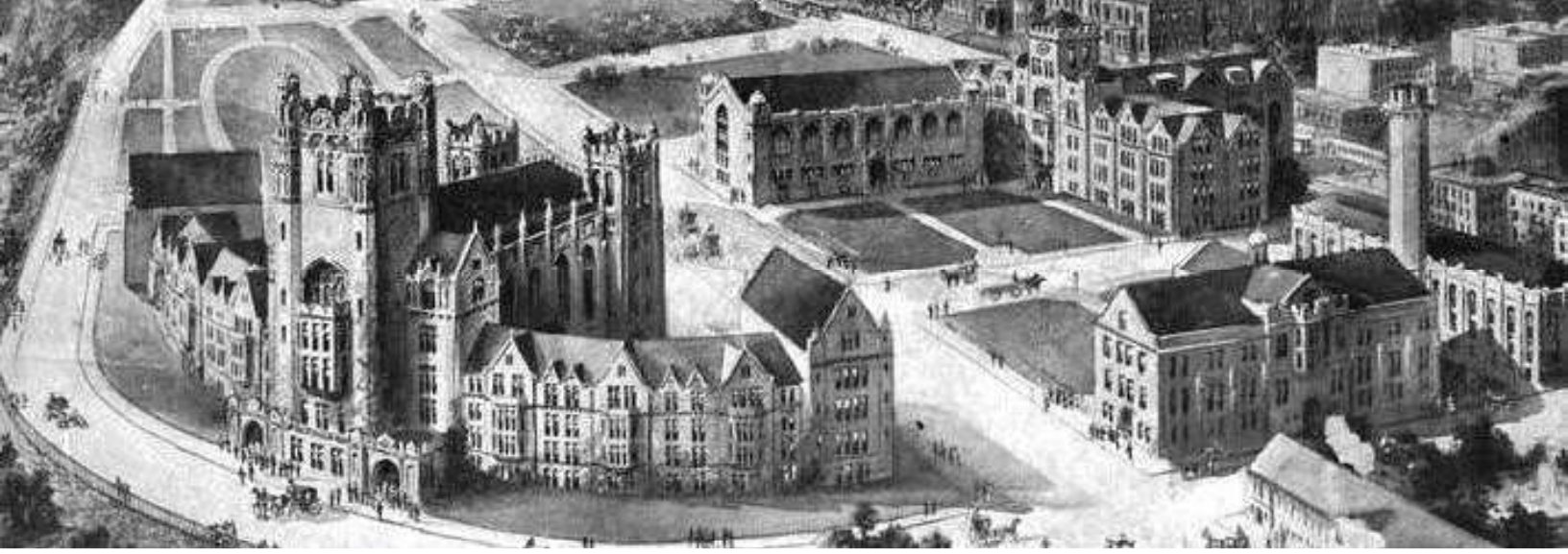


Shepard Hall and Quadrangle - City College of New York (CCNY) 1904

# Chemical Engineering Newsletter

Grove School of Engineering at The City College of New York 04/2022

## Professor Gilchrist Brings Biocircular Entrepreneurship to ChE Curriculum

A paradigm shift to a circular bioeconomy is essential for a sustainable society, and engineering is at its very core. The next generation of innovators must be taught technology tactics and start-up strategies to transform essential industries. **Professor M. Lane Gilchrist** received a $28k VentureWell Course & Program Grant that supports a bioengineering course supplement designed to bridge the gap between best practices in sustainable bioengineering and market opportunities by developing a new extremophilic microbe biotech makerspace and entrepreneurship seed program.

**Professor M. Lane Gilchrist**

The new biotech makerspace will build on Gilchrist's biotechnology laboratory that has previously been used to grow various cell types from yeast and human stem cells, to extremophilic methanogens that form $CH_4$ biogas. Organisms of interest are thermophilic (heat-tolerant) and halophilic (salt-tolerant) microbial species that are termed extremophilic and are thus hardy enough to survive the rigors of bioenergy based carbon capture conditions as well as able to consume versatile waste streams. A particular focus will be microbial electrochemical systems containing halophilic methanogens that convert $CO_2$ along with saline fish and other complex wastes into renewable $CH_4$ biogas, an element in circular carbon bioeconomy.

Gilchrist's new bioengineering course supplement introduces programming for sustainable design, fabrication, and simulation for microbial technology entrepreneurship to our ChE curriculum. The project, developed in collaboration with Professor Castaldi, will ultimately integrate parts into the ChE design sequence providing topics for the more product-driven and entrepreneurially-minded students. Currently, the senior chemical engineering design teams simulate complex chemical plant scale (tons/yr) processes by exclusively using the industry-standard ASPEN Plus suite of software in capstone design projects training students for traditional employment as (large scale) process engineers. As the project is also focused on the development of the new biotech makerspace, it fits well into and benefits from CCNY's entrepreneurial ecosystem.

