



Industrial & Engineering Chemistry

Making Chemistry Work!

2021 Winter Newsletter

I&EC Executive Board

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SST Vice Chair: Neil Williams

SST Vice Chair-Elect: Marek Piechowicz

SST Secretary: Abdul Momen

Chair's Report

This is the final newsletter of the year, and this column my final comments from my term as Chair. Beginning on January 1, Bond Calloway will begin serving as the new I&EC Division Chair, and I will progress to the position of Past-Chair. Bond has championed some truly impressive efforts during his time this year as Chair-Elect, including leading the Steering Committee through a Strategic Planning effort and engaging with the Finance Committee to establish investments and banking through a wealth management firm. I'm excited to see what he continues to do next year as Chair and know we're all in good hands.



Carter Abney
I&EC Chair

The largest part of my role next year as Past-Chair is to lead the Nomination Committee in developing the slate of candidates for I&EC Elections. I know this has been a recurring theme in my previous columns, but if you are interested in serving in the Division or running for an officer position, please let me know. The 2022 elections will be for Secretary, Counselor, and Chair-Elect. In this newsletter are also highlights and introductions of the individuals elected to office for this upcoming year.

It has been an honor to serve this year as your Division Chair. I'm very proud of how hard everyone has worked, and what the Division has accomplished despite the persistence of virtual everything. I'm looking forward to the 2022 Spring Meeting, and especially the opportunity to resume gathering in person. Stay tuned for future details about an I&EC Division reception, being organized by our newly formed Social Committee.

Until then, I wish you all a wonderful conclusion of the year and a joy-filled holiday season. Thank you once again for the opportunity to serve the Division as Chair.

Chair Elect Report

The Steering committee has been hard at work defining a new strategic plan for the I&EC division. Over a series of meetings, we have defined a strategy and have finalized tactical goals that will be achieved over the next few years. The strategy for expanding I&EC's portfolio lies on three principal attributes: 1) Communicating national science & engineering issues and problems, 2) Aligning I&EC's capabilities with government related program funding, and 3) Customer engagement. Tactical goals include conducting social events around award symposia and other events, building a financial policy that is long standing and enduring and establishing a young professional award symposia connected to the Young Chemist Committee.



Bond Calloway
Chair Elect

I&EC Election Results

The I&EC elections are complete, and the results are:

- 2022 Chair- Elect: Anna Ivashko
- 2022-2023 Treasurer: Kevin Charette
- 2022-2024 Councilor: Leigh Martin

Chair-Elect

Anna Ivashko has been involved with the I&EC Division since March 2019. She started out as a Programming Secretary, and in March 2020 became a Programming Chair and has served as the Programming Chair since. Despite the challenging environment of COVID-19 pandemic, Anna along with the support of Programming Deputy Chair and Programming Secretary was able to leverage and pivot I&EC Programming and successfully carry out 2020 and 2021 Programs in virtual and ever-changing environment and our Programming is running successfully. Her vision for the future of the I&EC Division is around bringing in young professionals and have them interested in Industrial and Engineering Chemistry and where their work and skills can make impact. She is also interested in helping the young professionals connect with and learn from more experienced members be it about ACS, work, chemistry, or other I&EC topics.

Anna has a mixed background in chemistry and data analytics. In her daily job she serves as a bridge between the data and experimental communities and her work primarily focuses on scale-up of novel materials. She joined ExxonMobil as a contractor Laboratory Technician in 2015, became a permanent hire Research Technician in 2019, and Catalyst Scale-Up Technologist in 2019. Outside of work Anna enjoys travelling around the world, skiing, going to the beach, reading, flying, and hiking.

Treasurer

Kevin Charette received his BA in Chemistry in 2012 from Ferris State University. He worked doing development work in the lab for US Paint, a paint and coatings company, before going out into the field as a Technical Service Representative. He currently works as an Account Manager for US Paint.

He has been an active member of ACS since 2011 and been involved with I&EC since 2016, serving as Chair-Elect (2017) and Chair (2018) of the Applied Chemical Technology subdivision of I&EC and as Treasurer of I&EC since 2020.

