12:05 293. Enhancing sensor selectivity using extracting agents. **M.J. González**, U. Rathnaweera, H. Sowell, N. Busschaert

Puerto Rico Convention Center 104 B

Chemical Business Best Practices X. Simon, *Organizer, Presiding*

9:55 Introductory Remarks.



10:05 294. ACS Division of Small Chemical Businesses (SCHB) background, programming, and member benefits. **X. Simon**, J.E. Sabol

10:25 295. Healthcare sustainability, disposable vs reusable speculums for pelvic examinations: A case study using a life cycle assessment approach. **M.I. Rodriguez Morris**, A. Hicks

10:45 296. Entrepreneurial journey of a great idea that delivers a breakthrough platform technology to address unmet needs in biopharma. **B. Pastrana-Rios**

11:05 297. From discovery to the clinic: The pathway for MBQ Pharma. **C.P. Vlaar**

11:25 298. Electrochemical impedance spectroscopy as a tool for translational research in oncology and the seed for an SBIR grant. **R. Diaz-Ayala**, L. Cunci, C.I. González, C.R. Cabrera

11:45 299. Industry collaboration: Joint development agreements in startup companies. **X. Simon**

12:05 300. Regulation of unstable chemicals: What happens when commercial chemicals are generated on demand. **X. Simon**

Puerto Rico Convention Center Ball Room A

DEIR Symposium: Building Inclusive DEIR Communities through Societal Organizations

- B. Shannon, Organizer
- R. A. Robinson, Presiding

FOSTERING Diversity, Equity, Inclusion & Respect IN THE CHEMISTRY COMMUNITY

9:55 Introduction.

10:05 301. The state of science and the need for STEM advocacy. **J. Seth**

10:45 302. Systematizing Change and Altruism through Ecosystems focused on Broaden Participation in STEM. **T. Williams**

11:05 303. What about persons with disabilities in the DEIR discussion? **M.R. Cummings**

11:25 304. Working from the bottom up: When the top is conflicted on DEI for LGBTQ+ individuals. **C.J. Bannochie**

11:45 305. Importance of affinity organizations in corporate environments for growth and retention of diverse talent. **S. Kennedy**

12:05 306. Professional societies: Paving pathways and empowering legacies, an IDEAL journey. **C. Grant**

Puerto Rico Convention Center 202 C

Innovative Ways to Communicate the Value of Chemistry to the Public S. R. Goode, *Organizer, Presiding*

9:55 Introductory remarks.

10:05 307. Connecting chemistry to society and fostering community appreciation of science. **B.Z. Shakhashiri**

10:45 308. ACS resources for communicating science to the public. **S.R. Goode**

11:05 309. Experiential learning through service: how chemistry lessons to young children keep chemistry majors engaged. E. Carver, M. Griffey, J. Pelren, D. Sizemore, E. Tester, J.V. Glass, **A.H. Shelton**

11:25 310. Cowboy Chemistry: Using storytelling, comedy, and podcasting to increase chemistry literacy, relatability, and accessibility. **D. Gardner**

11:45 311. Chemists Should Write Like Journalists and Talk Like Cavemen. **R.C. Fortenberry**

12:05 312. Finding the bigger picture: Chemicals in a global supply chain. **S.M. De Carlo**

Puerto Rico Convention Center 204

Inorganic Porous and Layered Materials Symposium III

J. L. Colon, M. Pica, L. Sun, *Organizers* M. Ramos-Garcés, *Presiding*

9:55 Opening remarks.

10:05 313. Reversible Structural Transformations in Layered Solids. E. Broker, C. Hernandez, **B.M. Mosby**

10:25 314. Nacre-like Polymer/Clay Nanocoatings with Exceptional Mechanical, Barrier, and Flame-Retardant Properties from One-Step Coassembly. A.M. LaChance, **L. Sun**

10:45 315. Zirconium phosphates and phosphonates: from solid-state proton conductors to nanofillers for PEMFC ionomers. **A. Donnadio**, M. Pica

11:05 316. Hydrophobic silica aerogel characterization through 129Xe NMR and other spectroscopic techniques. **J. Barboza**, I.F. Cespedes-Camacho

11:25 317. LDH-based composites as multifunctional materials. **M. Nocchetti**, A. Donnadio, M. Pica, R. Vivani

11:45 318. Methodical investigation of cation exchange reactions in metal chalcogenide thin films. **H. Lacey**, P. Zaman, J. Routzahn, E.A. Hernandez-Pagan

12:05 319. Structure-reactivity relationships in molybdenum chalcogenide electrocatalysts: Evaluating the interplay between aqueous proton stabilization and carbon dioxide conversion selectivity. **J.C. Ortiz**, J. Velazquez

Puerto Rico Convention Center208 B

Interdisciplinary Science for Arid Lands Energy and Water Sustainability I

V. Bermudez Benito, J. D. Kubicki, *Organizers* C. R. Cabrera, *Presiding*

9:55 Introductory Remarks.

10:05 320. An Overview of the Kay Bailey Hutchison Desalination Plant. **S. Reinert**

10:25 321. Advanced treatment of treated sewage effluent (TSE) for beneficial reuse applications in desert climates. **O.O. Ogunbiyi**

10:45 322. Characterization of metal hydride materials for thermal energy storage systems. **Z.A. Duca**, S. Hunyadi Murph, H.T. Sessions, P.A. Ward

11:05 323. Tandem Microbial and Alkaline Fuel Cell Systems for Urine Purification for Water Reclamation at Arid Environments. W.J. Cardona, G.A. Toranzos-Soria, **C.R. Cabrera**

11:25 324. Modeling and Applications of Hyperspectral Imaging. **M. Velez-Reyes**

11:45 325. Advanced High Temperature Thermochemical Energy Storage Materials for Concentrated Solar Power Applications. **P.A. Ward**, Z. Duca, R. Zidan

12:05 326. Spin-regulated Catalysis for Energy and Water Sustainability. **S. Sreenivasan**

Puerto Rico Convention Center 208 C

Symposium on Sustainable Green Chemistry I

H. Cheng, *Organizer* J. C. Colberg, *Presiding*



9:55 Introductory Remarks.

10:05 327. Family environmental sustainability action plan to reduce household GHG emissions: Key component in community climate change mitigation action plan. **R.C. Wingfield**

10:25 328. Organic batteries: A metal-free design for sustainable and high-performance energy storage. **J. Asenbauer**, K. Shi, M. Erakca, S.P. Bautista, M. Weil, V. Gouget, L. Picard, S. Jestin, S. Bayle, D. Bresser

10:45 329. Identifying electrocatalysts for reactive CO₂ capture (RCC). **A.C. Matus**, J.Y. Yang

11:05 330. Utilization of Carbon Dioxide in Copper-Catalyzed Boracarboxylative Difunctionalization of Alkenes. **B.V. Popp**

11:25 331. Withdrawn

11:45 332. Bioremoval of sulfur impurities from synthetic fuels using agricultural wastes. **A.E. Navarro**, A.O. Efunnuga, S. Cime

12:05 333. Molecular dynamics-driven search for natural disinfectants that universally target Receptor-Binding Domain of spike glycoprotein in SARS-CoV-2 variants. O. Ovchynnykova, **K. Kapusta**, N. Sizochenko, K.M. Sukhyy, W. Kolodziejczyk, J.M. Saloni

Puerto Rico Convention Center 208 A

The Chemistry of Solar Fuels II

J. L. Colon, J. L. Dempsey, J. Velazquez, J. Y. Yang, *Organizers* K. Bren, *Presiding*

9:55 Opening remarks.

10:05 334. EPR Studies of the Enzymatic Synthesis of the Organometallic H-Cluster of [FeFe] Hydrogenase. **R.D. Britt**

10:25 335. Cytochrome catalysts for artificial photosynthesis. **K. Bren**

10:45 336. Mechanism of Hydrogen Evolution with [Cp*Rh] Complexes. **J.D. Blakemore**, W. Henke, D.C. Grills, D.E. Polyansky, E. Fujita

11:05 337. Kinetic Enhancement of Proton Transfer Reactions in Electrocatalysis Using Nanocluster structures. **L.A. Berben**

11:25 338. Breaking Molecular Scaling Relationships for CO2 Reduction: Increasing

Electrocatalytic Activity at Decreased Effective Overpotentials with Molecular Catalysts. C.C. McCrory

11:45 339. Selective and efficient conversion of CO to methanol: Towards cascade strategies for CO2 reduction to liquid fuels. A.V. Mueller, M. Ertem, D.E. Polyansky, G.J. Meyer, D.C. Grills, R. Sampaio, **J.J. Concepcion**

Puerto Rico Convention Center 209 C

Unusual Structure and Reactivity of Inorganic Molecules I

S. Westcott, *Organizer* C. Martin, *Organizer*, *Presiding*

9:55 Opening remarks.

10:05 340. Organometallic single-molecule magnets containing radicals and bismuth. F. Benner, P. Zhang, F. Delano IV, **S. Demir**

10:25 341. Comparing First Row to Heavier Metal Reactivity Through SNS Amido and Thiolate Ligands. S. Ataie, M. Lohoar, **R. Baker**

10:45 342. Ru-catalyzed ammonia oxidation: Mechanistic insights from stoichiometric and electrocatalytic reactions. **M.R. Smith**, C. Chen, R. Ghazfar, T. Hamann

11:05 343. C-H Activation Reactions with Complexes of Boryl-Centered Pincers. **O. Ozerov**, Y. Cao, W. Shih, N. Bhuvanesh, J. Zhou

11:25 344. Ambiphilic ligands featuring a carbenium ion as the Lewis acidic functionality. F.P. Gabbai

11:45 345. Synthesis, structure, and reactivity of mono- and binuclear [Ni] complexes supported by multidentate tautomeric ligands. **C. Kennedy**

Puerto Rico Convention Center 104 C

WCC Symposium: Crossing boundaries: The Resilience of Women Chemists Acá y Allá I K. C. Caflin, Organizer L. Tribe, Presiding



9:55 Introduction.

10:05 346. Women Chemists Committee: Celebrating women's accomplishments and resilience. **A.M. Balija**

10:45 347. A "jump" from a Caribbean island to being a chemistry faculty in the Appalachian. **R. Quinones**

11:05 348. Learning Agility, Career Resilience and Success in the Chemical Enterprise. **D. Haase**

11:25 349. "We are the sum of our experiences" – a STEM perspective. **M. Ruths**

11:45 350. Culturally sensitive strategies to promote inclusion for Latinas in STEM. L. Casillas-Martinez

Puerto Rico Convention Center 203

XRD in the Southeast - Advances in X-Ray Crystallography in Research I W. E. Lynch, C. W. Padgett, D. M. Pinero

Cruz, Organizers, Presiding

9:55 Welcome - Opening Remarks.

10:05 351. XRD to the rescue: Case studies from the coordination chemistry of new chalcogenone ligands. A.O. Clinkscales, **D. Rabinovich**

10:25 352. The titanium (IV) transferrin complex as a case study for transferrin bioregulation of nonferric metals. **A.D. Tinoco**, J.A. Benjamin-Rivera, M. Saxena, S. Sharma, N. Noinaj, A. Vazquez, N. Zambrana

10:45 353. Indirect Substituent Effects through an Oxide Moiety in Oxo-Bridged Heme/Copper Assemblies. **S. Hematian**, F. Khan, R. Li, M. Tapia

11:05 354. Crystallography of Ionic Liquids: Explaining the unexpected properties of thiazolium salts. **P.C. Hillesheim**, L. Teodoro, M. Zeller

11:25 355. Predicting long-range electronic coupling between metal centers: the role of XRD in identifying electronically delocalized systems. **K.M. Clark**

11:45 356. Uses of X-ray powder diffraction in layered inorganic nanomaterials chemistry research. **J.L. Colón**

Puerto Rico Convention Center Ball Room B

10:00 - 12:00 Sci-Mix Poster Session II

N. M. Carballeira, *Organizer* J. Almirall, M. J. Bayro, L. Cunci, M. B. Santiago-Berrios, *Presiding*

Forensic Chemistry

357. Comparison of Vapor Profiles of Fresh and Highly Weathered Crude Oil. **M. Karpinsky**, S. Vaughan, V.A. Gokool, L. DeGreeff

358. Surface-enhanced Raman Spectroscopy (SERS) as a Detection Tool for Synthetic Cathinones. **M.O.** Vendrell-Dones, B. McCord

359. Influence of Soil Composition on the Release of VOCs from Buried Explosives. **E. Calabrese**, S. Vaughan, L. DeGreeff

360. Effects of Degradative Stress on the Headspace Profile of Fentanyl. L. Forte, A. Fulton, S. Vaughn, L. DeGreeff, H. Holness, K.G. Furton

361. Novel universal method based on Raman Spectroscopy and Machine Learning for the identification of all main body fluids: Method validation vs. environmental interferences. **L. Perez Almodovar**, I.K. Lednev

362. Determination of the breakdown products of black tar and powder heroin: Method optimization via Ultra Performance Liquid Chromatography-Photo Diode Array (UPLC-PDA) detection. **A. Sanchez**, B. McCord, I. Lurie

363. Quantitative analysis of Δ 9-tetrahydrocannabinol (Δ 9-THC) and other cannabinoids with the Fast-Blue BB colorimetric test. **N.B. Valdes**, R. Gorziza, J. Almirall

364. Use of Capillary Microextraction of Volatiles (CMV) for the Characterization of Volatile Organic Compounds (VOCs) emitted from Hemp and Marijuana Plants. **J. Rodriguez**, J. Almirall

365. Differentiation of structurally similar fentanyl analogs with theoretical and experimental analysis by Surface-enhanced Raman Spectroscopy (SERS). **S. Dogruer Erkok**, E. Hernandez, B. McCord

366. Utility of gas chromatography vapor-phase infrared spectroscopy (GC-VIR) for the identification of positional isomers of fentanyl related substances (FRS) and cannabinoids. **K.** Ferguson, J. Almirall

Biochemistry

367. Synthesis of HIV-1 maturation inhibition derivatives to assess Gag assembly stabilization. **K. Reyes Colon**, C. Díaz-Corretjer, C.P. Vlaar, M.J. Bayro

368. Investigation of methyl coenzyme M reductase assembly, post-translational modifications, and coenzyme F430 delivery. **C. Rand**, S.O. Mansoorabadi

369. Tracking of endogenous PER2 circadian oscillations via split-luciferase reporters. **B. Kalyanaraman**, C. Dahlke, S. Lellupitiyage Don, M.E. Farkas

370. Understanding network compensation in cellular circadian machinery via inducible degron technology. **K. Chhe**, S. Lellupitiyage Don, M.E. Farkas

371. Detection of fecal contamination of strawberries by digital PCR (dPCR). **N. Fernandez Tejero**, A. Sanchez, B. McCord, G.T. Duncan, C. Bilodeau

372. Toward the discovery of biological functions associated with the mechanosensor Mtl1p of Saccharomyces cerevisiae via integrative proteomics and metabolomics analyses. **N. Chorna**, N. Martínez Matías, S. González Crespo, L. Villanueva, I. Montes Rodríguez, L. Melendez Aponte, A. Roche-Lima, E. Santiago-Cartagena, B. Rymond, M. Babu, I. Stagljar, J. Rodríguez Medina

373. Enzymatic activity of novel six-coordinate globinX. **R. Farhana**, B. Sophie, D. Vallerie, J. Miksovska

374. Investigation of structural effects of incorporation of 6-oxo-M1dG, a major peroxidation-derived DNA adduct into DNA duplex. **Y. Fu**, M.P. Stone, L.J. Marnett, P. Kingsley, R. Richie-Jannetta

375. Investigation of non-structural protein 2 (nsp2) inhibitors as therapeutics for encephalitis and Chikungunya viral infections. **O. Adeyinka**, D. Metibemu, O. Crown, O. Ajayi, I.V. Ogungbe

376. Novel vinyl sulfone-based inhibitors of trypanosomes that have *in vivo* efficacy. **D. Metibemu**, O. Ajayi, O. Crown, O. Adeyinka, I.V. Ogungbe

377. Design and synthesis of dual-targeting deferiprone-based therapeutics for the treatment of triple-negative breast cancer. **A. Johnston**, A.K. Oyelere

378. Kalanchoe daigremontiana (Raym.-Hamet & H. Perrier): Su efecto en el proceso de apoptosis de células cancerosas de ratón Mus musculus. **R. Rivera**

379. Synthesis and Cytotoxic Evaluation of 15deoxy-Prostamide J2 and Related Derivative 15deoxy-Prostamide J2-Arvanil. **D.J. Halatek**, C. Burns, R. Van Dross

380. Nanobodies as novel tools to target and study protein-protein interactions of core circadian clock proteins. **E.F. Rivera Iglesias**, S.S. Lellupitiyage Don, M.E. Farkas

381. Investigating the anti-quorum sensing activity of novel N-acyl-homoserine lactones in Chromobacterium violaceum. **S. Bosh-Fonseca**, R. García Del Valle, K. Acevedo-Rosario, J. González-Pagán, A. Diaz-Rosa, D.J. Sanabria-Rios, N.M. Carballeira

Physical Chemistry

382. Withdrawn

383. Adventures in DFTB: Towards Rational Dye Response Prediction. **G.R. Jenness**, H.R.

McAlexander, R. Lamb, T. Schutt, C. Bresnahan, M. Shukla

384. Halide-driven crystal structure control in manganese chalcogenide nanoparticles. **D. Gendler**, J. Bi, D. Mekan, E.A. Hernandez-Pagan

385. Operando potential-modulated excitation X-ray absorption spectroscopy as a phase-sensitive detection method for the study of dilute active sites for CO2 electroreduction. **A. Garcia-Esparza**, X. Li, F. Babbe, J. Yano, D. Sokaras

386. Decarboxylation of methyl palmitate over a nickel molybdate catalyst: A reactive molecular dynamics study. M. Nyepetsi, **F. Mbaiwa**, O.A. Oyetunji, N. de Leeuw

387. Microwave spectroscopic study of inductive effects on intramolecular hydrogen bond strength. **R.** Lavrich

388. Excited state chemistry: Measuring two-state reactivity in metal mediated reactions. **D.J. Bellert**, T.R. Lewis

389. Interaction of the huntingtin N-terminal sequence with model cell membranes. J. Markle, **S. Frey**

390. Influence of hydrogen and ammonia addition to natural gas mixtures ignition inside a shock tube. M. Pierro, R. Rahman, J. Urso, A. Masunov, **S. Vasu**