Aiming to develop new, scalable biotechnology and study problems in controlled environmental agriculture (CEA), we partner with product developers at the NYC-based CEA company Bowery Farming. Chemical engineers are mission critical in CEA. The new curriculum delivers design projects that will train our students to make CEA more effective and sustainable focusing on waste management, and specifically waste-to-energy related bioprocesses.


The City University of New York

**Department website: www.ccny.cuny.edu/chemeng**

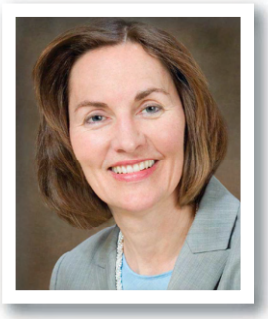
# MESSAGE FROM THE CHAIR

**Prof. Ilona Kretzschmar, Chair**

Dear Alumni and Friends of the Department,

Happy Spring! I hope you are all doing well and are enjoying the warmer weather. Spring 2022 has turned out to be a rather busy hybrid semester full of too many Zoom meetings squeezed in between invigorating in-person gatherings. Our spring break starts next week and not a minute too soon!

I am delighted to introduce our 2022 Spring Newsletter issue and report that the ChE department is thriving as reflected in the latest U.S. News & World Report. We achieved the highest ranking, #48, in the past decade and we will keep climbing! As you saw on page one, Professor Lane Gilchrist is enhancing our curriculum with programming that broadens our students' training. We are also celebrating the generosity of the Aconsky brothers - Leonard (ChE BE '52) and Simon "Sid" (ChE BE '57), who have helped many of our students complete their bachelor's degrees by providing much needed financial support. Taking stock of the 2020 & 2021 graduating classes, we've found that they've navigated the transition to a virtual environment with much success and fortitude, not only in completing their course work and graduation on-line, but also in managing a remote job search process and starting positions virtually during a pandemic. This success would not have been possible without the help of alumni such as Dr. Stephen Ma (ChE BE '11) highlighted on page eight who has helped connect our students to numerous job offerings. If we missed any names please let us know and connect to us via our LinkedIn alumni group.



**Distinguished Prof. Esther Takeuchi**

On October 25th 2021, we hosted our 10th Shinnar Lecture in honor of late Distinguished Professor Reuel Shinnar. Distinguished Professor Esther Takeuchi from Stony Brook University, our very first female Shinnar speaker, gave a fascinating, thought-provoking lecture with "Insights on Current and Future Electrochemical Energy Storage."

**Professor Rosemarie Wesson, Associate Provost for Research at CCNY**

Last but not least, we celebrate the research successes of our doctoral students and their faculty advisors who continue to publish their exciting research in high impact journals. We also highlight the activities of Professors Marco J. Castaldi and Elizabeth J. Biddinger. Another delightful newsworthy addition is Professor Jeff Morris' selection for the prestigious Weissenberg Award. In addition, our very own Professor Rosemarie Wesson has been named permanent Associate Provost for Research at The City College of New York, and Interim Dean Alex Couzis has been named the Daniel & Frances Berg Professor. Congratulations to all of them!

Enjoy the Newsletter and as always I look forward to hearing from you!