Counselor

Leigh R. Martin holds a B Sc. In Chemistry (1998) University of York, an M Sc. In Instrumentation and Analytical Science (1999) UMIST, and Ph D in Chemistry (2003) from the University of Manchester. Leigh has held research positions at British Nuclear Fuels, Washington State University, Idaho National Laboratory. In 2016 he moved to Oak Ridge National Laboratory as a Senior R&D Scientist and is currently

the Group Leader of the Fuel Cycle Chemistry group. His research is currently focused on f-element separations and coordination chemistry and nuclear nonproliferation and safeguards. Dr. Martin has been a member of the ACS since 2005 his previous service includes 2012 Chair of the Separation Science and Technology Subdivision of I&EC, 2015 Chair of I&EC Division and 2019 Councilor for I&EC Division.

Leigh's belief is that the industrial chemistry community has a lot to offer ACS council as our community is the ultimate end goal of chemistry research, however the needs of this community is often forgotten. During the last 2 years he worked on the MAC committee in the development of Membership 2.0, that should be rolling out in 2022, it is his hope that this is one of the ways that ACS will promote more value for our industrial members. He is honored to serve the I&EC members for another term as Councilor for the Division of Industrial & Engineering Chemistry.

Salute to Excellence- I&EC Division Fellows

The I&EC is pleased to recognize the 2022 Class of I&EC Division Fellows for service to chemistry and the American Chemical Society.

I&EC Division Fellow: Dr. Mou Paul

International I&EC Division Fellow: Dr. Jae Hwan Sim

Early Career I&EC Division Fellow: Dr. Bingjun Xu

Applied Chemical Technology I&EC Division Fellow: Susan Koster

I&EC Division Fellow



The Industrial & Engineering Chemistry Division Fellow is awarded to a chemist or engineer based on significant, innovative contributions to the areas in which they have published within applied chemistry and/or chemical engineering. The I&EC Division would like to recognize Dr. Mou Paul and welcome her into the class of 2022 I&EC Division Fellows.

Dr. Mou Paul is a leading expert in fundamental polymer science and its application towards sustainability and addressing pressing societal challenges. In her 18-years of academic and industrial research, Dr. Paul has contributed to advancing technologies in diverse research areas – spanning from fuel cells, water purification to sustainable packaging, modifiers for industrial and automotive applications and waste plastic recycling. Her major contribution has been in inventing new generations of polyamide membranes which have been commercialized in several commercial reverse osmosis (RO) products. Dr. Paul is also a strong believer in collaboration and advancing fundamental science to drive innovation and solve the toughest problems. Her recent collaborative work in water purification membrane was featured as the cover page in Science this year. In addition to RO, Dr. Paul is a leading expert in nanofiltration (NF) membrane technology used in specialty application areas. Dr. Paul has also recently worked on chemical modification of polyethylene that has wide ranging application in sustainable packaging, polymer recycling and as modifiers for enhancing the performance of engineered polymers in industrial applications. Dr. Paul earned her Ph.D. in Macromolecular Science & Engineering from Virginia Tech. To date, she has filed 151 global patents with 53 granted to date. Dr. Paul has been invited in many conferences including GRC, APS and ACS workshops. She has published and presented close to 40 scientific papers and presentations. Dr. Paul has been recognized with various awards including ACS's Women Chemist Committee Rising Star award. She is passionate about advancing women technical leadership and engagement in chemical enterprises.

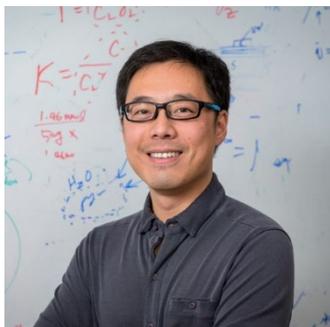
International I&EC Division Fellow



The Industrial & Engineering Chemistry Division International Fellow is awarded to a chemist or engineer who resides outside of the United States of America based on significant, innovative contributions to the areas in which they have published within applied chemistry and/or chemical engineering. The I&EC Division would like to recognize Dr. Jae Hwan Sim and welcome him into the class of 2022 I&EC Division Fellows.