391. DFT vs post Hartree-Fock, ORCA ESD vs non ESD, organometallic photophysical calculations. **D.C. Alamo**, D.A. Hrovat, T.R. Cundari

392. Complex synchronization behaviors in simple Belousov-Zhabotinsky oscillator networks. **S. Nkomo**

393. Effects of cancer-associated mutations on activity and oligomerization in Protein Arginine Methyltransferase 1. O.M. Price, A. Thakur, A. Ortolano, A. Towne, **C. Velez**, S. Nielson, O. Acevedo, J.M. Hevel

394. Fluorescence and quantum yield studies of new swir emitting rhodindolizine dyes. **A.K. Shaik**, S. Chatterjee, K. Wijesinghe, D. Ndaleh, A. Antonysamy, J.H. Delcamp, N. Hammer

395. Vibrational Strong Coupling in Nanoscale Hyperbolic Phonon Polariton Cavities. **A. Shmidt**, S. Nandanwar, L.N. Miller, J.R. Matson, T.G. Folland, J. Caldwell, L.E. Buchanan

396. Application of computational chemistry to the formation of pre-nucleation complexes in the atmosphere. **G.C. Shields**

Inorganic Chemistry

397. Exploring the role of the complex of Fe(III) with serum transferrin in regulating the transport of titanium(IV). **J.A. Benjamin-Rivera**, A.D. Tinoco, A. Vazquez, N. Zambrana, A. Torres

398. Withdrawn

399. Synthesis, characterization and functionalization of gold nanoparticles with thiolated anticancer compounds for breast cancer therapy. **G. Lorenzana-Vazquez**, I.E. Pavel, E. Melendez

400. Development of graphene quantum dotdecorated Au-Ag nanoparticles as multi-functional anti-cancer agents. **N. Medina**, W.S. Pantoja Romero, A. Lavin Flores, S.C. Díaz Vélez, M.T. Torres Mulero, B. Weiner, G. Morell

401. Sensitized and Self-sensitized Photocatalytic CO2 Redcution to CO under Visible Light with Nickel (II) CNC-Pincer Catalysts. **S.Y. Manafe**, d. nugegoda, S. Das, J.H. Delcamp, E.T. Papish

402. Cobalt Phthalocyanine-Acid Modified Multiwalled Carbon Nanotubes Hybrids: NO2 Gas Sensing Properties and Characterization. **C. Otero Velez**, S. Flores, D. Fonseca, D.M. Pinero Cruz

403. Investigating the Effects of (de)Protonation on the Photophysical Properties of our Dihydroxybipyridine Ru(II) Polypyridyl Complexes. **O.E. Oladipupo,** I. Fedin, C.G. Cameron, S.A. McFarland, E.T. Papish

404. Optimization of catalyst deposition for enhanced electrochemical reduction of carbon dioxide. **J.D. Rivera**, J.C. Ortiz, J. Velazquez

405. Characterizing the Binding of Ca(II) and Cd(II) to EF-hand Peptide V of Calbindin D 28K and EF-hand Peptides III and IV of Human Cardiac

Troponin C Using CD, ITC, and Fluorescence Spectroscopy. **C. Taylor**, L. Harrison, A. Wilson, K. Byers, A.M. Spuches

406. Characterization of Multiple Phases of Cu-Sb-S Nanoparticles Synthesized by a Modified Polyol Process. **J. Daniel**, M.E. Anderson

407. Design of alkyne-modified redox-active ligands for applications in flow chemistry. A. Yu, J. Bacsa, S. Blakey, **C.E. MacBeth**

408. Disaggregation kinetics of isoreticular metal organic frameworks. **K. Williamson**, D. Herr, H.P. Rathnayake

409. Mesoporous Activated Carbon as a Novel Substrate for MnO2. **M. Thompson**, B. Baruah

410. Synthesis of Egyptian Blue and Mechanisms. **A. Kiss**, H.A. Stretz

411. Revisited Relativistic Dirac-Hartree-Fock Xray Scattering Factors. I. Neutral Atoms with Z= 2 - 118. **O.o. Shiroye**, A. Volkov, F.F. Charlotte

412. Activation of hydrosilanes by zerovalent platinum complexes. **S. Schreiner**, K. Rogers, M. Puglisi

413. Withdrawn

414. Preliminary copper(I/II) coordination by ferroptosis inducing agent FIN56 and analogues for insight into its mechanism of action. **A.M. Orta-Rivera**, J. Vega Díaz, A. Vargas Figueroa, R. Skouta, A.D. Tinoco

415. Withdrawn l

416. Withdrawn

417. Modifying and investigating the substratedependant Pd@Fe₂O3 catalyst-support synergism with ZnO ALD. **L. Shultz**, F. Liu, P. Banerjee, X. Feng, T. Jurca

418. Computer simulation of x-ray diffuse scattering from size effects and metal oxygen bond anisotropy in V1-xMxO2 (M = Mo, Nb). **J. Phillips**, T.B. Rawot Chhetri, T.C. Douglas, J.M. Allred, M. Krogstad, M.A. Davenport, L. Whitt

421. Redox-Active Heterobimetallic Catalysts for Polymerization of Polyolefins. **N. Taylor**, T. Brewster

422. Title: Designing a Cardiolipin- Based Nanocarrier for effective delivery of Cytochrome c in Cancer Cells. **J. Acosta Mercado**, A.D. Tinoco

423. Synthesis, Characterization and relaxometric studies of octanuclear iron cluster for applications in Magnetic Resonance Imaging. **R.A. Banner**, R. Raptis

424. Elucidation of a new pharmacological strategy against cancer through the inhibition of ribonucleotide reductase by titanium (IV) . **O. Claudio Ares**, O.O. Del Leon-Velez, C.A. Marra Nazario, L.J. Delinois, E.G. Peña-Martinez, J.A. Rodríguez-Martínez, A.D. Tinoco

425. Characterizing the Binding of Ca (II) and Pb (II) to EF-hand Peptide V of Calbindin D 28K and EF-hand Peptides III and IV of Human Cardiac Troponin C Using CD, ITC, and Fluorescence Spectroscopy. **L. Harrison**, C. Taylor, A. Wilson, K. Byers, A.M. Spuches

426. Withdrawn

427. Crystal structure and Hirschfeld surface analysis of a mercury (II) chloride complex of a symmetric N-O-N ligand. **D.C. Bebout**, J.J. Derringer

428. Affecting intracellular iron and copper via a transmetalative approach as an anticancer treatment strategy. **L.V. Fernandez-Vega**, A.D. Tinoco

429. Removal of ibuprofen using tin oxide nanoparticles. **c.a. castro**, L. Alamo-Nole

Analytical Chemistry

430. Probe of surface roughness and morphological effects on bacterial adhesion to Ag/polydimethylsiloxane nanocomposites. **C.H. Sotomayor Martinez**, A. Ayala Ponce, R.F. Suárez-García, M.A. De Jesus

431. Sorting antioxidants from over-the-counter products using FTIR-ATR, square-wave

voltammetry, and multivariate statistics. H.Z. Msimanga

432. Withdrawn

433. Study of hydrogen-bonded complexes containing melamine by Raman microscopy, scanning electron microscopy with X-ray microanalysis, and X-ray diffraction. **N.S. Chong**, J. Watkins, B. Ooi

434. Direct Electroreduction of CO2 to Oxalate Salts in Anhydrous Media. **R. Brower**, B. Wuille Bille, J. Velazquez

435. Optimizing biochar conditions for lead (Pb) sorption and desorption in contaminated soils. **E. Uriona**, V. Boschi

436. Development of Non-targeted Analysis for Nitro Derivative of Arylamine using LC-QTOF: Optimization, Characterization, and Quantification. **K. Chen**, A.S. Edgar, C.H. Wong, D. Yang

437. Photodegradation of organic UV filters oxybenzone and avobenzone. **S. Landeweer**, Y. Ferreira, K. Meerbott, P.R. Gardinali

438. Sustainable agriculture/ aflatoxin is neither risky,nor impossible at Liaqat corp ltd since 1975,by field-based mobile innovative chemistry industrialization by profit-loss/PPP/turn-key/tech transfer basis. **L. Ali**

439. Investigating the use of COVID-19 odor expression as a non-invasive diagnostic tool. **J. Crespo Cajigas**, V.A. Gokool, H. Holness, A.T. Johnson, K.G. Furton

440. Withdrawn

441. Complex Sugar: Analysis of West Tennessee Honeys. **A.H. Shelton**, E. Ahmed, K. Kaul

442. A Wearable Biosensor to Diagnose Staphylococcus aureus Skin Infections. L. Ayres, J. Brooks, K. Whitehead, C.D. Garcia

443. Development of high-efficiency osmotic membrane functionalized with WS2 nanosheets to dye remotion in forward osmosis. **L.C. Bermúdez-Morales**, E. Nicolau

444. Evaluation of model enzyme in Lyotropic liquid crystals selective separation and degradation. **L.N. Santiago-Martoral**, A.M. Figueroa, E. Nicolau

445. Tuning the Microenvironment Geometry Promotes Phase Formation. **G. Colon**, K. Vannoy, S. Voci, C. Renault, J. Dick

446. Characterization of Multimetallic Nanostructures by Anodic Stripping Voltammetry. D.K. Pattadar, B. Mainali, **S. Karangiya**, F.P. Patrick

447. On-site Preparation of Natural Deep Eutectic Solvents Using Solar Energy. R. Dazat, E.M. Vidal, A. Lorenzetti, **C.D. Garcia**, C. Domini, M.F. Silva, F. Gomez

448. Simultaneous quantitative analyses of ATP, creatine and creatine phosphate in brain samples. W. Lu, C. Kuan, **S.L. Wang**

449. Withdrawn

450. Real-time monitoring of seasonal variations in unique tributaries of the Biscayne Bay watershed by water quality research buoys. **K. Troxell**, P.R. Gardinali

451. Electrospun fibers for improving the performance of implanted nitric oxide-releasing glucose sensors. **T. Bradshaw**, M. Malone-Povolny, E. Merricks, T. Nichols, M. Schoenfisch

452. Analytical characterization of nitric oxide release-based killing of pathogenic bacteria. **H. Nguyen**, S. Picciotti, M. Duke, M.H. Schoenfisch

453. Electroneutrality condition allows for the electrodeposition of gold nanoparticles from aqueous nanodroplets. **J. Reyes Morales**, M. Moazeb, G.S. Colon Quintana, J. Dick

454. Determination of Cholesterol and Triglyceride levels: An electrochemical approach to monitor the enzymatic by-product Hydrogen Peroxide. **N.G. Hernandez Santiago**, P.E. Cruz Tato, J. Pazol Ramos, E. Nicolau

455. Microplastic distribution in three beaches of western Puerto Rico. L. Tubens-Rivera, A.M. Gonzalez

456. Development of electrochemical impedance spectroscopy for Neuropeptide Y detection using aptamer-modified microelectrodes. **Y. Vazquez**, L. Cunci, L. Fernandez-Vega, L.F. Lopez, D.E. Melendez

457. Investigation of mycelial bioremediation of environmentally hazardous herbicides using ultra pressure liquid chromatography. **C.S. Webber**, A.C. Brooks, S.R. Gowen, J.F. Wheeler, S.K. Wheeler

458. Comparing the Kinetic Stability of Storage Proteins in Tree Nuts: Implications for Their Potential Allergenicity. **C.A. Franquiz Santos**, E. Grace Rugaber, K. Krois, J. Rubet, J. Thibeault, W. Colon

459. Gamma radiation-induced photoluminescence in calcium phosphate glass and inhibiting effect from copper. **C.L. Crawford**, J. Jimenez

460. Adsorption of dimethyl sulfone and organosilanol compounds in water by zeolite beta. **A. Aviles**, P.J. Tarafa

461. Bioremediation of soil using biochar to remove organic and metals pollutants. **R.M. De Jesus**, L.M. Diaz

1041. Advanced Fiber Reinforcements for Durable Industrial Plastics. **V. Vasnetsov**, C. Vasnetsov, D. Patel

Puerto Rico Convention Center 204

Inorganic Porous and Layered Materials Symposium IV

J. L. Colon, M. Pica, L. Sun, *Organizers* M. Ramos-Garcés, *Presiding*

1:25 Opening remarks.

1:35 476. Withdrawn

1:55 477. Introduction of highly redox-active atomic centers in metal oxide nanoparticles for high-performance alkali-ion batteries. **D. Bresser**

2:15 478. Magnetically-driven quantum phase transitions in a low-dimensional pyrazine-bridged Cu2+ chain magnet. **A. Blockmon**, J. Jo, K. Park, E. Kirkman-Davis, M.M. Turnbull, S. McGill, J.H. Lee, J. Musfeldt

2:35 479. Exploration of amine ligand reactivity at semiconductor quantum dot surfaces for surface defect control. **C.Y. Dones Lassalle**, J.L. Dempsey

2:55 480. A Porous Boron Nitride Monolayer with Very Small Band Gap: A Computational Prediction. **J.J. Chen**, L. Lu, Z. Chen

3:15 Coffee break.

Puerto Rico Convention Center 202 A

Biochemistry III Drug Discovery E. I. Pares-Matos, *Organizer, Presiding*

1:25 Introductory Remarks.

1:35 462. Ending serendipity in prenylome discovery using a prodrug-like strategy for isoprenoid precursors. **J.A. Baccile**

1:55 463. Effect of 2-hexadecynoic acid on the methicillin-resistant *Staphylococcus aureus* plasma membrane. G. Casillas-Vargas, H. Rivera, K. Brundage, N. Chorna, **D.J. Sanabria-Rios**

2:15 464. In vitro high throughput screening for the inhibitory effect of anthraquinone derivatives against

SARS-CoV-2 proteolytic enzymes. **K. Chavada**, D. Lewis, A. Sharma, A. Kawall, S. Sood, S. Rayalam, S. Taval, V.V. Mody

2:35 465. Potent and selective covalent inhibitors of the papain-like protease from SARS-CoV-2. **B.C. Sanders**, J.M. Parks

2:55 466. Metabolic Labeling of the *Mycobacterium tuberculosis* model organism, *Mycolicibacterium smegmatis*, using the isoprenoid precursors isopentenyl pyrophosphate (IPP) and dimethylallyl pyrophosphate (DMAPP). **D. McBee**, J.A. Baccile

3:15 Coffee Break.

3:40 467. Biochemical and therapeutic actions of cathepsin l (catl) inhibitors against hepatocellular carcinoma. **O. Crown**, B. Kolawole, F. Noubissi-Kamden, **I.V. Ogungbe**

4:00 468. Pleiotropic effects of antibiotic adjuvants on the MRSA transcriptome. **H.B. Miller**

4:20 469. Biomanufacturing of Glioblastoma Multiforme Organoids with Intratumoral Heterogeneity for Improved Drug Development. S. Park, A.D. Avera, **Y. Kim**

Puerto Rico Convention Center 104 B

Frontiers in Nucleic Acids

R. M. Wadkins, *Organizer, Presiding* M. P. Stone, *Presiding*

1:25 Introductory remarks.

1:35 470. High molecular weight polymers to study the effects of crowding on DNA i-motif structures. **R.M. Wadkins**, L. Rutherford, C. Turner, K. Morgan, A. Rhoads

2:15 471. Dialing it in: how DNA sequence encodes discrete conformational ensembles of nucleoprotein complexes. J.R. Terrell, T.N. Vernon, **G.M. Poon**

2:35 472. An Endosomal Trojan Horse to Improve Cytosolic Delivery of Spherical Nucleic Acids. **S.** Narum, B. Deal, K. Salaita

2:55 473. Discovery of Chemical Probes for Single-Stranded Nucleic Acids. **W. Yang**, L. Wise, M. Pfanner

3:15 Coffee break.

3:40 474. Identifying stable, yet selective particleimmobilized double-stranded probes for unlabeled RNA target detection and capture. **V. Milam**, M. Adams

4:00 475. Deciphering Mutagenic Signatures in DNA Caused by Exposures to Genotoxins. **M.P. Stone**, R. Tomar, I. Minko, Y. Fu, M. Egli, R.S. Lloyd

Puerto Rico Convention Center Ball Room A

Interdisciplinary Science for Arid Lands Energy and Water Sustainability II

V. Bermudez Benito, J. D. Kubicki, *Organizers* C. R. Cabrera, *Presiding*

1:25 Opening Remarks.

1:35 481. Diversification of Water Supplies for Long-term Sustainability in El Paso. **S. Reinert**, I. Santiago

1:55 482. Removal of endocrine disruptors in wastewater treatment plants: a binational study along the US-Mexico border region. **W. Lee**, B. ROCHA-GUTIERRE, R. De La Torre-Roche

2:15 483. Nano-enabled composite materials for water treatment: adsorption, electrochemical degradation, and detection methods. **D. Villagran**, M. Marcos, S. Yin, N. Ocuane, A. Castillo, J. Calvillo, J.L. Gardea-Torresdey

2:35 484. Oil spill contaminate removal by novel nanofiber-based membranes. **Z. liu**, R. Al-rewaily

2:55 485. Phytoremediation using mangroves and iron-based nanomaterials for contaminated environments. **K. Soto-Hidalgo**

3:15 Coffee Break.

3:40 486. From Glow-Sticks to Sensors: Single-Electrode Electrochemical Detection for PaperBased Devices. E.M. Vidal, C. Domini, D.C. Whitehead, **C.D. Garcia**

4:00 487. Density Functional Theory computation of adsorption of H2O and carbon bearing species to clay mineral surfaces. **L. Tribe**

4:20 488. Organic-mineral interactions at the molecular level: impacts and research needs. **J.D. Kubicki**

Puerto Rico Convention Center208 C

Leveraging Diversity and inclusion for Educational Excellence

B. A. Garcia, R. Joseph, Organizers, Presiding

1:25 Welcome.