- Ilona Kretzschmar

**Interim Dean Alex Couzis, Daniel & Frances Berg Professor**

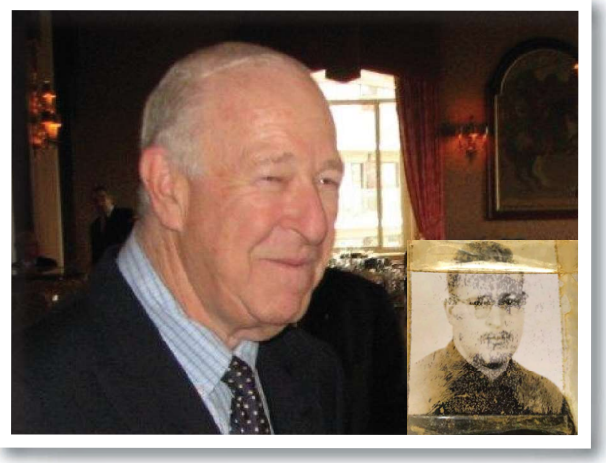
**Chika Amasiani ChE BE '18**

*Chair's Alumni Highlight: Chika Amasiani is a Class of 2018 Chemical Engineering alumna. Since graduating, Chika has garnered myriad skills, interests, and passions through her experiences working as an engineering design project manager and a public health engineer. Throughout the COVID-19 pandemic, she was called upon to volunteer her time at local vaccine clinics in Westchester County. She was often tasked with providing support and direction to the public as well as navigating New York State's health information system. Her brief time at the clinics resurrected her love for data and curiosity about health care. By fall of 2021, she decided to pursue a master's degree in Medical Informatics at SUNY Downstate Health Sciences University. As she embarks on this journey as a Medical Informatics graduate student, she plans to gain relevant knowledge and skills to effectively transform data into actionable solutions and contribute to the exciting technological advances in health care. I was delighted to hear from her that she was a recent recipient of the 2021-2022 Graduate Diversity Fellowship Award. The award will be instrumental in her overall success as it will allow her to contribute to the diversity of the student body, offer her the opportunity to expand her network with a diverse group of individuals, and provide the needed support to persevere in the face of unforeseeable financial adversity. Congratulations, Chika! We are proud of your achievement. If you are interested in learning more about Chika's path and new-found interests, please, connect to her on LinkedIn at https://www.linkedin.com/in/chika-amasiani/.*

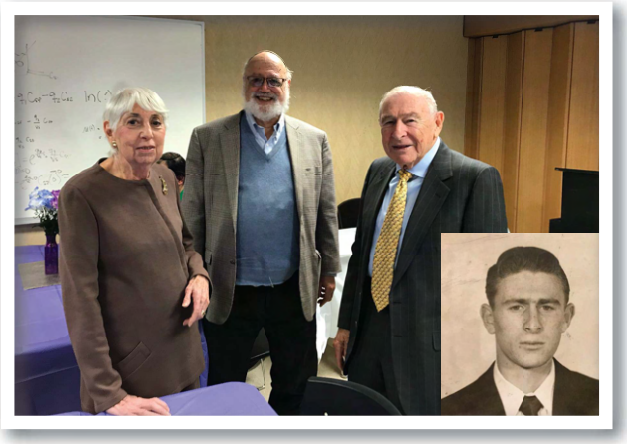
# ChE Alumni Giving

## The Aconsky Brothers

**Leonard Aconsky (BE ChE '52)** and his late brother **Simon Sidney (Sid) Aconsky (BE ChE '57)** have been long time supporters of the department and The Grove School of Engineering, providing scholarships to students in need. Leonard has continued to be engaged in department activities as well, including attending the Fall 2019 Shinnar Lecture event where he shared many stories about his experiences at CCNY and his career. He even regaled Prof. Shinnar's wife and son, Mildred and Shlomo, with stories about his graduate days with the late Distinguished Prof. Reuel Shinnar who was his classmate at Columbia University.



**The late Simon Sidney (Sid) Aconsky (ChE BE '57). Inset: Sid in 1955.**



**L-R: Mildred Green Shinnar, Shlomo Shinnar, and Leonard Aconsky (ChE BE '52) at the 2019 Shinnar Lecture. Inset: Leonard in 1950.**

Leonard's career has taken him around the world. Fresh out of CCNY, he joined the US Army as part of the Hemorrhagic Fever research project in Korea and Japan. He has lived and worked in Israel, Belgium, Puerto Rico, Mexico, and Japan and has had projects in many other countries. Leonard has made broad use of his chemical engineering background – engaging in medical research; process development in mining, sugar, fertilizer industries; managing technical information flow within multi-national companies in the role of vice president; directing a company for rubber and polymer processing; and consulting and directing a company advising the building industry on code compliance for fire safety and protection. Leonard is a fount of knowledge and it is a pleasure conversing with him about all of his experiences. When asked of his fondest CCNY memories, he replied, "learning to play lacrosse and summer session team projects in chemical engineering."

## Aconsky Fellows (2007-2019)

In October of 2006, the Aconsky brothers made a gift to the department to fund upperdividion students in need of financial aid to allow them to focus on finishing their degrees. In the following 13 years, one Chemical Engineering senior was selected per year (with the exception of 2010, 2012, and 2014). Stipend recipients (in reverse chronological order) are: **Connie Aleman (ChE BE '21, semester received fellowship - F19)**, who is an Aseptic Process Engineer at Pfizer. **David Geiger (ChE BE '18, S18)** who is a Lead Process Automation Engineer at Automation and Control Specialists. **Yacine Ndiaye (ChE BE '19, F17)** who is a Manufacturing Engineer at Medtronic. **Rene Scarpaci (ChE BE '19, F16)** who is a Lead Project Engineer at Scientific Design Company, Inc. **Makita Ellis (ChE BE '18, F15)**. **Dane Fearon (ChE BE '17, F13)** who is a Process Engineer in Life Sciences at Corning Inc. **Sohyun Han (ChE BE '14, S11)** who is a Plant Operations Engineer at Eli Lilly & Company. **Ghislain Dadie (ChE BE '09, S09)** who is a Bunker Trading Analyst at Shell. **Jody-Kaye Thomas (ChE BE '07, F07)** who is a registered nurse and **Karen Wright (ChE BE '07, S07)** who is an author and engineer. *All fellows express their sincere thanks and gratitude for the fellowship that helped them graduate.*