Dr. Jae Hwan Sim is a Principal Investigator for DuPont Electronics & Industrial within their Semiconductor Technologies Lithography business located at the DuPont Korea Technology Center in Hwaseong, South Korea. He received his PhD in Chemistry from Seoul National University in 2010 and then joined DuPont Electronics & Industrial (former Dow Electronic Materials) in 2011 as a Senior Chemist following a one-year post-doctoral research position at the National Institute of Standards and Technology Material Science and Engineering Lab in Gaithersburg, MD. Since 2011, Dr. Sim has focused his scientific career at DuPont on developing a wide array of technologies to include novel gap-filling materials, bottom antireflective coatings (BARCs), and Extreme Ultraviolet (EUV) underlayers to enable complicated, high-resolution photolithographic processes. He is a named inventor on over 15 granted patents and has contributed to the successful commercialization of over 10 new materials that are widely used in in the fabrication of advanced semiconductor devices that are used to in electronics all around the world.

Early Career I&EC Division Fellow



The Early Career Fellow is awarded to a chemist or engineer in the early stage of their career based on innovative contributions to the areas in which they have published within applied chemistry and/or chemical engineering. The I&EC would like to recognize Professor Bingjun Xu as the recipient of the I&EC Fellow Award for the class of 2022.

Bingjun Xu is the Ge Li and Ning Zhao Chair Professor at the College of Chemistry and Molecular Engineering of Peking University. Dr. Xu received his Ph.D. in Physical Chemistry, advised by Profs. Friend and Madix, from Harvard University in 2011, and then worked with Prof. Davis at Caltech as a postdoctoral researcher. Dr. Xu started his independent research career in the Department of Chemical & Biomolecular Engineering at University of Delaware in 2013 as an Assistant Professor, and was promoted to a Centennial Development Associate Professor in 2019. Dr. Xu joined the College of Chemistry and Molecular Engineering of Peking University in 2020. The current research interest of the Xu lab spans heterogeneous catalysis, electrocatalysis and in-situ/operando spectroscopy. Dr. Xu is an awardee of US NSF Early Career Award (2017), US Air Force Office of Scientific Research Young Investigator Award (2016), ACS Petroleum Research Fund Doctoral New Investigator Award (2015), the I&EC Class 2018 Influential Researchers (2018). He published more than 100 peer reviewed articles with an H index of 40.

Applied Chemical Technology I&EC Division Fellow



The Industrial & Engineering Chemistry Division Applied Chemical Technology Fellow is awarded to a chemist or engineer based on significant, innovative contributions to the areas in which they have published within applied chemistry and/or chemical engineering. The degree focuses on contributions from applicants who have a terminal undergraduate degree. The I&EC Division would like to recognize Susan C. Koster and welcome her into the class of 2022 I&EC Division Fellows.

Susan Koster earned her degree in chemistry from Elmhurst University in 1995 and started at Honeywell Universal Oil Products (UOP) shortly thereafter. During the past 26 years she has contributed significantly to many great programs resulting in the granting of 46 patents. Particularly noteworthy were her contributions in zeolite development, advancing the Charge Density Mismatch approach that enabled a range of new zeolite materials key to UOP's catalyst business. She also made various metal oxide materials for hydro-treating and was a key contributor in a Tatory project. Most recently Susan has been preparing new cathode materials for alkaline batteries and is assisting in the development of iron flow batteries.

Councilor' Report



Leigh Martin
I&EC Councilor



Jaqueline Kiplinger
I&EC Councilor



Mary Engelman
I&EC Councilor

The ACS National Elections are complete, and the results are:

- 2022 President- Elect: Judith Giordan
- 2022-2024 District I Director: Katherine Lee
- 2022-2024 District V Director: Lisa Balbes
- 2022-2024 Director-at-Large: Natalie LaFranzo and Lee Latimer

The following summary is provided by the I&EC councilors to report on the key actions of the ACS Council meeting held virtually on August 25, and the Board of Directors meetings held August 20 and 28, 2021.

Election Results: Elected Committees of Council

- By electronic ballot, the Council elected **Donna G. Friedman, Matthew Grandbois, Fran K. Kravitz,** and **Louise M. Lawter** for a three-year term (2022-2024) on the Council Policy Committee (CPC).
- By electronic ballot, the Council elected **Mary K. Engelman, Malika Jeffries-El, Brian M. Mathes, Susan V. Olesik,** and **Susan M. Schelble** for a three-year term (2022-2024) on the Committee on Committees (ConC).
- By electronic ballot, the Council elected **Allison Aldridge, Holly L. Davis, Peter K. Dorhout, Silvia Ronco,** and **Martin D. Rudd** for a three-year term (2022-2024) on the Committee on Nominations and Elections (N&E).