1:35 489. Diversity and inclusion as key tools to advance education and research: Personal experiences and challenges. **D. Rabinovich**

1:55 490. How imaginative excellence promotes DEI in STEM. **E.J. Caro-Diaz**

2:15 491. Quantitative Mass Spectrometry for Exploring Epigenetic Mechanisms: A Career Perspective on Mentoring and Training. **B.A.** Garcia

2:35 492. Unrealized Dreams & Wisdom on the way to becoming a Professor. **R.A. Robinson**

2:55 493. From Lares, Puerto Rico to Cleveland, Ohio: Using DNA and Light to promote diversity, equity, and inclusion. **C.E. Crespo-Hernandez**

3:15 Coffee Break.

3:40 494. Development of Scientific Enquiry: Teaching the history of chemistry to non-chemistry major honors students. **A.H. Shelton**, J.V. Glass

4:00 Panel Discussion.

Puerto Rico Convention Center 201 B

Photoinduced Processess in Macroscopic, Supramolecular and Nanoscale Inorganic Materials I A. A. Marti-Arbona, Organizer, Presiding

1:25 Introductory Remarks.

1:35 495. Step-Changing Solar Energy Conversion Schemes at the Nanoscale. **D. Guldi**

1:55 496. Using quantum coherence as a roadmap for synthetic design in light-to-chemical energy conversion. **J.K. McCusker**

2:15 497. Single-molecule photocatalysts for hydrogen production with red light. **C. Turro**

2:35 498. Recent photochemical and photophysical advances of Pd decorated p-n heterojunction nanomaterial BiVO4/BiOBr/Pd. **V. Zollo**, A.E. ElMetwally, L. Bachas, M.R. Knecht

2:55 499. Ultralong lifetime and efficient room temperature phosphorescent carbon dots through multiconfinement structure design. Y. Sun, S. Liu, A. Smith, W. Wang, Y. Liu, M. Zheng, **L. Sun**

3:15 Coffee Break.

3:40 500. Toward quantum confinement in graphitic carbon nitride-based polymeric monolayers. O. Olademehin, T.L. Ellington, **K.L. Shuford**

4:00 501. Mickey Mouse on nano caffeine. **B. Heyne**

Puerto Rico Convention Center 104 A

Puerto Rico NSF-PREM's Symposium I

U. M. Cordova-Figueroa, I. Ramos, *Organizers* J. L. Colon, *Presiding*



1:25 Opening remarks.

1:35 502. Novel Materials and Operando Methods in Energy Conversion in Alkaline Media. **H.D. Abruña**

2:15 503. Effect of solvent composition on reaction rate and product distribution on C6 carbohydrates conversion using Sn-Beta as catalyst. **I. Hortal Sanchez**, N. Cardona-Martinez

2:35 504. Simulating Interfacial Spin Ordering in Transition Metal-Oxide Superlattices. **J.A. Santana**

2:55 505. Effect of oregano leaves biomass soft biotemplation on the properties of titanium dioxide.L. Fuentes Claudio, A. Colón, N. Santiago

3:15 Coffee Break.

3:40 158. Opportunities for PREM Research at CHESS. **J.D. Brock**, C.J. Pollock, L. Debefve, J. Ruff

4:20 507. Gallium derived nanoparticles for biomedical applications. **R. Oyola**

Puerto Rico Convention Center 201 A

Symposium on Forensic Chemistry I

J. Almirall, Organizer, Presiding

1:25 Introductory remarks.

1:35 508. Documentary standards and their role in the seized-drug laboratory. S.E. Rodriguez-Cruz

2:15 509. The use of the Fast -Blue BB and 4-Aminophenol color tests in combination with chemometrics for the indication of hemp-type and marijuana-type cannabis. **A. Acosta**, L. Li, M. Weaver, R. Capote, J. Perr, J. Almirall

2:35 510. Chemistry for the preparation of isotopically-barcoded Ni, Mo, and W oxide materials. **M.G. Bronikowski**, K. Samperton, S. Dowds, K. Reamer, S. Scott

2:55 Coffee Break.

3:20 511. Formation of spermine phosphate hexahydrate crystals in semen probed by Raman microspectroscopy. **S. Colón-Rodríguez**, I.K. Lednev

3:40 512. Enhanced Raman spectroscopy: Singlemolecule detection, drug discovery, and forensics. **L.M. Almehmadi**, I.K. Lednev

4:00 513. Optimization and Miniaturization of the 4-Aminophenol Colorimetric test for the Differentiation Between Hemp-type and Marijuana-

type Cannabis. **M. Kerpel dos Santos**, J. Ley, M. Quirke, A. Acosta, R. Capote, J. Almirall

Puerto Rico Convention Center 208 A

The Chemistry of Solar Fuels III J. L. Colon, J. Velazquez, J. Y. Yang, *Organizers* J. L. Dempsey, *Presiding*

1:25 Opening remarks.

1:35 514. Hybrid Photoelectrodes for Light-driven Carbon Dioxide Reduction: Catalyst Immobilization, Photoelectrode Characterization, and Product Analysis. **J.L. Dempsey**, B. Huffman, G. Pereira Feron, A. Bredar, A. Jordan

1:55 515. Using light for on-demand protonation in solar fuels chemistry. R. Bhide, S. Luo, C.N. Feltenberger, G.S. Phun, **S. Ardo**

2:15 516. Photochemical Applications of Highly Fluorescent Thiazolothiazole Materials. **M.G. Walter**, A. Brotherton, T.J. Adams, A. Shibu, P. Chakraborti, G. Martinez Ramirez, T. Perrell

2:35 517. Exploiting disordered photonics for light trapping in photoelectrochemical energy conversion applications. **R. Coridan**

2:55 518. Three terminal photoelectrodes for solar fuel production: enabling diurnal stability and cascade processes. **E. Warren**, N. Nesbitt, D. Collins, G. Rome, C. Kong, J. Ager, J. Zimmerman, A. Greenaway

3:15 Coffee Break.

3:40 519. Multi-Electron Transfer Photovoltages at p-Si Electrolyte Interfaces. N.D. Keller, G. Pereira Feron, R. Sampaio, J.L. Dempsey, **G.J. Meyer**

4:00 520. Nanoparticulate Silicon Photocatalysts for Solar-Driven Hydrogen Production. **M. Dasog**, I. Curtis, S. Putwa

4:20 521. III-V semiconductors for photoelectrochemical hydrogen production: Recent progress in efficiency, durability, and cost. **T.G. Deutsch**, K.W. Wyatt, M. Steiner, J. Young

Puerto Rico Convention Center 202 B

Undergraduate Oral Session I

B. J. Ramos-Santana, *Organizer* A. M. Gonzalez, *Presiding*

1:25 Introductory remarks.

1:35 522. Development of cannabinoid testing method using blood plasma cards and LC-MS/MS. **L. Reynolds**, M.J. Vergne

1:55 523. Characterization of acetal formations in cherry and tangerine e-cigarette liquids as monitored via GC/MS. **H. Menees**, **H. Menees**, N. Hollabaugh, A. Thomas

2:15 524. Mechanisms of Fatty Acid Oxidation by Myeloperoxidase. **C. Powell**, K.M. Matera

2:35 525. Thermal contributions of AT-hook peptides and netropsin when competing for AT-Rich DNA. T. Townsend, **K.L. Buchmueller**

2:55 526. Developing the substrate scope of thiamine-dependent enzymes for abiological catalysis. **R.W. Peterson**, S. Bryant, K. Darrigrand, H. Debnam, E. Reynolds

3:15 Coffee Break.

3:40 527. Site-specific incorporation of pbenzoylphenylalanine in Candida glabrata. **C.S. Burdette**, R.E. Singer, M.E. Breen

4:00 528. Effects of Pdr1 phosphorylation on fluconazole resistance in Candida glabrata. **S.A. Stapleton**, E.W. Chandler, J.R. McCallum, M.E. Breen

4:20 529. *In silico* study of the interaction between the Autism Spectrum Disorder-associated gut microbiome metabolites p-cresol and 4-ethylphenyl sulfate bound to dopamine and serotonin receptors. **P.S. Diamandis**, J. Pajski

Puerto Rico Convention Center 209 C

Unusual Structure and Reactivity of Inorganic Molecules II

S. Westcott, *Organizer* C. Martin, *Organizer*, *Presiding*

1:25 Opening remarks.

1:35 530. Undressing main-group elements. **G. Bertrand**

1:55 531. An isodesmic approach to metal-free C-H borylation reactions. V. Desrosiers, E. Rochette, Y. Soltani, **F.G. Fontaine**

2:15 532. Regio- and Stereoselective Hydro- and Phosphinoboration of Alkynes. **W.L. Santos**

2:35 533. Supercharging iodine(III) reagents. **J. Dutton**

2:55 534. Single or double? A radical approach to frustrated Lewis pairs. **R. Melen**

3:15 Coffee Break.

3:40 535. Pincer-based cobalt-diazoalkane complexes: investigations regarding bonding and reactivity. **S. Yruegas**, P.J. Chirik

4:00 536. La(III)-Catalyzed transesterifications for degradation of polyesters. **M. Hirano**

4:20 537. Tethered Alkylidenes at REMP Initiators Bearing an Unusually Stable Azoimido Ancillary Ligand. R. Yadav, A. Esper, I. Ghiviriga, K. Abboud, C. Ehm, **A.S. Veige**

Puerto Rico Convention Center 104 C

WCC Symposium: Crossing boundaries: The Resilience of Women Chemists Acá y Allá II

L. Tribe, *Organizer* K. C. Caflin, *Presiding*

1:25 Introductory remarks.

1:35 538. Crossing boundaries: Organizing the Pan American Nanotechnology Conference 2: Growing Convergence in Nanotechnology Meeting. D.F. Rodrigues, V. Craver, **I.C. Escobar**

1:55 539. Negotiating an Academic Position in Chemistry. **J. Macdonald**

2:15 540. Female Student's Participation in STEM Majors at Puerto Rico's Higher Education Institutions. **E. Trujillo**

2:35 541. Different countries, different students but similar skills and difficulties. **M. Soriano**

2:55 542. Empowering the next generation of latinas in STEAM: Histories of resilience. **L.M. Diaz**

3:15 Coffee Break.

3:40 543. Women, chemistry, and culture: intersectionality and belonging. L. Tribe

4:00 544. Broadening Participation: A Reconsideration of Undergraduate Research Topics. **P.M. Leggett Robinson**, **L.A. Royer**, T. Blue, N.L. Powell

Puerto Rico Convention Center 203

XRD in the Southeast - Advances in X-Ray Crystallography in Research II

W. E. Lynch, C. W. Padgett, D. M. Pinero Cruz, *Organizers, Presiding*

1:25 Welcome - Opening Remarks.

1:35 545. Synthesis, structural characterization, spectroscopic properties and Hirshfeld surface analysis of new dithiolene derivatives for multi-site coordination of 3d transition metals. **D.M. Pinero Cruz**, K.T. Cordero-Gimenez, G.I. Miranda Mendez, o. pichardo, C. González

1:55 546. Withdrawn

2:15 547. Crystallographic Characterization of Metallophthalocyanine and Magnetic Complexes Combined as Nanomaterials. **C. Metzler**, S. Flores, D.M. Pinero Cruz, D. Fonseca

2:35 548. Synthesis, structural characterization and chemical bonding of $Sr_7Li_6Sn_{12}$ and its quaternary derivatives with Eu and alkaline earth metal (Mg, Ca, Ba) substitutions. **S.S. Bobev**

2:55 Intermission - Coffee Break.

3:20 549. Crystal structures and physical properties in solid solutions of bismuth-containing mixed-metal oxides. **M. Lufaso**, D. Badger, A. Jessel

3:40 550. Flexibility of Porous Coordination Polymers upon Concomitant Hysteretic Carbon Dioxide Adsorption. **A.J. Hernandez**

4:00 551. Zinc oxides catalysts as candidates for dye sensitized solar cell applications. **M.B. Santiago-Berrios**, J. Del Pilar

Puerto Rico Convention Center 208 B

La Historia de Pioneros y Descubridores en Química I

M. Orna, D. Rabinovich, Organizers, Presiding

2:05 Introductory remarks.

2:15 552. Viva la tabla periódica: Hispanic contributions to the discovery of chemical elements.D. Rabinovich

2:35 553. Gil Chaverri Rodriguez's 1953 Periodic Table Re-Arrangement: A historical overview. V. Castillo Salazar, M. Murillo-Soto, S. Sandi-Urena

2:55 554. The lives, work and scientific contributions of famous Jamaican researchers. **R. Pryce**

3:15 Intermission.

3:40 555. Tungsten, friend or enemy? **D. Alequin-Torres**, I. Montes

4:00 556. Maya Blue: An intriguing and technologically savvy ancient pigment. **M. Orna**

4:20 Discussion.

Puerto Rico Convention Center Ball Room B

3:00 - 5:00 Undergraduate Poster Session I N. M. Carballeira, *Organizer* B. J. Ramos-Santana, *Presiding*

Physical Chemistry

557. Negative Ion Photoelectron Spectroscopy and Thermochemistry of Dinitrobenzenes. **K.T. Workman**, W.K. Gichuhi

558. Photochromic material using azobenzene and its derivatives: A theoretical study. **M. Gallman**, B.K. Dey

559. Investigation of the concentration dependence on the kinetics of aqueous nitrous acid decomposition. **A. Pehan**, D. Heintzelman, A. Rizzuto

560. Computational Analysis of Peptide Growth on Prebiotic Earth via Gas Phase Nano Water Droplets. **S. Warf**, S. Harold, G.C. Shields

561. Negative Ion Photoelectron Spectroscopy and Thermochemistry of Cyanoanthracene. **A. Usher**, W.K. Gichuhi

562. Proton Tunneling in the Complex of 3,5difluorobenzoic Acid and Formic Acid. **M. Perez**, W. Lin

563. Elucidating steric effects on charge separation and trapping in sensitizer dyes with transient absorption spectroscopy. C. Curiac, **E.C. Lambert**, L.A. Hunt, N. Hammer, J.H. Delcamp

564. Propensities for halogen bonding for halides bonded to central atoms below period 2. **N. Robinson**, W. Rice, K. Donald

565. Utilizing nanostructure formation of cyclodextrins for drug-delivery in a biomimetic model. **S.E. Westervelt**, K.S. Aiken, S.M. Landge, D. Ghosh

566. Molecular junctions based on electrochemically exfoliated graphene. **Y.A. Falconí**, P.F. Ortíz, J.S. Narváez, K.S. Encalada, C.P. Santacruz, H.M. Osorio

567. Impacts of pH on decomposition of aqueous carbonic acid. **J. McNeil**, A.C. Sheinberg, A. Rizzuto

568. MoS₂-contacted rectifying single molecule junctions. **S.Y. Barragán**, H.E. Rodríguez, K.S. Encalada, C.P. Santacruz, H.M. Osorio

Biochemistry

569. Optogenetic investigation of the role of the actin ATP-binding site in actin-cofilin rod

formation: Insight into aberrant cytoskeletal phenotypes. J.F. Sharp, R.M. Hughes

570. Detecting novel RiPPs using structural approximation. **A.C. Ishee**, G. Rubin, Y. Ding

571. Accumulation and regulation of reactive oxygen species across cryptobioses in the tardigrade Hypsibius exemplaris. **T. Clark**, **S. Lutz**, **K. Tyler**, A. Smythers, L.M. Hicks, D. Kolling

572. Synthesis and Characterization of a Metalloenzyme Mimic. **J. Legaspi**, C. Akerson, J. Neidigk, A. Lajmi

573. Discovery of Small Molecules Stabilizing the Secondary Structure of CGG Repeat Expansion. L. Wise, W. Yang

574. Testing different BTK inhibition treatment therapies against Waldenström macroglobulinemia (WM) Lymphoma. **C. Clark**

575. Luteinizing-Hormone Releasing-Hormone (LHRH) ligated Cisplatin and 99m Techenttium chelates as peptide drug conjugate agents in the fight against cancer. **A. Elliott**

576. Removal of Organic Solvents from Water using Novel Magnetic Microspheres. **O. Fisher**

577. Investigation of Synergistic Combinations of Chemotherapy Drugs for the Treatment of Oral Cancer. **M.M. Oby**, V.D. Moore

578. Determining if the M1 and M2 muscarinic acetylcholine receptors underlie the neuroprotective ERK 1/2 cascade in the telencephalon of zebrafish. **M. Thomas**

579. Characterization of Lipid Nanoparticle Assemblies for Cytochrome c Encapsulation. **G. Encarnación López**, J. Acosta Mercado, M.J. Bayro

580. Withdrawn

581. Design and Application of an Immobilized Protein Kinase. **A. Schulz**, R. Hughes, T. Cope, D. Deane

582. Evaluation of the dynamics of protein profiles obtained under different in vitro conditions during

the process of solid organ chimerization prior to transplantation in a porcine biomodel. **M. Frias**, S.M. Osorio Quinones

583. Production of Kombucha tea without a mother SCOBY. **C. Romo**

584. Products of peroxidase-catalyzed oxidation of estrogens. **S. Jackowski**, K.M. Matera

Organic Chemistry

585. Investigation into the biological function of the apolipoprotein AI propeptide. L.R. Frost, **P. Schray**

586. Synthesis of thermally responsive polymer for targeted drug-delivery applications. **A. Brueggemann**, O.T. Mefford

587. Mechanistic Study of Antibacterial Activity by Photoactivated Double-Stranded DNA Cleaver. **A. Tidwell**, T. Fraley, W. Yang

588. Withdrawn

589. A modular approach to solubilizing supramolecular cages via PEGylation of pyridyl imine components. **M.Y. Gessler**, J.D. Thoburn

590. Green Synthesis and Characterization of Manganese Oxide Nanostructures. **I.N. González**, M. Torres-Gonzalez, G. Galvis-Barreto, M. Taeño-Gonzalez, D.I. Torres-Padilla

591. Synthesis of Fluorescent dyes for incorporation into Silica Nanoparticles. **K. Monheim**, T. jia, S.S. Iyer

592. Synthesis of a tribenzo-18-crown-6 ether ligand for use in a face-capped M4L4 metal-organic cage. **K.T. Jones**, J.D. Thoburn

593. Withdrawn

594. The synthesis of 2,6-dicyanoazulene for use a guest encapsulated by a prophyrin-based supramolecular cube. **W.T. Adair**, J.D. Thoburn

595. Adding a thermodynamic driving force to liquid membrane to separations mediated by metal-organic cages. **C.M. Halpin**, J.D. Thoburn