## Aconsky Fellow (2022)

In December of 2021, Leonard Aconsky made a second gift to the department that benefited ChE Senior **Thomas J. Quesenbery (Class of 2023)**. Tommy, a transplant from Boulder, CO, with a blossoming, but unfulfilling career as an inventory control specialist, joined the ChE Department in Spring 2020. The COVID-19 pandemic hit as he was a month into his 1st semester at CCNY, and he did not have the opportunity to create any relationships with his peers or professors in the Department. Tommy and his wife had also just decided to start a family. Taking Zoom classes and providing for his pregnant wife resulted in a very challenging semester. Nevertheless, Tommy survived, even thrived, and completed his internship at Fort Hamilton Distillery. He was delighted and grateful to receive the 2022 Aconsky Fellowship and is looking forward to the completion of his senior design project.

**Thomas J. Quesenbery, Class of 2023 and 2022 Aconsky Fellow.**

# ChE BE Classes of 2020 & 2021 Succeed!

***The graduating classes of 2020 & 2021 (ChE BE) had to deal with online classes, a virtual graduation, and the double whammy of having to find jobs and begin their careers during a tough, pandemic market. Despite these challenges, as you can see below, they have thrived.***

## Automation & Control

**Julio Inga (ChE BE '20)** and **Milton Lliguichuzhca (ChE BE '20)** are Process Automation Engineers and **Klement Miraj (ChE BE '20)** is a Lead Process Automation Engineer at Automation and Control Specialists, and **Nurjahan Nazu (ChE BE '21)** is an Associate Sales Engineer at Johnson Controls.

## Chemical & Commodities Industry

**Kayley Arias (ChE BE '20)** is a Proposal Engineer at Air Products, **Karlas Christopher (ChE BE '20)** is a Production Engineer at King Industries, **Wendy Lee Feng (ChE BE '20)** is a CDP Plant Engineer at Air Products, **Noel George (ChE BE '20)** is a Project Engineer at Vopak, and **Mohamed Sajath Koswatte (ChE BE '20)** is a Quality Engineer at Vanderbilt Chemicals, LLC.

## Education & Professional Societies

**Jonathan Aguirre (ChE BE '20)** and **Nahida Alam (ChE BE '20)** are Engineering Associates at AIChE, **Mary Coraizaca (ChE BE '21)** is a NACME Scholar at the National Action Council for Minorities in Engineering, **Maha Alyas (ChE BE '21)** is a Lead Talent Acquisition Associate at NYC Department of Education, and **Shawon Bhuiyan (ChE BE '21)** is an Operations Associate at Success Academy Charter Schools.

## Environmental Science & Protection

**Julia Dacanay (ChE BE '20)** is a Material Planner at Ecolab, **Safae El Kaddouri (ChE BE '20)** is a Compliance Engineer at the Georgia Environmental Protection Division, **Abraham Ferrera (ChE BE '21)** is an Industrial Hygienist at the NYC Department of Environmental Protection, **Tanzeem Mahtab (ChE BE '21)** is a District Sales Representative at Nalco Water, **Jasmine Navarrete (ChE BE '20)** is an Associate Chemical Engineer at Innoveering, LLC, and **Jarin Tasmin (ChE BE '21)** is an Associate Manufacturing Engineer at Evolved by Nature.

## Energy Storage, Grid & Delivery

**Megan Booth (ChE BE '21)** is a Business Intelligence Engineer at Urban Electric Power, **Dominik Galazka (ChE BE '20)** is a Fuel Cell Test Engineer at Nuvera Fuel Cells, LLC, **Joe McManus (ChE BE '21)** is a Test Engineer II at Form Energy, **Sanbir Rahman (ChE BE '21)** is a Chemical Process Engineer at Urban Electric Power, and **Melissa Rodriguez (ChE BE '20)** is an Engineering Aide at Con Edison.