Other Council Actions

Key Actions

- On the recommendation of the Committee on Committees, and with the concurrence of the Council Policy Committee, Council approved the Petition to Amend the Duties of the Committee on Minority Affairs. The Petition was amended on the floor of Council to strike the word 'minority' in Standing Rule VIII, Sec. 1, b, (9). The Board added its approval in its meeting on August 28.
- The Council (and then the Board) also approved the continuation of the Committee on Environmental Improvement.
- On the recommendation of the Committee on Economic and Professional Affairs, and with the concurrence of the Council Policy Committee, Council (and then the Board) approved the 10th version of the Professional Employment Guidelines.

Council Special Discussion

President Cheng introduced and led a special discussion on ideas to increase involvement and membership from business and industry. For the last 5 years there has been a steady decrease in industry members. This can be attributed to a variety of factors, but there have been ongoing efforts to decrease the cost-related attrition while increasing member value.

To address value, ACS has a variety of offerings available to members to advance, discover, connect, and share. To address cost, actions were taken by the Council this past spring in the schedule of membership for 2022 that will provide industry members with flexibility as to membership options. Councilor input was then requested on the following two questions:

1. How can we improve the value that ACS provides to its industrial and business members?
2. How can we encourage academic inventors and entrepreneurs and support start-ups?

Resolutions

The Council passed several resolutions:

- In memory of two deceased Past Presidents, Helen M. Free and Daryle H. Busch;
- In memory of deceased Councilors: Dr. Esther A.H. Hopkins, Ms. Jane V. Thomas, Dr. Joseph M. Antonucci, and Dr. Mark D. Frishberg;
- Expressing thanks to the officers and members of the Georgia Local Section; and
- Acknowledging H.N. Cheng's service as ACS President and presiding officer of Council

Highlights from Committee Reports

Budget and Finance

The Society's 2021 financial performance through June 30 yielded a Net Surplus from Operations of \$55.0 million, which is \$33.6 million favorable to budget and almost \$6 million greater than the same period in 2020. These mid-year results are based on total revenues of \$324.4 million that are 4.3% favorable to budget, and total expenses of \$269.4 million, or 7% below budget, with unrestricted net assets estimated at \$645 million.

Committee on Committees

ConC will again conduct a Committee Census (formerly called the Committee Demographic Survey) of all Society Committee personnel, including the members of committees elected by Council, in February 2022. This census gives ConC a snapshot of where the committee demographic picture stands as they look toward future recruitment and retention. To assist ACS in advancing its core value of Diversity, Equity, Inclusion and Respect, ConC would like to encourage all committee members and ACS leaders to take the two-hour course entitled "Leading Inclusively: Beyond Lip Service," developed by La'Wana

Harris, a Certified Diversity Executive, International Coaching Federation (ICF) Credentialed Coach, and global leadership development professional. To Register, please go to <https://learning.acs.org/course/view.php?id=996> to register.

Nominations and Elections

The Committee on Nominations and Elections solicits Councilors' input regarding qualified individuals for President-Elect and/or Directors for future consideration. Suggestions may be sent to nomelect@acs.org.

Meetings & Expositions

The Fall 2021 Meeting was held live from August 22-26, and on-demand from August 30 – September 30. As of August 25th, there were 8,205 registrations (1,895 hybrid and 6,310 virtual). Of the approximately 1,200 oral sessions held, 71 were only in-person, 244 were hybrid, and 855 were held virtually.

Actions of the Board of Directors - Executive Session

The ACS Board of Directors met virtually in Executive Session on August 20 and 28, 2021 and considered a number of key strategic issues and responded with several actions. The Board opened its session with a reflection on Diversity, Equity, Inclusion and Respect (DEIR).

The Board's Committees

The Board received and discussed reports from its committees on Budget and Finance, Executive Compensation, Professional and Member Relations, Public Affairs and Public Relations, the Advisory Board for the Green Chemistry Institute, the Governing Board for the American Association of Chemistry Teachers, and the Society committees on Education and Publications. The committees requested and obtained Board action on one or more items, as follows.