596. Bench-stable 2-halopyridinium ketene hemiaminals - new reagents for simple synthesis of bioactive 2-aminopyridines. I.C. Bote, Z.A. Krevlin, **M. Crespo, C.C. Lam**, A.M. Glanzer, H.L. Hutchinson, A.M. Blades, D. McConnell, C. Lin, K.V. Leiman, A. Thayaparan, **M.M. Majireck**

597. Withdrawn

598. Enantio- and chemoselective copper-catalyzed reduction of ketones using a disilane as the reductant. **D. Culley, C. Gernand**, R. Van Hoveln

599. Synthesis of tetrol aliphatic monomers and incorporation into easily degradable polymers. N. Johansen, **S. West**

600. Comparison of Synthesis Methods and Characterization of Cu Oxide Nanostructures. **L.D. Acevedo**, H.P. Diana, J.S. Rivera, M.T. Gonzales, D.T. Padilla

601. Withdrawn

602. Study of the chemical composition of the hexane extract from Simarouba. **N. Maldonado**, C. Ospina, P. Nieves

603. Progress towards the development of Aurora A degrading PROTACs. **S. Quigley**, V. Hasko, M.G. Prado, S. Nelson, L. Tierney, M. Beavers, B. Ody, J. Yin, M.L. Turlington

604. Isolation of simalikalactone D from Caribbean Simarouba species. **P.C. Nieves**, N. Maldonado, A. Garcia, C. Ospina, P. Vivas

605. Synthesis of Aromatic Compounds as Precursors to Porous Polymers. **J. Miles**, B. Aguila

Inorganic Chemistry

606. Withdrawn

607. Electrochemistry of Oxo-Bridged Heme/Copper Complexes. **M. Tapia**, F. Khan, R. Li, S. Hematian

608. Examination of 1,2-Bis(diphenylphosphine)benzene Nickel Complexes in C–N Cross-Coupling Reactions. **S. Goldberg**, M. Johnson **609.** Generation of Novel N,N-chelating Transspanning Ligands. **L. Hair**, **N. Ribeiro**, C. McMillen, J.A. Pienkos

611. Well-defined Cp*Co(III) complexes involving bidentate chiral amine ligands for the activation of carbon-hydrogen bonds. **B. Newell**, C. McMillen, J.P. Lee

612. Withdrawn

613. Synthesis and Characterization of Copper (I) Proazaphosphatrane Complexes. **W.E. Apostolou**, K. Kotera, J. Thomas, M. Johnson

614. CO₂ Reduction Using an Organocatalyst. **N.** Asif, M.R. Norris

615. Synthesis and functionalization of potassium bis(ethyleneglycol)organosilicates. **L. Hargrave**, C. Tierney, R. Van Hoveln

616. Excellent electrochemical performance of pristine Cobalt-based 2D metal organic frameworks supercapacitors. **J. Willier**, F.Z. Amir

617. Synthesis and NMR Characterization 5-Fluoroisatin and 7-Fluoroisatin Thiosemicarbazones and Semicarbazones. **E. Zachary**, B. Talent, E.C. Lisic

618. Synthesis and Characterization of Pd(II) and Cu(II) 5-Fluoroisatin and 7-Fluoroisatin Thiosemicarbazone Complexes for Biological Studies. **B.B. Talent**, E. Zachary, E.C. Lisic

619. Micelle Encapsulation for Electroactive Films of Homogeneous Catalysts. **A.E. McEntire**, M.R. Norris

620. Synthesis of CO2 reduction electrocatalysts featuring Fe/Co porphyrin cores appended with Ru-H donors. **S. Kim**, R.J. Conk, M.R. Norris

621. Development of a C2-Symmetric Chromium Catalyst for Asymmetric Aziridination. **C.W. Belcher**, K.M. Blatchford, D.M. Jenkins

Analytical Chemistry

622. Withdrawn

623. Iron chelation therapy drugs: Is curcumin as effective as current therapies? **W. O'Reilly**, M. Davis Mcgibony

624. Withdrawn

625. Bonding Interactions in Cerium (IV) and Uranium (II) Naphthylpyrasal and Salicylpyrasal Complexes. **T. Hoang**, A.E. Gorden, D. Gardner, D. Unruh

626. Structural analysis of fatty acids in Joro Spiders (Trichonephila clavate) using gas chromatographymass spectrometry. **A. Sunshine**, L. Eubanks, **I. Agyekum**

627. Determining the bioconcentration and toxicity of phthalates in the swimming behavior of the land crab's larvae Cardisoma guanhumi in Puerto Rico. C.P. Colon-Montalvo, M. Corujo Bonilla, B. Maldonado Aponte, D. Santiago Ferrer, A. Bermudez Adorno, C. Rodriguez-Fourquet, N. Soares Quinete

628. Development and Improvement of Electrochemical Cell for X-ray Fluorescence and Absorption Spectroscopy. **H.J. Lopez-Astacio**, L. Cunci, C.J. Pollock

629. Development of a simple method for the assay of amino acid decarboxylases through ion exchange HPLC. **J. Helmy**, C. Clinger

630. Highly efficient photocatalytic degradation of organic dyes by ZnO nanostructures. **K.N. Torres-Torres**, V. Nash-Montes, J. Luciano-Velázquez, S. Bailón-Ruiz

631. Withdrawn

632. Inorganic Light Absorber for Transparent Solar Cells. **R. Zaher**, **D. Dugger**, F. Zuo

633. Quantitative measurements of ligand coated magnetic nanoparticle interactions during linear aggregation via magnetic particle spectroscopy. **A. Hunter**, O.T. Mefford

634. Functionalization of Iron Oxide Nanoparticles for use as an Interocular Magnetic Fluid. **A. Dixon**

635. Exploring the Photophysical Properties of Prodrug Delivery in Cationic Micelles. **A. Merhar**, D. Ghosh, S.M. Gopaul

636. Electrochemical Analysis of Neuropeptide Y Using NPY-specific Aptamers and Methylene Blue Redox Label. **L. Martinez**, L.F. Lopez, L. Cunci

637. ACS Inter Ponce: Innovated, adapted, and striving to reach new goals. **J.A. Figueroa Suarez**, **J.A. Vazquez**, S. Restrepo Maldonado, E.J. Ferrer Torres

638. From the ACS University of Puerto Rico-Arecibo chapter to the world: A creative chapter. **H.N. Vargas**, A. Delgado, Z. Cordero Molina, I. Ramos, M. Ramos

639. Binding Cyclodextrin to Cellulose via a Citric Acid Linker as a Step Toward Increasing Adsorption Capacity of Cotton Fiber. **D. Randolph**, C.L. Huffman

640. Withdrawn

641. Bioassay-guided-fractionation and isolation of SARS-CoV-2 ACE-2/spike inhibitors from the brown algae *Lobophora variegata*. **V.M. Casimir**, M.L. Matos Hernandez, G. Dyer, T. Messick, I. Tietjen, E.J. Caro-Diaz, C.L. Morales-Colón

642. Withdrawn

643. Identification of phosphosites in the C. glabrata Pdr1 transcription factor. **J.R. McCallum**, M.E. Breen

644. Withdrawn

645. Characterizing essential and toxic metal interactions with the regulatory domain of human cardiac troponin C: A differential scanning calorimetry study. **E.E. Lemus Rivera**, L. Oliveira, T. Vasquez, A.M. Spuches

646. Preparation of low dispersity, size-controlled PCDA liposomes with microfluidics. **A. Chadwick**, T.W. Hanks

647. FTIR identification of microplastics from the surface water at San Juan Estuary. **A. Rosado-Medina**, **A.M. Gonzalez**

648. Water quality monitoring in the Mayaguez Bay for the identification of total coliforms and Escherichia coli. **M.A. Flores-Rivera**, T. Rodriguez Lopez

649. Development of colorimetric biosensors through supported lipid bilayer by polydiacetylene vesicle fusion. T.W. Hanks, **S. Alapati**, C. Stueber, P. Dawson

650. Removal of cerium from aqueous solutions using NQSA-SC and TSC chelating resins. **S. Coulter**, A.J. Carroll

651. Cultivating root vegetables in Martian soil: An analysis of radishes by Inductively Coupled Plasma Optical Emission Spectroscopy (ICP-OES) and Solid-Phase Microextraction (SPME) to Gas Chromatography Mass Spectrometry (GC-MS). **N. Kriegel**, K. Harper, K.W. Barnes

652. A functional SUMO-Interaction Motif (SIM) in the BRCA1 C-terminal (BRCT) domain implicated in its transcriptional regulation activity. **M. Wilchcombe**, B. Nicholson-Dews, A. Sekhar, J. Davis

653. Sodium channel Nav1.5: A potential drug target for metastatic pancreatic neuroendocrine tumors. P. Pukkanasut, **M. Sadanand**, J. Whitt, S.E. Velu, R. Jaskula-Sztul

654. Withdrawn

655. Using Artificial Intelligence to Formulate New Deep Eutectic Solvents. A. Varillas, L. Ayres, **C.D.** Garcia

656. Synthesis of chiral lanthanide complexes featuring SPINOL ligands for circularly polarized luminescence. **B. Willis**, D. Schnable, G. Ung

657. Substituent effects on a ruthenium-catalyzed oxidation of benzyl silyl ethers into benzyl silyl esters. **M. McKenna**, R.W. Peterson, J.T. Stokes, K.E. Poythress, B.C. Goess, S.K. Goforth

658. Total synthesis of hibiscone A. **F. Baerje**, B.C. Goess

659. Progress towards the Synthesis of a Novel Siderophore–Antibiotic Conjugate. **K. Carberry**, T. Whitaker, B.C. Goess

660. Pyrolysis product characterization of (2chloroethyl)-benzene using matrix-isolation FTIR. **T. Courtney**, K. El-Shazly, L.R. McCunn

FRIDAY MORNING

Puerto Rico Convention Center Ball Room A

Ligand and Biomolecular Contributions to Metal Bioactivity and Therapeutic Potential A. D. Tinoco, *Organizer, Presiding*

8:30 Introductory Remarks.

8:40 661. Transport of chromium (III) by transferrin with aid from low-molecular-weight chromium-binding substance. **J.B. Vincent**

9:00 662. Measuring Biological Thiols: Examining Metal Effects on Glutathione Oxidation. N.L. Finch, L.A. Broughton, **J.L. Brumaghim**

9:20 663. Illuminating the Role of Magnesium (II) in Liver Disease. M. Brady, J. Gruskos, K.H. Chu, **D. Buccella**

9:40 664. Lessons learned from exploring the insulin enhancing properties of vanadium phosphatase inhibition. A.D. Tinoco, **D.C. Crans**, O.O. De Leon, J.A. Benjamin-Rivera, K. Gaur, S. Markham

10:00 Coffee Break.

10:25 665. Exciting anti-cancer results with cobalt (III) and copper (II) complexes: In vitro studies on a triple negative breast cancer cell line. **A. Holder**, D. Alajroush, C.B. Smith, B. Anderson, S.J. Beebe

10:45 666. Synthesis, structure, and applications of ferrocene-hormone conjugates in breast cancer. **E. Melendez**

11:05 667. Protic ruthenium anticancer compounds: Describing the role of ligand charge in both photodissociation and singlet oxygen production. **E.T. Papish**, O. Oladipupo, S. Das

11:25 668. Illuminating Heme Trafficking and Signaling in Health and Disease. **A.R. Reddi**

Puerto Rico Convention Center 104 B

Novel strategies for Localized Drug Delivery I R. R. Kane, A. Unciti-Broceta, *Organizers*

8:30 Introductory Comments.

8:40 678. Click-chemistry to replenish drug delivery devices in live animals. **Y. Brudno**

9:00 679. Effects of chemical surface modifications on cell-based delivery vehicles. **M.E. Farkas**

9:20 680. Targeting nanomedicine in the vascular system. **V. Muzykantov**

9:40 681. Beta-eliminative linkers for Controlled-Release Drug Delivery. **E. Schneider**, G.W. Ashley, D.V. Santi

10:00 Coffee Break.

10:25 682. Cleavable radiotherapeutics. M. Vlastara, K. de Roode, l. kleijn, F. Hoeben, R. Versteegen, R. Rossin, **M. Robillard**

10:45 683. Priming tumor signaling and inflammation to enhance local prodrug action. **M. Miller**

11:05 684. Immunoengineering of orally ingestible Bile acid Nanocarriers for treatment of autoimmune disease. **T. Fahmy**

11:25 685. Designing enzyme-responsive polymeric nanocarriers with high molecular precision. **R.J. Amir**

Puerto Rico Convention Center 202 B

Organic Chemistry III Physical Organic Chemistry

D. J. Sanabria-Rios, *Organizer* G. B. Dudley, *Presiding*

8:30 Opening Remarks.

8:40 686. Benzannulation reactions for synthesis of the illudalane sesquiterpenes. **G.B. Dudley**

9:00 687. Recent advances in catalysis of transesterification and benzoin condensation by carbenes and polycarbenes. **K. Marichev**

9:20 688. Cross conjugated broad spectrum benzothiophene based NIR dyes in dye sensitized solar cells. **R. Kaur**, D. Ndaleh, A. Hogue, J.H. Delcamp

9:40 689. Vinyl diazonium ions as reactive intermediates for bond breaking and making. E. Howard, A. Peck, **M. Brewer**

10:00 Coffee Break.

10:25 690. Induction influences distal CH chemical shifts and CH coupling constants. **P. Wiget**, L. Middleton, H. Walker, N. Brandau

10:45 691. A cycloaddition-based approach to Cglycosylated heterocycles. **C.E. Marzabadi**, A. Abdullahi, K. Brogden

11:05 692. Trend of the photocatalytic degradation of the textile dyes using plant based green synthesized nickel oxide nanoparticles. **J. S**

11:25 693. Withdrawn

11:45 End of Session.

Puerto Rico Convention Center 104 A

Puerto Rico NSF-PREM's Symposium II

J. L. Colon, U. M. Cordova-Figueroa, *Organizers* I. Ramos, *Presiding*

8:30 Opening remarks.

8:40 506. Sustainable chemistry and catalysis engineering: The need for interdisciplinary research. **I. Hermans**

9:20 703. Fabrication of cadmium selenide hierarchical metamaterials and their emerging properties. **J. Del Pilar**

9:40 704. Impurity charge compensation in ferroelectrically gated graphene and its effect on charge transport. **N.J. Pinto**, K. Figueroa, N. Zimbovskaya, C. Wen, A.T. Johnson

10:00 Coffee Break

10:25 705. Enhancement of Crystal Nucleation at a Liquid/Vapor Interface. **K. Borchardt**, X. Yao, H. Wu, L. Yu

11:05 706. Alternative Platforms for Colorimetric Assays. **V. Bansal**, D. Lee, G.A. Correa-Otero, G.B.

Gomez-Dopazo, R.J. Agosto Nieves, R.L. Albarracin Rivera

11:25 707. Designer Capsules for Selective Binding of Polar Guests, Anions, and Xenon. Y. Lin, K. Du, **I.J. Dmochowski**

Puerto Rico Convention Center 204

Mass Spectrometry: Transcending Boundaries with Innovations in Methods & Technology I C. D. Chouinard, Organizer, Presiding

8:30 Opening Remarks.

8:40 669. Leveraging Flow Injection and Ion Mobility-Mass Spectrometry for High-Throughput Multi-Omics. **K.M. Hines**

9:00 670. Noncovalent Complexation Strategies Combined with Ion Mobility-Mass Spectrometry and Theoretical Modeling to Reveal Structural Preferences of Isomers and Drugs. **E. Zlibut**, J.C. May, J.A. McLean

9:20 671. Profiling the Steroidome with Ion Mobility-Mass Spectrometry. D. Velosa, s.p. neal, R. Aderorho, C.D. Chouinard

9:40 672. Solar phototransformation of pharmaceuticals and persistent transformation products in the aquatic environment. **W. Cory**

10:00 Coffee Break.

10:25 673. Unraveling the spatial lipidome using gas-phase ion/ion reactions. **B.M. Prentice**

10:45 674. LC-FOX: A mass spectrometry-based approach for measuring the higher order structure of dynamic systems. **J.S. Sharp**, Z. Cheng, S. Choudhary, S.K. Misra, A. Shami, S. Mishra, R.J. Doerksen

11:05 675. Withdrawn

11:25 676. Contextualizing MALDI imaging: Technologies for improving molecular and biological specificity. **J.M. Spraggins**

11:45 677. A mass spectrometric guided approach to elucidate the transmetalation mechanism of an

anticancer titanium (IV) complex that can target both intracellular iron and copper. **A.D. Tinoco**, K. Gaur, L.V. Fernandez-Vega, S. Loza, A.N. Maser, I. Rodriguez, S. Perez, J.A. Benjamin-Rivera, V. Ebenki, A. Vargas-Figueroa, M. Perez-Otero, A. Astachkine

Puerto Rico Convention Center 201 B

Photoinduced Processess in Macroscopic, Supramolecular and Nanoscale Inorganic Materials II

A. A. Marti-Arbona, Organizer, Presiding

8:30 Introductory remarks.

8:40 694. Shining New Light on Luminescent Low-Coordinate Organophosphorus Compounds. J.D. **Protasiewicz**

9:00 695. Towards complete characterization of the metastable state in photochromic ruthenium sulfoxides. **J. Rack**

9:20 696. Structures and activities of catalytic peptidic assemblies. **R. Prabhakar**

9:40 697. DFT study on the photo initiated intra and inter molecular C-H activation of disphenoidal metal (II) (Fe, Ni, and Co) nitridyl complexes. **D.C.** Alamo, D.A. Hrovat, T.R. Cundari

10:00 Coffee Break.

10:25 698. Withdrawn

10:50 699. Solution-Phase Synthesis of Quaternary Chalcohalide Semiconductors. **J. Vela**

11:15 700. Photochemical reduction of polyoxometealate frameworks. **A.M. Schimpf**, L. Chen, M.J. Turo

11:40 701. Origin and modulation of excitons in Thiazolothiazole based organic crystals. **A. Shibu**, D. Diaz, T.A. Schmedake, M. Walter

Puerto Rico Convention Center 201 A

Symposium on Forensic Chemistry II J. Almirall, *Organizer*, *Presiding* 8:30 Introductory remarks.