## Graduate & Doctoral Programs

**Christian Aravena (ChE BE '20)** is an MBA student at the University of Illinois Urbana-Champaign, **Michael Borrello (ChE BE '20)** is a Ph.D. student at the University of California, Berkeley, **Ayoub Diouri (ChE BE '20)** is a Ph.D. student at Columbia University, **Cynthia Huang (ChE BE '20)** is a Ph.D. student at Stony Brook, **Philippe Jean-Baptiste (ChE BE '21)** is a Ph.D. student at the Massachusetts Institute of Technology, **Arlind Kacirani (ChE BE '21)** is a Ph.D. Student at Yale University, **Jianpei Lao (ChE BE '20)** is a Ph.D. student at the Georgia Institute of Technology, and **Qi Xing Zhang (ChE BE '20)** is a PhD Student at the University of Pennsylvania.

## Pharma, Health & Personal Care

**Connie Aleman (ChE BE '21)** is an Aseptic Process Engineer at Pfizer, **Huan Dao (ChE BE '21)** is an Associate Biotech Production Specialist at Regeneron, **Marawan Elzoeiry (ChE BE '21)** is a Biopharm Manufacturing Associate at GSK, **Ronie Fanek (ChE BE '20)** is a Pharmaceutical Process Automation Engineer at ACS - The Janssen Pharmaceutical Companies of Johnson & Johnson, **Yuan Feng (ChE BE '21)** is an Associate Aseptic Process Engineer at Pfizer, **Kelvin Leo (ChE BE '21)** is a Manufacturing Specialist at Sanofi Genzyme, **Rene Pazitny (ChE BE '20)** is a Biotech Production Specialist at Regeneron, **Ariella Schwartz (ChE BE '20)** is an Associate Scientist at Merck, **Sujana Shifon (ChE BE '20)** is an Associate Research Scientist at Bristol Myers Squibb, **Yingwen Tan (ChE BE '21)** is an Aseptic Process Engineer at Pfizer, **Luis Tejeda Ortiz (ChE BE '20)** is an Associate Business Analyst at Merck, **Yujie Wei (ChE BE '21)** is an Associate Aseptic Process Engineer at Pfizer, **Jeffrey Wu (ChE BE '21)** is a QA Chemist I at The Estée Lauder Companies Inc., **Slah Yehya (ChE BE '21)** is a Manufacturing Engineer at Stryker, **JiaBei Zhang (ChE BE '20)** is a Research Associate at PTC Therapeutics, Inc., and **Lu Ping Zheng (ChE BE '21)** and **Luting Zheng (ChE BE '21)** are Aseptic Process Engineers at Pfizer.

## Software Development & Data Analytics

**Sandrine Biot (ChE BE '20)** and **Derrick Lawson (ChE BE '21)** are Product Support Engineers I at OSIsoft (part of Aveva), **Ammara Muzaffar (ChE BE '21)** is an Associate Analyst at SAS, and **Silvija Skemaite (ChE BE '20)** is a Senior Product Manager at ADP.

## Military & Defense

**Mahedi Hassan (ChE BE '20)** is an Associate System Engineer at U.S. Army DEVCOM, **Ika Willis (ChE BE '21)** is a Publication Mechanic at US Marine Corps, and **Giancarlo Zirpolo (ChE BE '21)** is a Chemical Engineer at the Naval Surface Warfare Center.

# Undergraduates Explore Internships & Jobs

*We are delighted that our ChE Sophomores, Juniors, and Seniors explore opportunities within and outside New York City through intersession and summer research, internships, jobs, and doctoral programs.*

## ChE Sophomores, Juniors, and Seniors are Excited to Embark on In-person Research Programs, Internships, and Co-ops

**Top L-R: Eden Chan and Isabella Huang (Class of 2024) and Bielka Pena (Class of 2023). Bottom L-R: Erica Razook, Maggin Calderon, and Katalina Bustamante (Class of 2023).**

Did you know that the textile industry is the second biggest polluter of freshwater in the world after agriculture? ChE Sophomore **Eden Chan (Class of 2024)** certainly does and she is helping to mitigate such pollution at her internship at *Make It Black* through the development of a dye system. Eden's chemical engineering internship is a creative dive into design and engineering from the ground up. *Make it Black* partnered with the S. Jay Levy Fellowship for Future Leaders that she got through CCNY. The mission of the Levy Fellowship is to "take down barriers, point a few arrows and let people really use their talents to advance their careers." Most undergraduates rarely have academic plans during January intersession, not so for ChE Sophomore **Isabella Huang (Class of 2024)** who attended "The NYU AI School" this past January. The week-long winter school on artificial intelligence and machine learning featured hands-on labs and introductory lectures taught by leading experts. Currently, Isabella stays busy with her rigorous spring course load and her volunteer work in Prof. Xi Chen's lab. She already has extracurricular academic plans for this summer as well. She was just one of 50 students selected to participate in the Columbia-Amazon "SURE" Program, a ten-week summer research and professional development program designed for undergraduate students from backgrounds historically underrepresented in all fields in STEM that is "aimed at increasing diversity and inclusiveness in technology fields."