- On recommendation of the Society Committee on Publications, the Board voted to approve the reappointments of Editors-in-Chief for several ACS journals. Those appointments will be announced in C&EN once the individuals have been notified and appropriate arrangements for their continued service have been made.
- On recommendation of the Committee on Professional and Member Relations, the Board approved a Society nominee for the 2022 National Science Board Public Service Award.
- On the recommendation of the Committee on Budget and Finance, the Board approved the ACS 2022 Spring and Fall Meetings in-person/hybrid member registration fee at \$399 and the virtual member registration fee at \$199, both within a range of +/- 15%.
- On the recommendation of the Governing Board for the American Association of Chemistry Teachers (AACT), the Board approved amendments to the Board Regulations concerning the membership, appointment, and terms for the Governing Board for AACT.
- The Board received an extensive briefing and approved several recommendations from its Committee on Executive Compensation. The compensation of the Society's executive staff continues to be reviewed regularly by the Board.

The Chief Executive Officer's Report

The Board received an extensive report from the Chief Executive Officer on current issues relating to the Core Value of DEIR; COVID and the return to ACS Offices; Membership; Financials; and on upcoming events and activities. The Vice President for Philanthropy provided a presentation, "Impact of COVID on Fundraising" during the report. The presidents of CAS and ACS Publications engaged in discussions with the Board on the activities, opportunities, and challenges of their respective divisions.

Other Society Business

The Board heard reports from the Presidential Succession on their current and planned activities for 2021 and 2022; received relevant updates on current legal issues from the ACS General Counsel; and had an initial debrief on the ACS Fall 2021 meeting, including a review of the format, technology, key events, and the presentations of science information at the meeting.

The Executive Vice President for Scientific Advancement provided an update on ACS efforts to address the United Nations Sustainable Development Goals.

Members of the Board Working Group on Board Structure and Representation sought input from their Board colleagues on possible models for international representation on the Board.

Confirmation of Council Actions

As required in the Standing Rules, the Board voted and confirmed the Council's actions taken on August 25, 2021 to approve the Petition to Amend the Duties of the Committee on Minority Affairs; approved the continuation of the Committee on Environmental Improvement; and approved the ACS Professional Employment Guidelines (10th Edition).

Programming Chair's Report

Dear I&EC Members,

I would like to start with extending my gratitude towards everyone who supports and continues to be engaged in Programming. Fall 2021 National Meeting is now behind us, and I would like to thank the Programming Committee, Symposium Organizers, Session Chairs, and all of the Attendees who contributed to the success of the Meeting during continuing unpredictable environment. I truly hope this was the last time we had to host symposia fully virtually and that the next National Meeting will look much more like a normal Meeting.

I am very excited to announce that we have a great slate of symposia planned for the Spring 2022 Meeting that will take place in San Diego, CA. We will have more details about how the Spring Meeting will look like closer to the date, however, for now you can find a more comprehensive list of symposia we will be hosting below:

I&EC Fellows Symposium

I&EC General Papers

I&EC General Posters

Functional Materials for Industrial Applications: Chemistry, Modeling and Process

Rare Earth Separations: From Fundamentals to Advanced Processes

I&EC Bonding the Chemical Enterprise with Decarbonization

I would like to thank all the symposium organizers and presenters who have contributed their efforts for the Spring 2022 Meeting. We are still working on the details of navigating a challenging and atypical environment, so I thank them for their resilience and zest.

We are extremely honored to co-sponsor a symposium on Hydrocracking and Hydrotreating with ENFL and cultivating the partnership between our two divisions.

At the start of 2022 there will be a number of changes in I&EC Programming. First, our Deputy Programming Chair – John Clegg, elected to not be serving on the Programming Committee due to a number of engagements and busy life. We would like to thank John for his service and wish him best of luck in his



Anna C. Ivashko
I&EC Programming
Chair

future endeavors. Secondly, June Kowalski will remain in her current role as an I&EC Programming Secretary and knowing her dedication and hard work, I have no doubt she will continue to contribute to the success of I&EC. On a personal note, June recently moved to Colorado and took a job as a Project Specialist at Loxo Oncology at Lilly! Congratulations to June on her move and best of luck in the new job!

Lastly, as I was elected to become I&EC Chair-Elect, I will no longer serve as the Programming Chair. It has been an honor to serve in this position and I am grateful for everyone I have met and worked with either in person or virtually to continue the success of I&EC Programming and I look forward to further serve the Division in my next role. At this point, I would like to welcome and introduce Austin Evans as the new Programming Chair at the start of 2022! Currently Austin is a Schmidt Science Fellow working to develop organic electronics as a post-doc at Columbia. I have no doubt Austin will succeed and continue to further strengthen I&EC Programming!