8:40 708. Raman spectroscopy and machine learning for forensic purposes. **I.K. Lednev**

9:20 709. Analysis of Cannabis Labeled Vape liquids for Cannabinoid and Heavy Metal Content. **S. Moreno**, A. Trouten, C. Sullins, R. Quinones, L.L. Richards-Waugh

9:40 710. Fast Blue BB (FBBB) screening test applied to delta-9-tetrahydrocannabinol (THC) detection in oral fluid. **R. Gorziza**, N.B. Valdes, M. Tinoco, J. Almirall

10:00 Coffee Break.

10:25 711. Global Interlaboratory Study to Evaluate Background Databases of LA-ICP-MS Analysis of Trace Elements in Glass for the Calculation of Likelihood Ratios in the Interpretation of Glass Evidence. **K. Lambert**, J. Almirall

10:45 712. Influence of intra-personal variations in human hand odor on the determination of sample donor. **V.A. Gokool**, H. Holness, K.G. Furton

11:05 713. Highly selective differentiation of organic gunshot residues combining their elemental and molecular signatures. **S. Khandasammy**, L. Halámková, M. Baudelet, I.K. Lednev

11:25 714. Characterization of the 4-aminophenol (4-AP) colorimetric reaction with tetrahydrocannabinol (THC) and cannabidiol (CBD) to differentiate between marijuana and hemp plants; a collaboration between Miami-Dade College faculty and students with Center for Advanced Research in Forensic Science (CARFS) researchers at Florida International University (FIU). **J. Ley**, M. Kepel dos Santos, M. Quirke, A. Acosta, R. Capote, A. Berdalinova, M. Mateo, M. Diaz de Villalvilla, J. Almirall

11:45 715. Withdrawn

Puerto Rico Convention Center 208 C

Symposium on Sustainable Green Chemistry II H. Cheng, *Organizer* J. C. Colberg, *Presiding*

8:30 Opening Remarks.

8:40 716. Iron-based catalysts for Suzuki-Miyaura cross-coupling reactions. **J.A. Byers**, A. Wong, C. Tyrol, M. Crockett, B. Zhang, M. Neidig

9:20 717. Slimming the Synthetic Peptide Wasteline. **M.E. Kopach**

9:40 718. How Sustainable is your Chemistry? Effective and Useful Tools to Impact Decisions When Designing Chemical Processes. **I. Martinez**

10:00 Coffee Break.

10:25 719. Enabling Technologies Applied to Accelerating Oncology Projects in a Sustainable Manner. **P. Richardson**

10:45 720. Synthesis of Pharmaceutical Products and Intermediates with Engineered Enzymes. **E. David**

11:05 721. Driving Cycle Time Reduction, Agility and Greener Processes in API Supply Through Continuous Processing. **J.C. Colberg**

11:25 722. Aqueous Copper Free Method for Oxidative Dephosphorylation of Glyphosate. J. **Stewart**, D.W. Scott

11:45 723. Process Enablement of COVID-19 Oral inhibitor PF-07321332 at unprecedented speed: from mg to MT in 18 months. **J. Piper**

12:05 Closing remarks.

Puerto Rico Convention Center 208 A

The Chemistry of Solar Fuels IV J. L. Colon, J. L. Dempsey, J. Y. Yang, *Organizers* J. Velazquez, *Presiding*

8:30 Opening remarks.

8:40 724. Catalysts, interfaces, and devices for solardriven H production and CO_2 reduction. **T.F.** Jaramillo

9:00 725. Extended surface electrocatalyst supports from self-assembled block copolymer templates. **C.G. Arges**, D. Bhattacharya

9:20 726. Establishing Structure-Function Relationships in Metal Sulfide Electrocatalysts to Drive CO_2 and CO Conversion to Alcohols. J. Velazquez

9:40 727. Molecularly based bifunctional electrocatalysts for water splitting. **D. Villagran**, Y. Ge, N. Ocuane

10:00 Coffee Break.

10:25 728. CO_2 Reduction to C_2^+ Products on Copper Electrodes Modified with Organic Additives. **T. Agapie**, J. Peters, W. Nie, G. Heim, N. Watkins, Y. Wu

10:45 729. Design and characterization of integrated systems for solar fuel production. **F. Toma**

11:05 730. Evaluating Performance and Ion-Transport Dynamics in Impurity-Resilient Bipolar Membrane Water Electrolyzers. **J. Perryman**, D.H. Marin, M. Burke Stevens, A. Nielander, T.F. Jaramillo

11:25 731. Conversion of captured CO2 directly into fuels. **C.P. Berlinguette**

11:45 732. Connecting chemistry from the nanoscale to the observable scale in artificial photosynthesis systems. **F.A. Houle**

Puerto Rico Convention Center 203

XRD in the Southeast - Advances in X-Ray Crystallography in Research III C. W. Padgett, *Organizer* W. E. Lynch, D. M. Pinero Cruz, *Organizers*,

Presiding

8:30 Welcome - Opening Remarks.

8:40 733. X-ray and computational study of halogen/halogen Interactions in haloaurate(III) complexes with heteroaromatic N-oxides. **W.E.** Lynch, C.W. Padgett, S. Lynch

9:00 734. Utilizing the N-oxide Functional Group to Tune the Properties of Transition Metal Compounds. J.A. Pienkos, C. McMillen, E. Stumbo, S. McDarmont, M. Shevlin

9:20 735. Competitive nitrogen-iodine and oxygeniodine halogen bonding studies using N-hetero diazine mono N-oxides: crystallographic and computational studies. S.N. Bailey, K. Hillis, A. Goetz, A. Cobb, A. Miller, R. Dean, W.E. Lynch, W.T. Pennington, C. McMillen, **C.W. Padgett**

9:40 736. Integration of a Benchtop Single-Crystal X-Ray Diffractometer into the Undergraduate Teaching Curriculum and Research Laboratory. **J.P.** Lee

10:00 Intermission - Coffee Break.

10:25 737. Group 12 complexes of a mixed aromatic amine-alkylthiolate ligand: Synthesis, structure and solution 1H NMR studies. **D.C. Bebout**, M. Sturner, J. Owusu-Koramoah, S.M. Berry, R. Butcher

10:45 738. From Cocrystals to Deep Eutectic Solvents: The continuum of halogen bonding from

the solid to the liquid state. **W.T. Pennington**, A. Peloquin, M.M. Bandara, S.R. Watts, R. Dean, B. Sebastian-Olazabal, E. Haines, A. Cobb, A. Miller, C.D. McMillen, D. Rabinovich

11:05 739. Preparing of cationic, octahedral, ruthenium (II) complexes supported by bidentate ligands: Synthesis, characterization and reactivity. **B.P. Quillian**, K.D. Cartrette, G. Durrell, P.H. Ouedraogo, C.W. Padgett

11:25 740. Adventures in the Crystallography of Heterobimetallic Complexes Containing the Uranyl Ion. **J.D. Blakemore**, A. Kumar, R.R. Golwankar, J. Karnes, C. Dopp, J.A. Leseberg, E. Cosner

11:45 741. Synthesis and crystal structures of transition metal complexes based on 1-carboxylatepyrene ligand. **K. Gonzalez Nieves**, P.C. Ramis, A.C. Burgos, V. Nogué, D.M. Pinero Cruz

FRIDAY AFTERNOON

FRIDAY AFTERNOON

Puerto Rico Convention Center 104 A

Puerto Rico NSF-PREM's Symposium III

J. L. Colon, I. Ramos, *Organizers* U. M. Cordova-Figueroa, *Presiding*

2:30 Opening remarks.

2:40 702. Energy, work, entropy, and heat balance in Marcus-Hush molecular junctions. **A. Nitzan**, N. Zimbovskaya

3:20 End of Session

Puerto Rico Convention Center 208 C

La Historia de Pioneros y Descubridores en Química II M. Orna, D. Rabinovich, *Organizers, Presiding*

2:30 Introductory remarks.

2:40 754. Latin American Nobel Laureates on postage stamps. **D. Rabinovich**

3:00 755. Mario Molina: from the Nobel Prize to the promotion of sustainable development in Mexico. **G. Lopez-Reyes**

3:20 756. Argentinian biochemist Rebeca Gerschman (1903-1986) was the first to connect free radicals and aging. **C.L. Ásquez Maldonado**

3:40 Intermission.

4:05 757. A forceful individual who changed the path of oncology: the connection between cancer and viruses. **J.C. Aquino**

4:25 758. Aztec Red: The real treasure on the Spanish galleons. **M. Orna**

4:45 Discussion.

Puerto Rico Convention Center 204

Mass Spectrometry: Transcending Boundaries with Innovations in Methods & Technology II C. D. Chouinard, Organizer, Presiding 2:30 Opening Remarks.

2:40 759. Ionic liquid degradation: A mass spectrometric perspective. **A.L. Patrick**

3:00 760. Mass Spectrometry characterization of Menthol-based Deep Eutectic Solvents. **O.O. Olawuyi**, M. Halim

3:20 Coffee Break.

3:45 761. Preparation and testing of a paper-based volumetric absorptive microsampling (VAMS)-like device for use with the liquid microjunction – surface sampling probe (LMJ-SSP) coupled with mass spectrometry. **D. Reddy**, M. Hassan, L. Zhang, T. Covey, R. Oleschuk

4:05 762. Application of high-resolution mass spectrometry to environmental chemistry. **A.L. May**, F. Loeffler, S.R. Campagna

4:25 763. Solution-Cathode Glow Discharge (SCGD) Ionization Mass Spectrometry for the Detection and Quantification of Elements, Small Molecules, and Biopolymers. **J.T. Shelley**, C.L. Walton, G.M. MacLean, J. wu, D.M. Wieland, M. Helling

Puerto Rico Convention Center 201 B

Photoinduced Processess in Macroscopic, Supramolecular and Nanoscale Inorganic Materials III

A. A. Marti-Arbona, Organizer, Presiding

2:30 Introductory remarks.

2:40 769. Luminescence studies of intercalated layered inorganic nanomaterials. **J.L. Colón**, R. Pervil

3:00 770. Photoinduced halide oxidation, release, and bond formation in supramolecular assemblies. A. Deetz, M.D. Turlington, M.J. Goodwin, J. Dickenson, N.D. Keller, **G.J. Meyer**

3:20 Coffee Break.

3:45 771. MOF photochemistry - Shining light on photocatalytic mechanisms. D.R. Cairnie, **A.J. Morris**
4:05 772. Metal-organic frameworks (MOFs) for solar energy conversion: Antenna-like light-harvesting, energy transport, and catalyst sensitization. S. Goswami, B.V. Kramar, L.X. Chen, **J.T. Hupp**

Puerto Rico Convention Center 203

Project SEED Symposium I

D. Masterson, *Organizer* A. Mallia, *Presiding*



2:30 Opening Remarks.

2:40 773. Reflections from the ACS Project SEED Puerto Rico. **I. Montes**, **A.D. Tinoco**

3:00 774. Increasing Chemistry Laboratory Experiences for High School Students at Boise State University. **D.L. Warner**

3:20 Coffee Break.

3:45 775. Mentoring ACS SEED students from a graduate student perspective. **T. Owens**, E. Choi, D. Masterson

4:05 776. Successfully Organizing ACS Project SEED Program. **A. Mallia**

4:25 777. Project SEED at Rhodes College: Lessons and Successes. **K. Mosley**, **L.W. Peterson**

Puerto Rico Convention Center Ball Room A

Symposium on Sustainable Green Chemistry III J. C. Colberg, *Organizer* H. Cheng, *Presiding*

2:30 Opening Remarks.

2:40 174. New materials and methods to address polymer sustainability. **J.N. Brantley**, A.D. Fried, N.G. Galan, B.J. Wilson

3:00 175. Dynamic Covalent Chemistry in Polymers for Improved 3D Printing. **R. Smaldone**

3:20 Intermission.

3:45 176. Simplifying the Synthesis of Conjugated Polymers with Electron-Rich Pyrrolopyrroles. **G.S. Collier**

4:05 177. Impact of side chain modification of donor polymer on optical and thermal properties of polymer non-fullerene blends. **B.R. Gautam**, S. Jones, Z. Kelly, S. Han, B. Kim

4:25 178. Sustainable Applications of Banana Skin. L. Liu, P. Van den Abbeele

Puerto Rico Convention Center 202 B

History of Chemistry - Puerto Rico's Impact on Chemistry

C. W. Padgett, Organizer, Presiding



2:30 Introductory remarks.

2:40 748. Puerto Rico's impact on chemistry. C.W. Padgett, T. Whiteside

3:00 749. Legacy of the Largest Telescope in the World. **R.C. Fortenberry**

3:20 Coffee Break.

3:45 750. Marine natural products in Puerto Rico: A historical perspective. **N.M. Carballeira**

4:05 751. Microbial Mats as platforms for Puerto Rican GEMS (Geochemical, Ecology and Microbiology Studies). **L. Casillas-Martinez**

4:25 752. Design of Hierarchical Porous Composite Materials for the Adsorption of Contaminants of Emerging Concern from Water. **A.J. Hernandez**

4:45 753. A Puerto Rican classic, Coco Lopez. C.E. MacGowan

Puerto Rico Convention Center 202 A

Novel strategies for Localized Drug Delivery II R. R. Kane, A. Unciti-Broceta, *Organizers*

2:30 Introductory Comments.

2:40 764. Carbon monoxide as a therapeutic agent: Targeted delivery through enrichment-triggered prodrug Activation. **B. Wang**

3:00 765. Next generation 3D-printed intravaginal ring for prevention of HIV and unplanned pregnancy. **S.R. Benhabbour**

3:20 Coffee Break.

3:45 766. Guns, Germs, and MOFs. **J.J. Gassensmith**

4:05 767. Insulin crystals grown in short peptide supramolecular hydrogels show enhanced thermal stability and slower release profile. **I. Alvarez de Cienfuegos**

4:25 768. Bioorthogonal nanozymes: Harnessing the power of transition metal catalysis for in situ therapeutic generation. **V.M. Rotello**

5:05 Closing Comments and Discussion.

Puerto Rico Convention Center 208 A

The Chemistry of Solar Fuels V J. L. Colon, J. L. Dempsey, J. Velazquez, *Organizers* J. Y. Yang, *Presiding*

2:30 Opening remarks.

2:40 742. Fundamental Studies on the Thermal Conversion of CO2 to Alcohols on Metal-oxide and Metal-Carbide Interfaces. **J. Rodriguez**

3:00 743. Discovery of (photo)electrocatalysts with high throughput experiments and integration with theory. **J. Gregoire**

3:20 Coffee Break.

3:45 744. Application of in Situ X-Ray Absorption and Photoemission Spectroscopy for Studying CO2 Reduction Reaction. **J. Yano**, X. Li, C. Kaminsky, A. Garcia Esparza, D. Sokaras, E. Crumlin

4:05 745. Tracking surface reconstruction of Cu catalysts under CO2 reduction conditions. **W. Drisdell**, S. Lee, J. Lin, M. Farmand, A. Landers, J. Feaster, J.E. Avilés Acosta, J. Beeman, Y. Ye, J. Yano, A. Mehta, R. Davis, T.F. Jaramillo, C. Hahn

4:25 746. Operando elucidation of the working state of photocatalysts for the production of solar hydrogen. **A. Garcia-Esparza**, M. Qureshi, M. Reinhard, J. Lim, R. Alonso-Mori, D. Sokaras

4:45 747. Reversible and Selective CO2 Reduction Catalysis. J.Y. Yang

Puerto Rico Convention Center Ball Room B

3:00 - 5:00 Sci-Mix Poster Session III

N. M. Carballeira, *Organizer* J. L. Colon, B. J. Ramos-Santana, R. Rodriguez, *Presiding*

3:00 - 5:00

PR NSF-PREM

778. The NSF-PREM Center for interfacial electrochemistry for energy materials (CIEM): Confronting the energy and climate crises. J.L. Colon, **L. Fuentes Claudio**

779. Fabrication and Characterization of Perovskite based Hybrid supercapacitors for Energy Storage. R. Martinez, S. Zografos, **R. Palai**

780. Water splitting electrocatalysis within layered inorganic nanomaterials. J.L. Colon, **M. Ramos-Garcés**, K. La Luz-Rivera, A. Cortés-Ortiz, V.M. Figueroa-Lozada, Y. Serrano-Rosario, J. Sanchez, I. Barraza-Alvarez, Y. Wu, D. Villagran, T.F. Jaramillo

. Effects of pH and solvent on the binding affinity of salophen ligands to cerium (III) and cerium (IV) and its impact on structure. **D. Gardner**, T. Hoang, J.A. Williamson, D. Unruh, J.D. Gorden, A.E. Gorden

781. Metal oxides catalysts as candidates for renewable energy applications. **M.B. Santiago-Berrios**, J. del Pilar-Albaladejo, C.R. Cabrera, H.D. Abruna

782. Immobilization of hemicryptophane on cellulose for fluoride removal from drinking water.F. Gonzalez, A. Fodness, E. Fasoli, I.J. Dmochowski

783. A Bimetallic Be/Cu Porous Pillared-Layered Coordination Polymer for the Removal of CO2 via Adsorption. **A. Tous**, A.J. Hernandez

784. BBFuels of Puerto Rico, LLC. A sustainable industrial model for bioethanol production in Puerto Rico. **J.L. Nina Espinosa**

785. Gallium nitride nanoparticles as inhibitors for hIAPP amyloid formation. **N.V. Falcon**, K.M. Torres, A.S. Delgado, A. Melendez, I. Ramos, D. Du, R. Oyola

786. Withdrawn

787. Fluorogenic sensor for detection of the Pre-Exposure Prophylaxis (PrEP)-HIV drug emtricitabine (FTC). **R.L. Albarracin Rivera**, J.T. Sczepanski, C. Yu

788. Integration of research into outreach program: Portable instrument for in situ preparation and electrical characterization of polymeric nanofibers.D. Rivera Nazario, A. Melendez, I. Ramos

789. Synthesis of doped onion-like carbon nanoparticles as a support for non-precious metal electrocatalyst. **A. Del Valle-Perez**, L. Cunci

790. Assessing surface and morphological effects in the adhesion of *l. casei* and *s. cerevisiae* onto Ag/polydimethylsiloxane nanocomposites. **R.F. Suárez-García**, M.A. De Jesus, C.H. Sotomayor Martinez, A. Ayala Ponce