ChE Junior **Bielka Pena (Class of 2023)** will participate in the 2022 Smart Manufacturing Research Experience for Undergraduates at Drexel University where she will work with Professors Soroush and Shokoufandeh on Artificial Intelligence in Manufacturing. ChE Juniors **Erica Razook (Class of 2023)** and **Maggin Calderon (Class of 2023)** will be working at the Metropolitan Museum of Art (MET) on a set of interfacial science problems with Julie Arslanoglu (Met, DSR) and ChE Professor Raymond Tu. A number of paintings at the MET are currently not on display because the quality of the original colors has changed over time. The colors have a 'cloudy' appearance which is hypothesized to be the result of surface crystallization over long periods of time, possibly decades. Local heating of the paint surface can recover the original color, but conservators are hesitant to employ it across all paintings that exhibit the cloudiness unless they know the exact mechanism. Erica and Maggin will examine interfacial structure and dynamics before, during, and after heating on mm-size samples. ChE Senior **Katalina Bustamante (Class of 2023)** is joining a co-op with Regeneron Pharmaceuticals in Tarrytown from May to December 2022. She will work in the Preclinical Manufacturing Process Development department with the Bioreactor Scale-up group and extend her time at CCNY by a year.

## Congratulations to the Class of 2022 ChE Seniors on their Successful Job Hunt and Graduate Program Admissions!

**Top L-R: Jorin Dawidowicz and Tahsin Suba, Bottom L-R: Agata Turula and Shivani Vohra (Class of 2022)**

Many of our Class of 2022 Seniors have been busy searching for jobs. Here we introduce you to four of them: **Jorin Dawidowicz** who joined the ChE Program at CCNY after completion of a BA in Jazz Studies at Bard College will start in the Materials Science Ph.D. program at Oregon State University in Fall 2022. **Tahsin Suba** is following her desire to build a career in the health sciences. Originally from Bangladesh, she witnessed firsthand the obstacles that many face to overcome social and economic boundaries in the hustle and bustle of New York City life. She has decided to pursue dentistry as her career goal, and will start the Doctor of Dental Surgery program at NYU College of Dentistry in Fall 2022. **Agata Turula** is joining the Chemical Engineering PhD Program at University of Texas at Austin in Fall 2022 after receiving admission to six top graduate programs in the US, which made choosing the best program somewhat challenging. **Shivani Vohra** has accepted a full-time position with Pfizer in their Digital Rotational Program at their NYC site, where she will be rotating through different software engineering & data science roles across various business areas within Pfizer. Congratulations to all!

# ChE Research Highlights

## *ChE PhD students continue to publish their work in high-impact journals!*

### Record-high Performance Muscles Published in Advanced Science

**Zhi-Lun (Allen) Liu,** a fifth year ChE PhD student, and **Jianpei Lao (ChE BE '20)**, a ChE undergraduate student in **Professor Xi Chen**'s lab, and their co-authors have identified peptidoglycan—a mesh-like sugar and amino acids-based polymer that forms the cell wall of most bacteria—as the most powerful actuator material.

Mechanical actuators generate and transfer energy into the machines or systems that we rely on in our daily lives. Despite a century of research, actuators still cannot outperform the abilities of biological muscles in terms of dexterity, power density and efficiency. These limitations are a major bottleneck to improving the functionality of bio-inspired robotics, realizing alternative energy harvesting and storage solutions, and enabling novel smart structures. The team has made a novel discovery about a water-responsive material that makes a pivotal step toward addressing these limitations.

The proof-of-concept demonstrations in this work also show possible strategies for using this new type of water-responsive actuators without using high-pressure gas or liquid, high voltage or high temperatures, which are often required by traditional actuators. This advance could remove design constraints and provide new possibilities for powering and driving soft robots, exoskeletons, wearable devices and miniature engineering systems.

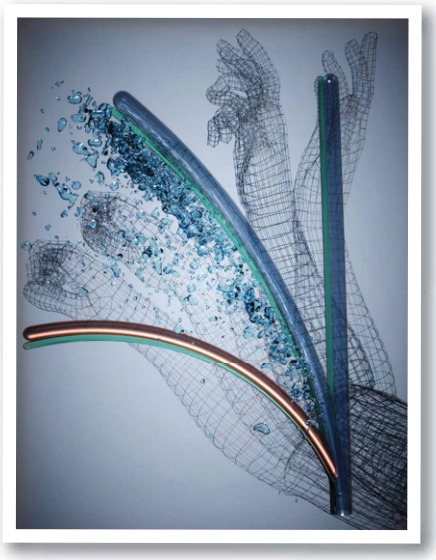


Image credit: Ella Maru Studio

Journal Reference: Haozhen Wang*, Zhi-Lun Liu*, Jianpei Lao, Sheng Zhang, Rinat Abzalimov, Tong Wang, and Xi Chen in *Advanced Science*, 2104697 (2022).