With the Holiday season upon us, I would like to wish all of you a very happy and healthy Holiday Season full of family, friends, laughter, and joy!

For any questions and ideas in regards to I&EC Programming please contact any of us on the Programming Committee! Hoping to see everyone at an in-person meeting in the near future!!

Membership

The Membership Committee is employing the Mail Chimp website through the iec.membership.committee@gmail.com email address to communicate with our members and poll them about membership changes including welcoming new members and requesting information from outgoing members. Please ensure that this account is not being directed into your junk mail folders. We would greatly appreciate your response to any email that we send and will try to only send a minimum of essential emails.



Glenn Fugate
Membership
Committee Chair

The Membership committee is also developing a clearinghouse for volunteer opportunities within the Division. While many of these are to support developing social media and other efforts, if you have interest in becoming more engaged within the I&EC Division or have suggestions on potential volunteer activities that you would like to discuss, please email the Membership Committee at the above email address.

Call for Nominations: I&EC Division Fellows Award for the Class of 2023

It is a pleasure to inform you that the Division is now receiving nominations for the 17th annual I&EC Division Fellows Award.

The I&EC Division will make up to four awards annually:

(1) I&EC Division Fellow:

A chemist or engineer is selected from an academic, industrial, or government laboratory based on innovative contributions to the areas in which they have published within applied chemistry and/or chemical engineering. Patents are given equal weight to papers in the open literature and nominations from industry are encouraged.

(2) I&EC Division Early Career Fellow:

The criteria are the same as those for Division Fellow, but the award is for an individual up to 40 years old (as of the current calendar year) and thus in the earlier stage of their career.

(3) I&EC Division Applied Chemical Technology Fellow:

A chemist or engineer with an undergraduate degree as the terminal degree is selected from an academic, industrial, or government laboratory based on outstanding technical contributions.

(4) I&EC Division International Fellow:

The criteria are the same as those for Division Fellow, but the award is for an individual working outside the United States. For the I&EC Division Fellow, I&EC Division Early Career Fellow, and I&EC Division Applied Chemical Technology Fellow: The award consists of a plaque naming the awardee a Fellow of the I&EC Division, registration to the Spring meeting at which the award will be presented, complimentary one-year membership in the Division, and a \$1000 travel award. The awardee will be announced on the Division's website, be recognized during the I&EC Division award presentation symposium and be asked to contribute a talk to the I&EC Division award presentation symposium during the Spring 2022 meeting.

For the International Fellow: The award consists of a plaque naming the awardee an International Fellow of the I&EC Division, registration to the Spring meeting at which the award will be presented, complimentary one-year membership in the Division, and a travel award of up to \$2500 for economy airfare to the ACS meeting and up to 4 nights at a hotel so that he or she may attend the meeting. The awardee will be announced on the Division's website, be recognized during the I&EC Division award presentation symposium and be asked to contribute a talk to the I&EC Division award presentation symposium during the Spring 2022 meeting.

The awardee is welcomed to work with the IEC Programming Chair to organize a topical symposium if desired.

NOMINATIONS for I&EC Division Fellow, I&EC Division Early Career Fellow, and I&EC Division International Fellow:

The nominator must be a member of the I&EC Division and will submit a letter detailing how the candidate's work has advanced the fields of applied chemistry and chemical engineering. Additionally, the candidate's CV and up to five relevant publications/patents should be provided. A letter seconding the nomination is required. NOMINATIONS for I&EC Division Applied Chemical Technology Fellow: The nominator, who must be a member of the Division, is invited to submit a nominating letter detailing how the work of the nominee contributed to applied chemistry and/or chemical engineering. The nominee is to have an undergraduate degree as the terminal degree. The number of oral and written presentations as well as any outside articles or patents should be listed. Additionally, the candidate's CV and up to five relevant publications/patents should be provided.

Please send nominations to Dr. Glenn Fugate (acs.iec.fellow.award@gmail.com) who will forward them to the other members of the selection committee.

The deadline is 31 December 2021.

Thank you.

Dr. Glenn A. Fugate



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