791. Titanium Dioxide: Oregano Fossil leaf biotemplation. **A.E. Colon Gueits**

792. Manganese-doped zinc oxide as a photoanode candidate for dye sensitized solar cells. **E.G. Ramirez Aponte**, J. Rivera Rodriguez, J. Del Pilar, M.B. Santiago-Berrios

793. Cellulose acetate microwell plates for enzymatic assays. **G.B. Gomez-Dopazo**, R.J. Agosto Nieves, D. Rivera Nazario, J. Rosenfeld, I. Ramos, D. Lee, V. Bansal

794. Synthesis of Pillararene-and immobilization on cellulose matrix. **J. Crespo**, **G. Sanchez**, F. Gonzalez, E. Fasoli

795. Spin structures in the perovskite heterostructures LaCoO₃/SrFeO₃ and LaMnO₃/SrFeO₃. **D. Gonzalez**, A. Rosario, J.A. Santana

796. Emerging properties of CdSe hierarchical metamaterials. **R.A. Santos**, J. del Pilar-Albaladejo

797. Paper based sensor for detection of Aromatic Fragrance: An Experimenta con PREM hands on workshop. **Y. Santa, B. Rios, G. Villafane**, E. Fasoli

798. Silane Grafted Silica Nanoparticles based Liquid Marbles as Microreactors for Colorimetric Reactions. **R.J. Agosto Nieves**, G.B. Gomez-Dopazo, J. Rosenfeld, D. Lee, V. Bansal

799. Earth-abundant transition metal-based catalytic systems on zirconium phosphate supports as electrocatalytic material for the Oxygen Evolution Reaction. **Y. Serrano Rosario, C. Marzant Ortiz**, K. La Luz-Rivera, A. Cortés-Ortiz, V.M. Figueroa-Lozada, B.L. Vargas Perez, M. Ramos-Garcés, C.J. Pollock, L.M. Debefve, J.L. Colon

800. Temperature dependent charge transport in poly(benzobisimidazophenanthroline) (BBL) thin films. **A. Cruz-Arzon**, W. Serrano, N.J. Pinto, A.T. Johnson

801. Cyclodextrin-Modified gallium nanoparticles assessment for amoxicillin binding. **A.Y. Feliciano**, N.N. De Jesús

802. UV photoresponse and electronic transport in Reduced Graphene Oxide/Silicon p-n heterojunction. J. Perez Gordillo, A. Melendez, N.J. Pinto, I. Ramos

803. Operando Raman spectroscopic studies on the active species for promoted Ag-based propylene epoxidation with molecular oxygen. **J. Román Matías**, J.H. Jansen, I. Hermans

804. Viability of tamarind seeds as a source of activated carbon for supercapacitor applications. **S.P. Zografos**, R. Palai, D. Fontanez

805. Iron and Cobalt-based Catalyst on Doped Onion-like Carbon Nanoparticles. **L. Cunci**, B.L. Vargas Perez, A. Del Valle Perez, K. Vicente Ramos, H.J. Lopez-Astacio

806. TEM and SEM of Ag via magnetron sputtering physical vapor deposition for photonic sensing devices. **E. Díaz**, G. García

807. Optical studies of magnetron sputtering physical vapor deposition of Ag for ultra-sensitive, large-area plasmonic sensors. **C. Negron**

808. Tunability of Cobaloxime Scaffolds. **D.M. Diaz**, J. Lagana, O. Ahrens, K. Cartwright

Organic Chemistry

809. Design and Synthetic Progress Towards Two Small-Molecule Prodrugs for Use in Drug-Eluting Cellular Transplants. **C.A. Sells**, **P. Little**, R.R. Kane

810. Effect of Covalent Cell-Surface Modifications on a Hepatocyte-Mediated Clotting Cascade. **P.** Little, C.A. Sells, J. Mattke, R.R. Kane

811. Withdrawn

812. Palladium-catalyzed desymmetrization of meso-aziridines with pyrrole nucleophiles. **H.** Nguyen, J.B. Morgan

813. Chemical shift motifs in the spectroscopic characterization of liquid-state asthma drugs. **J. Thorn**, A.F. Callender, O.A. Cojocaru

814. Accessing Tosyl Amines Through Continuous Flow Intermolecular Aziridination of Terminal Olefins Featuring In-Situ Nitrene Formation. J. **Tomlin**, E. Chandler, E. Stryker, M. Jaskowski, A. Chin

815. Investigation of adamantyl-based phenyl sulfonyl acetamide and analogs as antileishmanial agents. **I.V. Ogungbe**, B. Kolawole, O. Adeyinka, O. Crown

816. Novel Route to Fluoroquinolone Antibiotics through Friedel-Crafts Acylation. **J. Noble**, T.Y. Yue, F. Gupton

817. Withdrawn

818. Implications of reaction and cargo types on cell surface modifications. **K.J. Winters**, J.D. Cullen, B.P. Joshi, J.A. Mas-Rosario, M.E. Farkas

819. Tertiary Amines as Switchable Polarity Solvents for Carbon Dioxide Removal. J. Cruz-Lebron, P.E. Cruz Tato, E. Nicolau

820. Synthesis of α -aryl- α -sulfonyl aldehydes via HFIP-induced rearrangement of 2-aryl epoxysulfones. **T.C. Coombs**, A. Anderson Uritis, H. Phillips

821. Withdraw

822. Expanding the scope of carbon–carbon bond formation using visible light activated electron donor-acceptor complexes. **M. Allen**, T.C. Coombs

823. Relating bromonium ion structure to alkene addition regioselectivity. N. Johansen, **B. Tutkowski**

Undergraduate

824. Biophysical characterization of a putative amino acid binding protein from Thematoga maritima. **S. Wenger**, J.D. Dattelbaum

825. Nanomaterial-Doped Xerogel Biosensors for Enhanced Measurement of Xanthine and Hypoxanthine in Clinical and Industrial Applications. **Q. Dang**, **A.H. Wemple**, M.C. Leopold

826. Dual-ionic liquid functionalized cellulosic materials: Thermal, mechanical and conductive properties. **E.A. McGrew**, G. Eicher, K.M. Miller

827. Swelling capacity of hydrogels with incorporated Sn and Cu nanostructures. K. Lassala Almazan, K. Lassala Almazan, I. Gonzalez Vega, J. Ortiz Santana, D.I. Torres-Padilla, M.P. Alvarez

828. Mesoporous silica for the delivery of liquid state phenothiazine drugs. **B.C. Copeland**, L.G. Pipkin, O.A. Cojocaru

829. Diffusion of choline-based ionic liquid coated nanoparticles in nasal mucus. **M. VanLandingham**, R. Heintz, E.E. Tanner

830. Isothermal Titration Calorimetry of the Pyridine Exchange of CdSe Semiconductor Nanocrystals. **E.A. Hall**, J.D. Keene

831. Nanoparticles for latent fingerprints development: Comparison study of traditional and nanoparticles-based development methods. **B. Rodriguez Cardona**, P. Garcia, J. Pagan Soto, E.J. Ferrer Torres

832. Evaluation of Moringa Oleifera extraction methods and their application for the synthesis of metallic and metal oxide nanoparticles with plant extract. **S. Restrepo Maldonado**, **M.D. Rodriguez Natali**, E.J. Ferrer Torres

833. Detection of Neonicotinoids Using Functionalized Gold Nanoparticles and Halogen Bonding. **S. Reiff**, **M. Sherard**, **Q. Dang**, M.C. Leopold

834. Exploring the potential toxicity of gold nanoparticles (AuNPs) on Zooxanthellae, Symbiodinium microadriacticum. **L. Llovet**, L. Diaz, M. Torres

835. Confirmation of cannabielsoin (CBE) structure and utility of 1,2-CBD epoxide. **A. Monroe**, J.B. Morgan, W. Gordon, R. Williamson, J. Wood, G. Martin

836. From Benzonitrile to Dicyanobenzenes: The Effect of an Additional CN group on Thermochemistry and Vibrational Spectra of Deprotonated Radical Isomers. **R.A. Firth**, W.K. Gichuhi

837. Physicochemical properties of urethanecontaining imidazolium ionic liquids from a nonisocyanate synthetic approach. **G.M. Timmermann**, P. Perdue, K.M. Miller

838. Preparation and physical properties of dyes based on 2H,10H-anthra[1,9,8-c,d,e,f]-2,7-

naphthyridine-1,6,11-trione.. **H.S. Mitchel**, Y. Lysandrou, D. Sangani, **J.T. Markiewicz**

839. Evaluation and characterization studies on the stability of acetals within a deuterated physiological buffer by 1H NMR Spectroscopy. **C. Scott**, **H. Menees**, N. Hollabaugh, A. Thomas

840. Synthesis and photophysical properties of SiRosindolizine derivatives for in vivo SWIR fluorescence imaging. **T. Lewis**, W.E. Meador, A.K. Shaik, N. Hammer, J.H. Delcamp

841. Withdrawn

842. Withdrawn

843. Withdrawn

844. Self-diffusion coefficients of aliphatic phenothiazine double salt ionic liquids. **D. Popa**, E.E. Etheridge, O.A. Cojocaru

845. Withdrawn

846. Synthesis of 2,3-dihydroisoxazoles from Nbenzylhydroxylamine and chalcones promoted by trimethylsilyl trifluoromethanesulfonate. **G. Hughes, O. Lambertson**, R. Goodner, C.W. Downey

847. Trimethysilyl trifluoromethanesulfonatepromoted alkylation of amides with allyl and propargyl propionates. **T. Chong**, **M. Hussein**, A. Helbling, C.W. Downey

848. Investigation of guanidinium molecules as antisolvent additive to increase halide perovskites performance. **Z. Yang**, Y. Shi, D. Ginger

849. Withdrawn

850. Optimization of Paper Spray Mass Spectrometry via Chemically Patterned Paper Substrates. **A. Arias**, W.M. Gilliland

851. Investigation of the impact of structural rigidity on the photophysics and photochemistry of titanocene arylamine compounds. **T. Whittemore**, H. London, E. Harris, M. Barker, P.S. Wagenknecht

852. Application of 1,8-ANS fluorescent probe to identify hydrophobic patches on the surface of native Ca (II) binding EF-hand proteins upon heavy metal binding. **O.R. Warfel**, A.M. Spuches

853. Qualitative Detection of Illicit Drug Use in Hair Samples Via GC/MS Analysis. **P.C. Griffeth**, **P. Mosayebi**, C.H. Lisse

854. Mechanisms of multielectron reactions at the plasma/water interface: Interfacial catalysis, RONS, nitrogen fixation, and plasma activated water. **G. Taengwa**, A.G. Volkov

855. Modification of the surface of titanium to support soft tissue growth. **M. Roberts**, T.W. Hanks

856. Selectivity of controlled release from surfacemodified polypyrrole films. **G. Richter**, A. Knepper, T.W. Hanks

857. Interactions of silver cations and DNA using isothermal titration calorimetry. **A. Sorescu**, J.T. Petty

858. 3D-Printed prototype socket for BIDEA's Biosensing Strip (BBS) as an innovative point-of-care cancer screening test. **Y.A. Avellanet Crespo**, J.L. Colón Quiles, C.R. Cabrera, R. Diaz-Ayala

859. Development of a super hydrophilic zwitterionic membrane for forward osmosis water reclamation. **L. Lizardi**, E. Nicolau

860. Polyunsaturated fatty acid incorporation into membrane phospholipids of Aeromonas salmonicida. **B.C. House**, A. Lin, D.K. Giles, S.J. Symes

861. Investigating the degradation of atrazine and associated activity of manganese peroxidase in white-rot fungi. **J.S. Wirth**, J.F. Wheeler, S.K. Wheeler

862. Investigating the Novel Histidine Kinase Regulator NtrZ. **M. Lutey**, B. Stein

863. Interaction between the FixL kinase and its feedback inhibitor. **E. Travers**, B. Stein

864. The degradation of atrazine by white-rot fungi using a mixed inoculum. **M.L. Schroder**, C.S. Webber, J.S. Wirth, J.F. Wheeler, S.K. Wheeler

865. Photodynamic therapy agents: The power of Mjöllnir to eradicate cancer. **S. Hopper**, M. Davis Mcgibony

866. Conformational analysis and docking study of Retinol-binding protein 4 (RBP4) antagonists. **C. Brown**, G.C. Shields

867. Withdrawn

868. Investigating transthyretin aggregates link to oxidative damage of HDL cholesterol carriers. **A.** Lahetta, K.M. Matera

869. Characterization of modified catheter surface with antimicrobial polymer-peptide conjugate used to combat infection disease. **A. Gomez Cardona**, V. Ortiz Gomez, R. Maldonado Hernandez, E. Nicolau Lopez

870. Computational Investigation of Triglycine Peptide Formation: A Study of Prebiotic Earth. **E. Shaikh**, S. Warf, S. Harold, G.C. Shields

871. Isolating an E. Coli adhesin protein (fimH) for future thermodynamic characterization. **A.T. Mikaeel**, A.C. Sarcona, S.A. Hinson, M.T. Regaa, T.B. Cavitt

872. Isolating an E. Coli adhesin protein (papGII) for future thermodynamic characterization. **M.T. Regaa**, S.A. Hinson, A.T. Mikaeel, A.C. Sarcona, T.B. Cavitt

873. Synthesis, Characterization, and In-Vitro Analysis of Antiviral Peptides Targeting the Spike Protein and Angiotensin-Converting Enzyme-2. **R.** Faddis, M. Halim

874. Scientific and pedagogical analysis of Gil Chaverri Rodriguez's 1953 Periodic Table Arrangement. **M. Murillo-Soto**, **V. Castillo Salazar**, S. Sandi-Urena

875. Oxidative self-dimerization of indoles for the synthesis of bisindoles. **M. Mancin**, C. Rountree, **M.A. Lnu**

876. Sulfinamides and benzylamines as chiral auxiliary for the enantioselective amination of α -diazo esters. m. vescio, **M.A. Lnu**

877. Spiropyran-based mechanochromism in polyurethane foam. **K. Hooper**, M.H. Barbee

878. Design and synthesis of a new aminotropinimate supported zinc complex for hydroamination. **C. Dral**, R.J. Harris

879. Structure and properties of the binary mixtures of hydrogen bond acceptors and simple alcohols. **C. Mitchell**, S.W. Huffman

880. Bottom-up synthesis of graphene nanoribbons via iterative Suzuki-Miyaura cross-coupling. **A. Conde-Del Moral**, D. Pyle, G. Dong

881. Optimization of reaction conditions for the ruthenium-catalyzed oxidation benzyl silyl ethers to benzyl silyl esters. **R.W. Peterson**, A.G. Riccardi, M. McKenna, K.E. Poythress, B.C. Goess, S.K. Goforth

882. Electrophilicity as a means of describing freeradical scavenging mechanism of antioxidants: A Computational Study. **D. Young**, B.K. Dey

883. Synthesis of Annulated Pyridones via [2+2] Photocycloaddition–Cyclobutane Fragmentation. **C. Slough**, A. Davis, M.E. Daub

884. Synthesis and characterization of covalently modified poloxamers. **D. Taylor**, R.J. Harris

Puerto Rico Convention Center 201 A

Analytical Chemistry IV - Mass Spectrometry

L. Cunci, Organizer L. V. Fernandez-Vega, Presiding

9:55 Introductory remarks.

10:05 885. Withdrawn

10:25 151. Withdrawn

10:45 886. Pattern recognition approach to headspace analysis of crude oils. **V.A. Gokool**, S. Vaughn, L. DeGreeff

11:05 887. Evaluation of a non-targeted analysis approach for identifying chemicals of environmental concern in soil and dust and children's exposure. **J. Cox**, D. Cui, E. Mejias, D. Bagner, P.R. Gardinali, N. Soares Quinete

11:25 888. Intestinal Permeability Analysis by UHPLC-MS/MS method. **M.J. Vergne**, L. Reynolds, J. Townsend

11:45 889. Polycyclic Aromatic Hydrocarbons in the Alternative Tobacco Product Midwakh: A major concern. **F. Samara**, Y. Elsayed

12:05 890. Identification of cannabinoids and terpenes profile in some vegetative and commercial samples using GC/MS and HPLC. **J.S. Torres-Rodriguez**, M. Rivera-Isaac, A. Báez-Rodríguez, E. Resto-Rodriguez, I. Montes Gonzalez

Puerto Rico Convention Center 201 B

Inorganic Chemistry III -CO2 catalysis M. B. Santiago-Berrios, *Organizer, Presiding*

9:55 Introductory Remarks.

10:05 891. Withdrawn

10:25 892. Visible-Light Driven Photocatalytic CO₂ Reduction by a Series of Self-Sensitized Ruthenium Complexes. A. Devdass, K. McCardle, A. Dorris, D.K. Buettner, N. Hammer, J. Panetier, **J.W. Jurss**

10:45 893. Low Valent Cobalt Pincer Complexes as catalysts for CO2 Hydrogenation. **W. Yao**, C.M. Boudreaux, E.T. Papish

11:05 894. Combined CO₂ capture and reduction using electrochemically generated metal hydrides. **M.R. Norris**, S. Moise

11:25 895. Development of ROMP polymers to support and enhance electrocatalytic CO2 reduction by Cobalt Phthalocyanine. **W.W. Kramer**, F. Valoy, N. Keyes

11:45 896. Dialing-In Molecular Electrocatalytic CO2 Reduction Onset Potentials with Meridional Quinoline-Derived Ligands. J. Stober, J. Dickenson, T. Tarring, D. Turner, C. Brown, K. Cartwright, **D.P. Harrison**

Puerto Rico Convention Center 202 C

Organic Chemistry IV Chemical Biology

D. J. Sanabria-Rios, Organizer, Presiding

9:55 Opening Remarks.