### New Mechanisms of Hydrogenation and Hydrogenolysis Published in Reaction Chemistry & Engineering


Image adapted from Reaction Chemistry & Engineering

**Andrew May**, a fourth year PhD student in **Professor Elizabeth Biddinger**'s lab, and his co-authors investigated the kinetics and mechanism of the electrochemical hydrogenation and hydrogenolysis (ECH) of biomass-derived furfural to furfuryl alcohol and 2-methyl furan, an adhesive precursor and an alternative fuel, respectively.

In highly acidic conditions with copper as the electrocatalyst, the furfuryl alcohol and 2-methyl furan follow two different reaction pathways, with different rate determining steps and key intermediates. Both reaction pathways follow non-competitive Langmuir-Hinshelwood type kinetics in which a proton and the furfural have to be adsorbed to the copper surface on different sites before reacting. Doing ECH instead of traditional thermal-catalytic processes has potential benefits that can enable the decarbonization of the chemical industry through use of renewable electricity, processing biomass-derived species at distributed biorefineries rather than at centralized facilities, utilizing ambient conditions, and not requiring hydrogen gas that is typically produced from methane steam reforming. The ECH of furfural is not well understood. By identifying the reaction mechanism and kinetics, better catalysts can be created and reactors designed in the next steps towards commercialization at the biorefinery.

Journal Reference: Andrew S. May, Steven M. Watt, and Elizabeth J. Biddinger in *Reaction Chemistry & Engineering* **6**, 2075 (2021).

### Tunbale Water-responsiveness of B. mori Silk Published in Soft Matter

**Yeojin Jung**, a fourth year ChE PhD student co-advised by **Professors Xi Chen** and **Raymond Tu**, and her co-authors have examined a fundamental hypothesis regarding the mechanism that drives high water-responsive energy densities, namely, that the nano-scale distribution of rigid domains in a flexible hydroscopic continuous phase is critical to engender high energy water-responsiveness.

The team has developed a system that uses stiff silica nanoparticles that mimic the role of silk's dispersed nanocrystal regions, and they find that the nanoparticles-laden composite can dramatically increase regenerated *Bombyx (B.) mori* silk's water-responsive actuation energy density, suggesting general design rules towards scalable, high-energy water-responsive actuators.

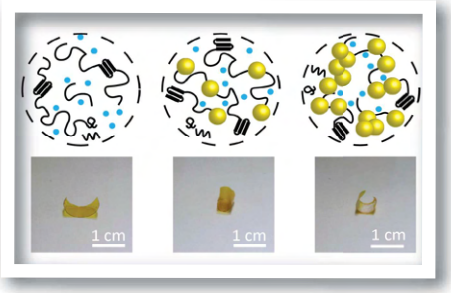



Image adapted from Soft Matter

Journal Reference: Yeojin Jung, Samaneh Sharifi Golru, Elizabeth Biddinger, Raymond S. Tu, and Xi Chen. in *Soft Matter* **17**, 7817-7821 (2022).

# Faculty Highlights

## Professors Marco J. Castaldi and Elizabeth J. Biddinger Organize the North American Catalysis Society Meeting (NAM) in NYC

Professors **Marco J. Castaldi** and **Elizabeth J. Biddinger** are co-organizing the 27th NAM in NYC to be held May 22nd to 28th, 2022 (https://nam27.org/). Professor Castaldi is the co-chair for the meeting and Professor Biddinger chairs the Kokes Award Committee, which provides funds to deserving students to defray the cost of their attendance. The meeting received about 1400 abstracts with a 40% international participation from 42 different countries. Meeting sponsors include companies such as ExxonMobil and BASF and scientific and engineering journals from the American Chemical Society (ACS) & Elsevier including ACS Catalysis, Journal of Catalysis, ACS Sustainable Chemistry & Engineering, Applied Catalysis. In addition, The City College of New York's (CCNY's) Chemical Engineering Department, CUNY Energy Institute, Levich Institute, The Grove School of Engineering and CCNY's President's Office contributed $12,000, resulting in Silver Level recognition from NAM. Other local entities participating in the organization of the meeting are Cedar Crest College, Columbia, Lehigh, NJIT, Princeton, Rutgers and Stony Brook, as well as several companies. With nearly 100 universities and national laboratories within a 60-mile radius of NYC, we anticipate a well-attended meeting that will provide many opportunities for students, faculty, and industrial colleagues from the area to connect with each other and their counterparts from across the country and abroad.