10:05 897. High-throughput discovery and development of antifungal peptoids. **K. Bicker**, R.M. Green

10:25 898. Structure-activity relationship study of disubstituted benzoxazoles as inhibitors of sphingosine-1-phosphate transporter Spns2. A. Burgio, C. Shrader, Y. Kharel, T. Huang, K. Lynch, W.L. Santos

10:45 899. Synthesis and characterization of improved β -eliminative linkers for the bioconjugation and sustained release of the TLR4 inhibitor TAK-242 (Resatorvid) for applications in transplantation. **J.H. Kostyo**, A.T. Lallande, R.R. Kane

11:05 900. Withdrawn

11:25 901. Synthesis and evaluation of small molecules that modulate antibiotic resistance, biofilm formation, and virulence in methicillin-resistant Staphylococcus aureus (MRSA). **M.S. Blackledge**

11:45 Moved

12:05 906. Structure Activity Relationship (SAR) of heterocyclic ferrocenyl chalcones towards lung cancer cell line. **A.M. Sanchez**, E. Ormé, I. Rodriguez, S. Delgado, A.D. Tinoco, I. Montes

Puerto Rico Convention Center 204

Physical Chemistry I M. J. Bayro, *Organizer*, *Presiding*

9:55 903. Kinetics and mechanistic study of polymer functionalized fluorographite - a radical assisted defluorination and exfoliation process. **J.C. Poler**, A. Sahu, S. Schmal

10:15 904. On the PhotoPhysical Characterization of Novel Organic Small Molecule Dyes in the NIR. C. Smith, D. Ndaleh, M. Loku Yaddehige, A.K. Shaik, D.L. Watkins, N. Hammer, J.H. Delcamp

10:35 905. Probing local changes to model nanoparticle-bound α-helical structures with 2D IR spectroscopy and isotope labeling. K.R. Webb, K.A. Hess, **A. Shmidt**, K.D. Segner, L.E. Buchanan

10:55 906. Predicting the protonation state of side chains in proteins with electric fields. V. Vaissier Welborn

11:15 907. Understanding and Tuning the Spectroscopic and Photophysical Properties of Flavin Binding Fluorescent Proteins. **M. Kabir**, Y. Orozco-Gonzalez, D. Ouedraogo, G. Gadda, S. Gozem

11:35 908. Membrane composition drives sidechain ionization and assembly of transmembrane protein domains. **T. Smirnova**, M.A. Voinov, G. Cook, A.I. Smirnov

11:55 909. Establishing the role of structure and dynamics in radiation brightening from virus-like particles. R.L. Ranawaka, P.E. Jones, B. Dragnea, **J.A. Hadden-Perilla**

Puerto Rico Convention Center 208 C

Symposium on Sustainable Green Chemistry IV J. C. Colberg, *Organizer* H. Cheng, Presiding

9:55 Opening Remarks.

10:05 910. Withdrawn

10:25 911. Strategies toward diverse functionalized nanocelluloses and products. **Y. Hsieh**

10:45 912. Cellulose nanomaterials from cotton gin byproducts: processing and applications. **J.H. Jordan**, M. Easson

11:05 913. Withdrawn

11:25 914. Engineering reversible carbon dioxidebased processes for biorefining of lignocellulosic biomass. **J. Sheehan**, K.A. Agwu, S.R. Belmont

11:45 915. Microwave Pretreatment for Enhanced Cellulase Enzymatic Activity. **D.W. Scott**

Puerto Rico Convention Center 202 B

Undergraduate Oral Session II B. J. Ramos-Santana, *Organizer, Presiding*

9:55 Introductory remarks.

10:05 916. Withdrawn

10:25 917. How do undergraduate students studying general chemistry approach designing multiplechoice questions in learner sourcing communities? **K. Medina**, C. Randles

10:45 918. Tuning diamine appended metal-organic frameworks for post-combustion CO2 capture. **O.A. Conde**, B.E. Snyder, J.R. Long

11:05 919. A rare earth metal modulates Pseudomonas putida chemistry and physiology: Examining bacterial biofilm formation and the conversion of toxic intermediates. **D. Thompson**, S. Sathish, D.E. Williams

11:25 920. Micobiological assessment in "El Yunque" Tropical Rainforest: Bacterial identification in the Freshwater River Mameyes.
L.V. Vivas Garcia, A. Suarez, K. Perez, G.S. Vega

11:45 921. Mass transfer in the adsorption of siloxanes derivatives compounds in water. S. Espina, A. Aviles, P.J. Tarafa

12:05 922. Withdrawn

Puerto Rico Convention Center Ball Room B

10:00 - 12:00 Sci-Mix Poster Session IV

N. M. Carballeira, *Organizer* M. J. Bayro, B. J. Ramos-Santana, S. Sandi-Urena, W. Torres, *Presiding*

10:00 - 12:00 i-RIPS Abstracts

923. Withdrawn

924. Development and validation of analytical method for quantification of ethanol on a 70% alcohol base. H.J. Solis Xicara, **J.A. Garcia Bolanos**

925. Optimization of a method for extraction and analysis of polybrominated diphenyl ethers in passive resin adsorption samplers. **R. Ayala Guzman, I. Gavilán García, E. Beristain**

926. First Central American woman in Chemistry. **Y.J. Tzian**

927. Determination of the adsorption rate of atrazine in a passive-type atmospheric aerosol sampler in a wind tunnel. **Z. Ayala**, E. Beristain

928. Design of a low cost and low volume active sampler. **F. Maqueda**, E. Beristain

929. Periodycart: An interdisciplinary activity proposal for the teaching of Periodicity through Art. **J.O. Júnior**, F.L. Silva, C.V. Nobre, G.R. Lopes, Y.L. Silva, E.S. Santos, H.H. Fiuza, M.d. Oliveira

930. Development of Time and Resource Diagrams for the Costing of the Productive Process of Local Agroindustrial Companies. **P.F. Martinez Guendulain**

931. Single-step production of green butadiene over bimetallic silica-supported catalysts. **S. Silva**, L. Cardoso Cintra, M. Murta Valle

932. Prediction of the resistome of family of sporeforming bacteria of the gut microbiome. **B.M. Espino Jurado**, A. Romero Rodríguez

934. Portable sustainable practicals in college experimental chemical education. **K. Villalobos Morera**, **S. Sandi-Urena**

935. Design, synthesis and biological evaluation of quinazoline derivatives as potential inhibitors of Lactate Dehydrogenase A. L. Chávez Vargas

936. Electronic compatibility of unnatural nucleotides in the DNA double helix. **C.A. Hernández**, J. Barroso-Flores

937. BODIPYS molecular rotors as viscosity sensors. **I. Martinez Sulvaran**

938. Nanoprecipitation and characterization of PMMA and PVC nanoparticles for biological and chemical testing. **B.A. Ulate Caballero**, B. Honnorat, K. Wende

939. Sustainable Source Of Electrical Energy From Chemical Reactions In Organic Matter. **P. Peña Reséndiz**

940. Field work, my experience in the Environmental Chemistry course in the Chemistry school at UNAM. **Z. López Vega**, I. Gavilán García

941. Water, analysis of the use of the water system in Mexico: a review. **A.E. Salinas Pérez**

942. Bioremediation of soil polluted with oil by Pleorutus ostreatus. **G.M. Marquez Portillo**

943. Reactivity and detection methods of Gammahydroxybutyrate. **F.Y. May Moreno**, F.J. Rivera Mendoza

944. In vitro study of the effect of Parietaria officinalis extracts obtained by different methodologies on calcium oxalate and its antibacterial activity against E. coli and S. aureus. **S. Velasquez**

945. Polypyrrole-based materials as electrochemical capacitors. **C.C. Moreno**, M.T. Cortes

946. Evangelina Villegas: Woman who developed QPM. K. Vazquez-Cervantes

947. Optimization of an extraction method for the quantification of metribuzin, atrazine and 2,4-dichlorophenol in agricultural soils and their leachates from an agricultural area of CDMX (Mexico City). **K. Valtierra**, E. Beristain

948. Withdrawn

950. Female undergraduate students' leaders experience and achievements in the ACS Student Chapter, UNA. **M. Porras**, M.F. Camacho Murillo, J. Mora Martinez, L. Vega Fernández, P. Zúñiga Muñoz, J.Á. Rodríguez Corrales

951. Cheap and easy colorimetric biosensor made from curcumin: A home lab experience. **E.O. Pérez**, B.J. Lopez Mayorga, J.A. Solis-Portillo

952. Introducing green chemistry to undergraduate students: a mentoring project on green polyamide routes. **S. Silva**, G.A. Rodrigues, P.R. Seidl, E. Freire

Project SEED

953. Extraction and characterization of fatty acids from green Caribbean macroalgae *Ulva faciata*. **A. Ojeda**

954. Qualitative Determination of Heavy Metals through the use of Tetra Hydroxyphenyl Porphyrin-Doped Silica Sol-Gels. **M. Collins**, C. Miller, C. Smith, C.H. Lisse

955. Synthesis of a Reusable Colorimetric pH Sensor using Doped Silica Sol-Gels. **W. Ratajczak**, C. Miller, C. Smith, C.H. Lisse

956. Synthesis and Characterization of Silica-Porphyrin Heterogenous Sol-Gel Catalysts. **C. Buck**, C. Miller, C. Smith, C.H. Lisse

957. Synthesis and Characterization of Silica Sol-Gel Monoliths as Glucose Biosensors. **N. Walsh**, C. Miller, C. Smith, C.H. Lisse

958. Synthesis of a Reusable Colorimetric Silica Sol-Gel Sensor for Detection of Methamphetamine. **T. Johnson**, C. Miller, C. Smith, C.H. Lisse

959. Towards the development of multimodal ferroptosis inducing compounds for hard-to-treat lung cancer. **J. Vega Díaz**, A.M. Orta-Rivera, A.D. Tinoco

960. Non-Coding mutations alter the binding affinity of the cardiac transcription factor NKX2-5. **B.M. Rosario**, E.G. Rodríguez -Martínez, A. Rivera-Madera, L. Sanabria, J.A. López Gonzales

961. Assessing the virion stabilization effect of HIV maturation inhibitors. **V. Santiago-Excia**, M.J. Bayro, K. Reyes Colon, D. Rodriguez, G. Michel

962. Enhanced cycling performance of the SnO2 anode by using LiFSI-based electrolyte. **F. Camacho**

963. Synthesis and analysis of oil dispersants derived from the wax of A. mellifera. **S. Albury**, B. Corbett

964. Isolation and utility of C. atlantica, C. verum, L. angustifolia, C. aurantifolia, O. vulgare, and M. piperita as natural antibiotics: Structural supports toward enhanced utility. **S. Joshi**, B. Corbett

965. Protein hydrolysis toward mineral chelation: Improving iron and calcium absorption. **R. Tikkala**, B. Corbett

Organic Chemistry

966. Gas phase mechanistic studies on the formation of 2-thiohistidine under biomimetic conditions. **T. Owens**, R. Nuckels, F. Hawkins, S. Gusa, D. Masterson

967. Hotplate temperature studies: Variability and reproducibility of thermal sources for organic synthesis. **K. Williamson**, D. Herr, H.P. Rathnayake

968. Wacker-type oxidation of aryl-substituted alkenes over various Pd (II) organometallic heterogeneous catalysts under microwave. **H. Yin**, J. Barton

969. Development of cryptochrome-targeting PROTACs to investigate effects of protein degradation on circadian rhythms. **C.W. Yan**, K. Chhe, E.F. Rivera Iglesias, M.E. Farkas

970. Withdrawn

971. Withdrawn

972. Diphenylpryraline Analogues Behave as Cannabinoid 1 Receptor Agonists. **J.J. Harp**, K. Eldeeb, T. Reeves

973. Synthesis and Characterization of Chemical Probes to Elucidate the Mechanism of HIV-1 Maturation Inhibitors. **C. Diaz**, K. Reyes Colon, C.P. Vlaar, M.J. Bayro

974. Live-cell RNA imaging with metabolically incorporated fluorescent nucleosides. D. Wang, **A. Shalamberidze**, E. Arguello, B.W. Purse, R. Kleiner

975. Compound activity mapping for SARS-CoV-2 antiviral marine cyanobacterial extracts. **M.L. Matos Hernandez**, G. Dyer, C.L. Morales-Colón, J. Cassel, T. Messick, I. Tietjen, E.J. Caro-Diaz

976. Development of a greener, continuous preparation of the tuberculosis drug rifapentine. **E. Stryker**, A. Matthews, T.Y. Yue, F. Gupton

977. Chemoinformatic synthesis and analysis of cyanobacterial pseudonatural products. **W.O. Mendoza Morales**

978. Development of novel palladacycles by C–H activation of azetidines. **T.A. Rossman**, J.B. Morgan

979. Biological Properties of Nitrogen Containing Ferrocenyl Chalcones Derivatives. **S.M. Delgado-Rivera**, S.A. Henriquez-Lopez, G.E. Perez-Ortiz, I. Montes Gonzalez, A. Baerga-Ortiz, D.M. Pinero Cruz

980. Use of Dimethyldioxirane as a reliable oxidizing agent. **D. McTush-Camp**

981. Examining the chemical reactivity of boronbased carbon monoxide donor, CORM-A1. **N. Bauer**, X. Yang, Z. Yuan, F. Vazquez, B. Wang **982.** Metal-organic Frameworks(MOFs) for Sustainable Energy Using Computational Simulations. **R. Kyung**, J. Lee

983. Optimization of warfarin synthesis using biocatalysts and adjuvants for enantioselectivity: A CURE approach. **A.I. Wurz**, R. Hughes, J. Walker

Physical Chemistry

984. Rad26 powers RNA polymerase II forward translocation by an allosteric mechanism. **C. Yan**, T. Dodd, I.N. Ivanov, D. Wang

985. Evaluating the Physical Properties of 12-n-12 Gemini Surfactants. **D. Aguilar**, R.D. Sheardy

986. Withdrawn

987. Residue Interaction Networks and the Cheminformatics of Atomic-Level Enzyme Models. **N.J. Deyonker**

988. Spectroscopic and Computational Studies of Nitrogen and Sulfur-Containing Dipole-Bound Anions as Components in Light-Harvesting Materials. **N. Kruse**, R.C. Fortenberry, N. Hammer

989. Thermal Decomposition Pathways of Dihydrofuranones. **L.R. McCunn**, H.N. Legg, T.D. Martin, G.J. Brown, K. Narkin, K. El-Shazly, T. Courtney

990. Computational analysis of water catalysis on prebiotic peptide bond formation. **S. Harold**, S. Warf, G.C. Shields

991. Comparative DFT study of the Isomerization barrier and Global Descriptive Indices of 2-butenedioc acid and its Methyl substituted derivatives. **J.K. Agbo**, C.A. Mebi

992. Withdrawn

993. Penta-Hexagonal Graphane: A New Promising 2D Anode Material for Li-ion Batteries. L. Lu

Undergraduate.

994. Reaching non-STEM students of Erskine College through campus wide events. **O. Jans**, T.R. Hayden

995. Withdrawn

996. Investigating student resource use. **K. Oliver**, J.N. Orvis, L. Padgett, S.E. Conti, L. Williams

997. Application of machine learning approaches towards spectral deconvolution and secondary structure quantification in infrared hyperspectral imaging. **L. Verace**, B.M. Holcombe, A. Ghosh

998. Chemometrics of honey: Design and development of spectroscopic and spectrophotometric experiments for a first-year undergraduate research experience. **D. Rodriguez**, **L. Harrison**, **B. Dominguez**, A. Edlin, A.J. Rodriguez

999. Chemometrics of honey: Design and development of stoichiometry experiments for a first-year undergraduate research experience. **M. Bonilla, S. Serrano, M. Carrion, A. Perez,** A.J. Rodriguez

1000. Chemometrics of honey: Design and development of fundamental and exploratory experiments for a first-year undergraduate research experience. L. Caballero, L. Harrison, A. Edlin, Q. Rodriguez-Manzanares, A.J. Rodriguez

1001. Driving Effects of Common Atmospheric Molecules for Formation of Prenucleation Clusters.C.J. Bready, V. Fowler, L. Juechter, L. Kurfman, G. Mazaleski, G.C. Shields

1002. Effect of thermal diffusivity on wood torrefaction process at various temperature and duration (part 1). **T.N. Nguyen**, L. Richa, A. Petrissans, R.L. Quirino, D. Florez, R. Remond, B. Colin, V. Fierro, M. Petrissans

1003. Monitoring water quality in Abbeville County, South Carolina- A citizen science project. **H. Holcomb**, T.R. Hayden

1004. Titania photocatalysis for fish aquaculture. A. Giammarinaro, **J.E. Boyd**

1005. Sucralose $(C_{12}H_{19}Cl_3O_8)$ impact on microbial activity in estuarine and freshwater marsh soils. **A.** Westmoreland, T. Schafer, K. Breland, T. Osborne

1006. Benchmark study of water clusters (H2O)2-30. **V. Fowler**, T. Odbadrakh, G.C. Shields

1007. Remediation of cerium from water utilizing ISA- PTSC and PSC chelating resins. **C. Morris**, A.J. Carroll

1008. Development of an automated process to measure the regeneration, reuse and sustainability of nanoresin water purification materials. **J. Costelloe**, C. Reid, A. Sahu, S. Schmal, T. Sharma, J.C. Poler

1009. Contamination of Coliform bacteria on bioluminescence Mosquito Bay in Vieques. **C.A. Rios Rosa**, V.V. Duarte, **K.H. Rodriguez**, S.N. Santana, F.N. Alvarado

1010. Computational investigation of the secondary aerosol system H_2SO_4 -HNO₃-HCl-NH₃-(CH₃)₂NH-(H₂O)n. **A. Byerly**, G.C. Shields

1011. Bacillariophyta Diatom. V.V. Valerio Duarte, C.A. Rios Rosa, K.H. Rodriguez, S. Mercado Santana, F.N. Alvarado

1012. Microplastics in cave environments. **B.** Larmon

1013. Bioaccumulation of heavy metals by aquatic plants from a natural wetland in the Northern Part of Puerto Rico. **P.Y. Rodriguez Lopez**, M. Ramos

1014. Obtaining eco-friendly biofilms and microwave extraction of chitosan from Aspergillus niger mycelium. **C. Rodriguez**, J. Vargas

1015. Microorganism assessment in the bodies of water surrounding the Guayanés river in Yabucoa. **J.D. Pinto Burgos**, A. Rodríguez Lebrón, D. Alequin Torres

1016. Sustainable Medicine: Investigating Green Solvents in Conversion of Sugars. **C. McGrath**

1017. Solar photodegradation of metoprolol in simulated natural water samples. **H. Sabatini**, W. Cory

1018. Permeation of choline-based ionic liquid nanoparticles through porcine nasal mucosa. **R. Heintz**, M. VanLandingham, E.E. Tanner

1019. Single chain polymer nanoparticles with silyl ether crosslinks. **G. Ford**, M.H. Barbee

1020. Biomimetic Design of Single Chain Nanoparticle Polymers Networks. **S. Robinson**, M.H. Barbee

1021. Photocatalytic degradation of 6PPD-quinone. D. Ashley, **J.E. Boyd**

1022. Intramolecular [2+2] Photocycloadditions of 2-Pyridones. **A. Davis**, C. Slough, M.E. Daub

1023. MoS₂/WO₃@N-rGO@polyaniline nanocomposites for high-performance supercapacitors. **M. Thompson**, A. Rodriguez, M.H. Kabir

1024. Antibacterial synergistic properties of silver nanoparticles and Manuka honey solutions for treatment of antibiotic resistant Escherichia coli and Staphylococcus aureus infections. **J.Y. Taylor**, W.F. Mays, K. LaiHing

1025. Understanding nanomaterial toxicity and the potential for resistance evolution in bacteria. E.E. Carlson, A. Gavin, **Y.L. Peña Señeriz**

1026. Comparison of photochemical decomposition and efficiency of different sunscreens. **A. Blake**, D. Craig, A. Labossiere, K. LaiHing, S. LaiHing

1027. Fabrication of 30-100 nanometer Fluorescent Dye Encapsulated Silica Nanoparticles. **N. Singleton**, T. jia, S.S. Iyer

1028. Withdrawn

1029. Measuring the effect of interparticle spacing on the magnetic interactions of iron oxide nanoparticles with variable silica shell thicknesses. **A. Nozka**, O.T. Mefford

1030. Spectral tuning of a green fluorescent silver cluster. **C. Setzler**, J.T. Petty, D. Lewis

1031. Blue Ridge Blues: A Computational Study of Deep-Blue Emitters for use in Organic Light Emitting Diodes. **E.M. Smith**, A.L. Tomlinson

1032. Synthesis of hybrid ferrocenyl-urea-chalconesExploring their potential as antitumorigenic agents.L. Birriel Rodriguez, J.A. Mendez, I. Montes

1033. Synthesis and characterization of isomeric monodentate pyrrolyl phosphine ligands. **N. Sykes**, S. Pa, V. Osenga, M. Bambha, M. Johnson

1034. Synthesis and characterization of ferrocenylindole chalcones as potential anticancer compounds. **J.L. Llera**, I. Montes

1035. Continuous flow synthesis of chloroenals. **E. Ramirez**, F. Minami, K. Dwomoh, R.N. Dominey, E.W. Goldman

1036. Continuous flow synthesis of polyfunctionalized pyrroles. **F. Minami**, **K. Dwomoh**, C. Perez Mandry, A. Kim, R.N. Dominey, E.W. Goldman

1037. Quantifying electronic effects through Halogen bonding: A Computational assessment. **N.H. Pham**, K. Donald

1038. Colorimetric and fluorescent probe for hydrogen sulfide and thiols. **A. Smith**, R. Osbourn, E. Adogla

1039. Structure and Activity Relationships in Acridine Derivatives. **G. Blount**, K.S. Aiken, J. Kocerha

1040. Synthesis of α -Ketoalkynes via alkylation. J.J. Jaramillo Gonzalez, B.D. Feske

1042. Color of dyes and indicators: Natural resonance theory of excited states. **D.M. Hiatt**, E. Glendening

1043. Detection of Nitroaromatic compounds using Porphyrin-Doped Silica Sol-Gels. **A. Ortiz**, **N. Snyder**, D.N. Collins, C.H. Lisse

1044. Using Multi-Step Synthesis for the Production of Hydrogels with Adhesive Properties. **C. Smith**, T. Newar, C.H. Lisse

1045. Optimization of product isolation for ruthenium-catalyzed oxidations of benzyl silyl ethers to silyl esters. **A.G. Riccardi**, R.W. Peterson, M. McKenna, J.T. Stokes, B.C. Goess, S.K. Goforth

1046. Enabling targeted carbon monoxide delivery through click chemistry-based prodrug design and synthesis. **F. Vazquez**, S. Bansal, N. Bauer, B. Wang

1047. Withdrawn

1048. Investigation of S-nitrosylation in neuroblastoma cells exposed to silver nanoparticles. L.R. Frost, **H. Mays**

1049. The role of H121 in FtrB and its interaction with FtrA. **A. Kerkan**, E. Arias, D.W. Martin, S. Banerjee

1050. Chemical Analysis and Biological Properties of the Native Plant Schinus terebinthifolius. **S. Elias Rodriguez**

1051. Progress on the synthesis and analysis of the chemical and physical properties of 1-bromo-1-chloro-2,2,3,3-tetramethylcyclopropane. **D. Saakov**, R.L. King, J.R. Boone, C. Clinger

1052. Progress in the synthesis of tetrahalotricyclooctanes. **J. Osipchuk**, J.R. Boone, C. Clinger

1053. Synthesis, characterization, and reactivity of nickel and platinum complexes stabilized by multidentate ligands. **W. Ryder**, S. Schreiner

1054. Exploring transmetalation as an anticancer therapeutic strategy via localization and mechanistic studies for drug optimization. **Y. Del Valle**, A.D. Tinoco, J.A. Benjamin-Rivera, J. Acosta Mercado

1055. Computational investigations of the Morita-Baylis-Hillman reaction for E/Z-isomerization of α , β -unsaturated carbonyls by phosphines and arsines. **G. Scuderi**, D.A. Clabo

1056. Computational investigation of the fluorescence of substituted naphthylimides. **R. Osbourn**, E. Adogla, D.A. Clabo

610. Metal complexes of 2-pyridylnaphthyridine ligands. **B. Solomon**, M. Ortiz, R.N. Dominey, E.W. Goldman

1057. Withdrawn

1058. Withdrawn

1059. S Withdrawn

Puerto Rico Convention Center 202 A

Biochemistry IV Enzyme Activity / Kinetics

E. I. Pares-Matos, *Organizer* J. A. Rodríguez-Martínez, *Presiding*

1:25 Introductory Remarks.

1:35 1068. Impact of Multivalency and Encapsulation of Affinity Reagents and Catalysts. **B. Manuel**, S. Das, A. Sanford, J.M. Heemstra, M. Finn

1:55 1069. Exploring how rare earth elements modulate bacterial growth and physiology in Pseudomonas putida. **D.E. Williams**

2:15 1070. Kinetics of Escheria coli upon treatment with antimicrobial ionic liquids. **C. Chism**, S. Plash, D. Zuckerman, G. Dasanayake, M. Bennett, S.K. Tripathi, S. Pedigo, E.E. Tanner

2:35 1071. Tanshinone derivatives inhibits of SARS-CoV-2 specific 3-chymotrypsin like protease (3CLpro) and papain like protease (PLpro) enzymatic activity in vitro. **D. Lewis**, A. Kawall, A. Sharma, K. Chavada, S. Rayalam, V.V. Mody, S. Taval

2:55 Coffee Break.

3:20 1072. Development of a DNase Activity Kinetic Assay. **J.J. Colón-Morales**, O. Soto-Berrios, A. Baerga-Ortiz

3:40 1073. Identification of phytochemicals that inhibit the enzymatic activity of SARS-CoV2 3-chymotrypsin like protease (3CLpro) in vitro. **A. Sharma**, A. Kawall, D. Lewis, K. Chavada, S. Taval, V.V. Mody, S. Rayalam

4:00 1074. Functional Roles of Coupled Motions in Enzymes: A case Study on Deubiquitinase A. **Y. Li**, S.D. Fether, A. Kabra **4:20 1075.** Soft electrophile-based growth inhibitors of trypanosomes with oral in vivo efficacy. **I.V. Ogungbe**, D. Metibemu, O. Ajayi, O. Crown, O. Adeyinka

Puerto Rico Convention Center 201 B

Inorganic Chemistry IV -Catalysis

M. B. Santiago-Berrios, Organizer, Presiding

1:25 Welcoming remarks.

1:35 1076. Electrochemical and Light-driven Carbon Dioxide Reduction by Molecular Manganese Catalysts: Exploring the Positional Effect of Second-Sphere Hydrogen-Bond Donors. S. Sinha Roy, K. Talukdar, **J.W. Jurss**

1:55 1077. Light-Assisted Halide Perovskite Film Deposition and Photocatalytic Properties. **C. Lai**, J. Gonzalez-Moya

2:15 1078. Didodedecylditelluride: a versatile reagent in the synthesis of metal telluride nanocrystal. D.N. Penk, E.H. Robinson, A.Y. Nuriye, **J. Macdonald**

2:35 1079. Association Constants of Various Rh(II) Paddlewheel Complexes with Tethered Thioether Ligands: Towards Establishing Structure-Activity Correlations. **D. Moore**, A. Darko

2:55 Coffee Break.

3:20 1080. Aluminum-Containing Late Metal Heterobimetallic Complexes: Synthesis and Reactivity. **T. Brewster**, N. Taylor, R.M. Charles, N.J. Deyonker, K. Young

3:40 1081. Understanding the challenges of biomimetic nitrogen fixation from computational analysis. Z. Benedek, **T. Szilvasi**

4:00 1082. Activity evaluation of two substituted-Nickel-Bis-dithiolene systems in MDA-MB-231 cancer cell line as a photothermal agent candidate. **K.T. Cordero-Gimenez**, D.M. Pinero Cruz

4:20 1083. Fluorescence studies of Cucurbit[n]ril-Coumarin host-guest complexes. **R. Spencer**, K. Christensen, A. Watson, **F.A. Khan**, J.E. Hansen

Puerto Rico Convention Center 202 C

Organic Chemistry V Catalysis

D. J. Sanabria-Rios, *Organizer* N. M. Carballeira, *Presiding*

1:25 Opening Remarks.

1:35 1084. Efficient Solvent-Free hydrosilylation of aldehydes and ketones catalyzed by palladium nanodispersed in organically modified silicate (Pd@MTES). J. Fotie, H.S. Drago, T. Tolar, J.E. Wroblewski

1:55 1085. Palladium/Silver Catalyzed Alkenylation of Partially Fluorinated Benzenes. **T. Brewster**, A.A. Mercado, D. Griffin, A.E. Lobos, T.J. Ricks

2:15 1086. S Withdrawn

2:35 1087. Copper Hydride-Catalyzed Reductive Coupling of Azatrienes and Ketones for the Synthesis of (Z)-Allylic anti-1,2-Amino Alcohols. **J. Zhu**

2:55 Coffee Break.

3:20 1088. Synthesis of heteroleptic Rh(II) paddlewheel complexes with axial coordination for selective carbene transfer reactions. **A. Darko**

3:40 1089. Non-directed palladium-catalyzed C-H activation of fluorinated arenes. **A. Mercado**, D. Griffin, A.E. Lobos, T.J. Ricks, T. Brewster

4:00 1090. Investigating engineering strategies to enable biocatalytic scalable syntheses of tropolone natural products. **J.R. Hernandez**, J. Perkins, A. Narayan

4:20 1091. Biocatalytic oxidation of indoles. **S. Champagne**, C. Chiang, A. Narayan

4:40 End of Session.

Puerto Rico Convention Center 203

Physical Chemistry II

M. J. Bayro, Organizer, Presiding

1:25 Introductory Remarks.

1:35 1092. Computational Quest of High-Performance Sorbents for Water Treatment: From Mechanism Understanding to Big-Data-Driven Prediction. **Z. Chen**, A.J. Hernandez

1:55 1093. A Search for Benzonitrile Relatives in the Interstellar Garden: The Negative Ion spectra of Deprotonated Dicyanobenzenes. **W.K. Gichuhi**

2:15 1094. Withdrawn

2:35 1095. Withdrawn

2:55 Coffee Break.

3:20 1096. Molecular Spin Qubits Based on High-Symmetry Lanthanide Complexes. M. Gakiya-Teruya, R. Stewart, S. Hill, **M. Shatruk**

3:40 1097. The unrestricted natural orbital active space decomposition approach for strongly correlated electronic structure. **L.M. Thompson**

4:00 1098. M-H Bond Activation Mediated by Sigma Hole Interactions. **K. Donald**

4:20 1099. Exploring C-H Activation with Quantum Chemistry and Machine Learning. **K.D. Vogiatzis**

Puerto Rico Convention Center 204

Project SEED Symposium II D. Masterson, *Organizer* A. Mallia, *Presiding* 1:25 Opening Remarks.

1:35 1100. Project SEED: Positively impacting the interest and engagement in chemistry for rural high school students. **C.H. Lisse**

1:55 1101. Computational studies of carbon cycle reactions: A virtual summer experience. L. **Tribe**

2:15 1102. Learning Computational Drug Design: High School Student Investigations. D. McTush-Camp

2:35 1103. Project SEED at the University of Vermont – a mentor's perspective. **M. Brewer**

2:55 Coffee Break.

3:20 1104. Integration of ACS Project SEED Students an Ongoing Undergraduate Research Program. **K. Dungey**, J.A. Pienkos, W. Yang

3:40 1105. Seed research experience in computational chemistry. **R. Prabhakar**

4:00 1106. Polymer-Protein Biomaterials Research with Project SEED. **M. Gaines**, G. Brim, D. Ingabire, A. Mancia, M. Smith, K.M. Jackson

Puerto Rico Convention Center Ball Room A

Symposium on Sustainable Green Chemistry V

J. C. Colberg, *Organizer* H. Cheng, *Presiding*

1:25 Introductory Remarks.

1:35 1107. Development and application of selfassembled active agents to create sustainable green materials. W. Hart-Cooper, J. McManus, K. Johnson, L. Torres, **W.J. Orts**

1:55 1108. Reversible actives: Disinfectant applications, hazard analysis and use in agriculture to prevent mastitis and heal wounds.

W. Hart-Cooper, J. Wilson-Welder, J. McManus, L. Torres, X. He, W.J. Orts

2:15 1109. Fabrication of water treatment membranes using eco-friendly solvents and recycled polyethylene terephthalate. D.J. Lu, **I.C. Escobar**

2:35 1110. Biodegradable mulch films produced from soy-filled polymer resins. K. Candlen, M. Haque, S. Martey, J. Ratto, **W. Chen**

2:55 Intermission.

3:20 1111. Recycling polypropylene: A balance between stiffness and impact and story of compatibilizers. **H.B. Nulwala**, C. Diaz-Acosta

3:40 1112. Sophorolipids and their component hydroxy fatty acid amide derivatives as antimicrobial compounds. **R. Ashby**, J. Msanne, H. Yosief, M. Olanya, X. Fan

4:00 1113. Polymer Blends as a Platform for Sustainable Green Chemistry. **H. Cheng**, Z. He, K. Klasson, A. Biswas

Puerto Rico Convention Center 202 B

Undergraduate Oral Session III

B. J. Ramos-Santana, Organizer, Presiding

1:25 Introductory remarks.

1:35 1114. Molecular orbital study of a new class of large cage fullertube. E.C. Lee, K.E. Smith, F. Steinour, T.J. Fuhrer

1:55 1115. Viability of HEP-G2 and CHO-K1 cells after exposure to tin nanoparticles. **L. Alamo-Nole**, M. De Jesús Torres

2:15 1116. Synthesis of SnS nanoparticles using microwave irradiation. **J. Colon Dedos**, L. Alamo-Nole

2:35 1117. Friedel–Crafts alkylation of indoles with diarylmethyl acetates promoted by

trimethylsilyl trifluoromethanesulfonate. **H. Xia**, B. Bicalho, C.W. Downey

2:55 Coffee Break.

3:20 1118. Adamantane Ferrocenyl Derivatives as a pharmacological approach towards SARS-CoV-2. **D. Caraballo**, I. Montes Gonzalez

3:40 1119. Characterization of 4-Pyrone Pyrolysis Products via Computational Modeling and Matrix-Isolation FT-IR. **K. El-Shazly**, H.N. Legg, K. Narkin, E.R. Sparks, T. Courtney, L.R. McCunn

4:00 1120. Synthesis and Characterization of Novel Meridional Quinoline-Derived Ligands and their Homoleptic Complexes. **J. Stober**, J. Dickenson, D.P. Harrison

4:20 1121. Synthesizing unnatural nanocrystal phases: Understanding the role of alkyl selenol reactivity with common solvents and ligands. **A. Peng**, E.A. Ho, J. Macdonald

Puerto Rico Convention Center 201 A

Analytical Chemistry V - Spectroscopy

L. Cunci, Organizer, Presiding

1:25 Introductory remarks.

1:35 1060. Mosquito Species Classification from Infrared Spectroscopy and Chemometrics of Eggs. **S.W. Huffman**, C. Larmore, B. Guilliams, H. Edmonds, C. Mitchell, T. Gregory, B. Byrd

1:55 1061. Electrochemical flow reactor design for operando surface enhanced infrared absorption spectroscopy with tunable mass transport. **J.E. Avilés Acosta**, J. Lin, T.F. Jaramillo, C. Hahn

2:15 1062. Density functional theory to guide the interpretation of platinum x-ray emission spectroscopy. **L.M. Debefve**, C.J. Pollock

2:55 Coffee Break.

3:20 1063. Determination of polycyclic aromatic hydrocarbons in surface water of an urban wetland by gas chromatography-mass spectrometry (GC-MS). **P.J. Berrios-Rolon**, F. Marquez, M. Cotto-Maldonado

3:40 1064. Ultrasensitive Detection of SARS-COV2 Nucleocapsid Proteins Using Multi-Photon Nonlinear Laser Wave-Mixing Spectroscopy. **N. Shatirishvili**

4:00 1065. Metabolomics investigation of intestinal contents reveal exercise induces changes in the presence of western style diets. **K.A. Jones**, A.J. Richard, A.J. Bruce-Keller, J.M. Stephens, S.R. Campagna

4:20 1066. Streamline developability assessment of therapeutic proteins without any sample preparation requirements. **B. Pastrana-Rios**, D. Dimitrov

4:40 1067. Metabolomics suggests potential sex differences in renal mitochondrial epigenetic signaling. **C. Christopher**, R. Schibalski, S.R. Campagna, D. Ilatovskaya

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