*See https://nam27.org/ for more information.*

**Professors Marco J. Castaldi and Elizabeth J. Biddinger**

## Professor Elizabeth J. Biddinger Highlighted by American Chemical Society

Professor **Elizabeth J. Biddinger** was recognized as a leading expert in the field of alternative energy methods in a Discovery Report on decarbonizing the economy from the American Chemical Society (ACS) in late 2021.

The report is a special supplement of the Chemical & Engineering News. Professor Biddinger is a very active researcher in electrochemical processes and serves as the Deputy Director of the Center for Decarbonizing Chemical Manufacturing Using Sustainable Electrification, a multi-university effort supported by the Sloan and National Science Foundations (DC-MUSE; https://www.dc-muse.org). Professor Biddinger was one of eight leading experts from universities, government, and industry asked for their views on crucial issues for decarbonization in the coming decades in order to meet the goal of the United Nations–led Race to Zero: a global campaign committed to reducing carbon dioxide emissions to zero-net by 2050. Biddinger advocates for a paradigm shift, moving from fossil-fuel power to renewable electric power to drive processes, while also sourcing carbon needed in processes from atmospheric carbon dioxide and biomass. There are many challenges to making the shift, and several are being addressed in Biddinger's laboratory at CCNY. As one example, her team is advancing the electrocatalytic upgrading of lignocellulosic biomass-based feedstocks. Rapid progress in electrochemical process development is needed to impact on the Race to Zero goal: as Biddinger says, "Thirty years is actually really close if we're talking about transforming the chemical industry."

*See https://www.ccny.cuny.edu/profiles/elizabeth-biddinger for more about Professor Biddinger and her research program.*

## Professor Jeff Morris Receives Prestigious Weissenberg Award

**Professor Jeff Morris**

Professor and Levich Institute Director **Jeff Morris** has been named the 2022 Weissenberg Award winner of the European Society of Rheology. The citation for the award states that Professor Morris was selected for "ground-breaking work on … the underlying mechanism of suspension flow and discontinuous shear thickening … and for outstanding service to the rheology and fluid mechanics community." Notably, he is the first non-European researcher to receive the award since its inception in 1997. He will accept the award and deliver a plenary lecture at the Annual European Rheology Conference in Seville, Spain held from April 26-28, 2022.

*See https://levich.ccny.cuny.edu/directory/ for more about Professor Morris and his research program. The full citation and more about the award can be found at: https://rheology-esr.org/archive/weissenberg-awardees/.*

**Weissenberg Award**

# Connect, Engage, & Contribute

## Connect

***There are many ways to connect with your alma mater. Please check the boxes that interest you.***

- ☐ I would like to visit the campus.
- ☐ I would like to speak about my experience to students.
- ☐ I would like to attend departmental seminars on technical & research topics (Zoom, Mondays 2-3 PM).
- ☐ I would like to connect via LinkedIn group "CCNY ChemEng Alumni."
- ☐ I would like to mentor students.

You can always email us with updates or questions at:
**chealumni@ccny.cuny.edu**

## Engage

Dr. Stephen Ma, ChE BE '11

**Stephen has been supporting our students in their search for job opportunities and internships by providing job descriptions, making referrals, giving feedback on resumes, and mentoring for CHAMP. Stephen graduated from CCNY in 2011 and joined the doctoral program at the University of Delaware in Fall 2011. At Delaware, under the supervision of Professors Christopher Kloxin and Norman Wagner and supported by the prestigious NSF Graduate Research Fellowship, he focused on formulating and engineering polymers with tunable surface topography using photochemistry. After graduation from Delaware, Stephen started his professional career as a Process Engineer at Intel in Portland, Oregon, working on process improvements for current and next generation computer chips. Missing the East Coast and following his interest in synthesis and formulation, Stephen transferred to the Oral Formulation Sciences team at Merck in 2020. As a formulator, Stephen leads development of new orally administered drug products (think tablets and capsules) in the oncology and cardiovascular spaces as well as digital innovation efforts and continuous manufacturing. If you are interested in contacting Dr. Stephen Ma, he can be reached via LinkedIn: linkedin.com/in/stephen-ma/ or by e-mail at: stephen.ma@merck.com.**

## Contribute

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**Checks may be made out to: The Foundation for City College (Chemical Engineering)**

**Gifts to the Department of Chemical Engineering (CCNY) are tax-deductible as permitted by law.**

**Please return information/pledge card and checks to: Department of Chemical Engineering Office, City College of New York, Steinman Hall Room 322, 140th Street & Convent Avenue, New York, NY 10031**

**Information-only updates may be sent to: chealumni@ccny.cuny.edu**