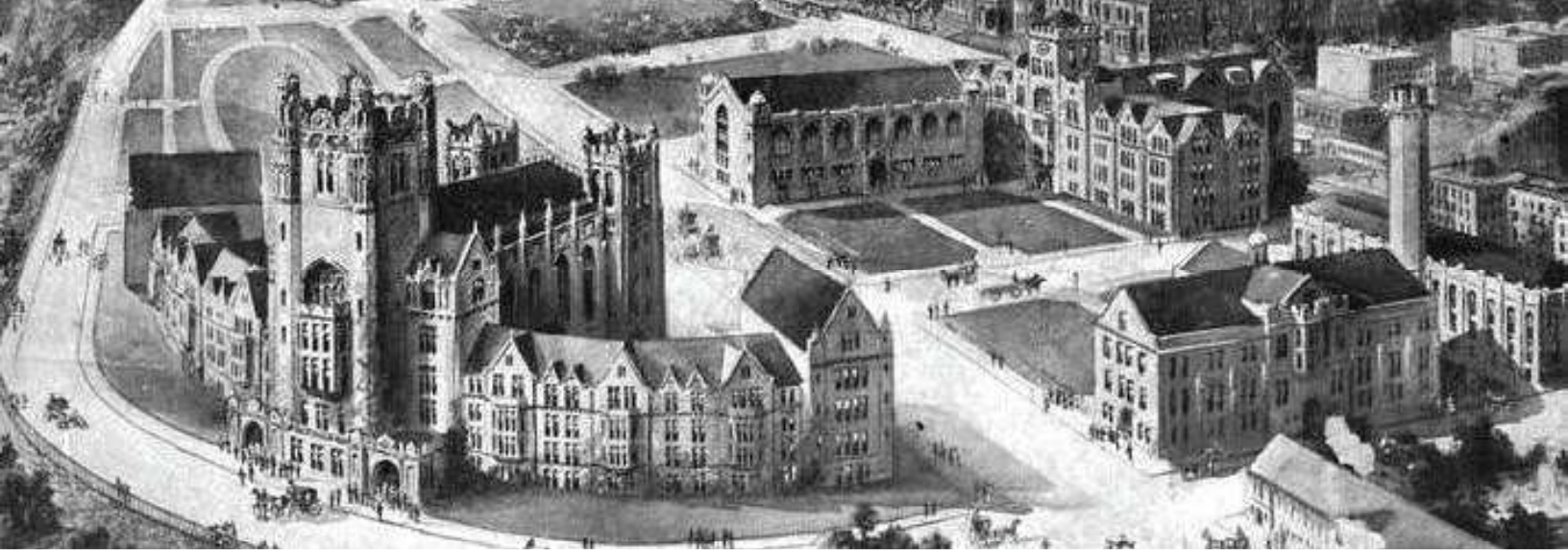




Shepard Hall and Quadrangle - City College of New York (CCNY) 1904

Chemical Engineering Newsletter

The Grove School of Engineering at The City College of New York 10/2026

Graduate Student Symposium Connects Students with Alumni in Industry

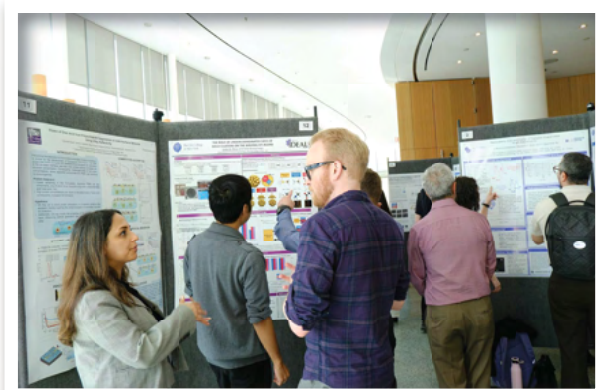
ChE PhD students were thrilled to participate in the 2026 Chemical Engineering Graduate Student Symposium at City College that featured flash talks from PhD students and an interactive poster session. The symposium provided an exciting opportunity for students to showcase their hard work and connect with their growing research community. They were proud to welcome representatives from companies such as Plantaer Inc., Turnover Labs, and The Metropolitan Museum of Art, as well as host

alumni of the Department. ChE Alumnus Andrew Gannon, representing Mindbody, also joined the event. Additionally,

students were excited to have the External Advisory Board and friends of the department join in scientific discussions.

The symposium was lively and filled with fascinating research conversations, meaningful connections, and opportunities for collaboration. Special thanks to the ASRC Industry CAT for providing organizational support, and a huge "Thank you" to everyone who attended and supported our students. The enthusiasm and engagement helped make the student-led event a success. The

students look forward to bringing everyone together again for the Spring 2027 Chemical Engineering Graduate Student Symposium and hope to see you there!



Doctoral student Nooshin Sadat Ayati (left) talking with Andrew Gannon (ChE BE '16) from Mindbody



Doctoral student Brian Chen presenting his research on batteries

MESSAGE FROM THE CHAIR



**Prof. Marco J. Castaldi,
Chairman**

Dear Alumni and Friends of the Department,

I hope you had a wonderful summer and had a chance to visit some places you have not been to before and had some time to relax and recharge. I was able to get away for 14 days in late July into early August. It is remarkable what two weeks out of a year can do to refresh and recharge one's mind and body. As I begin my second three-year term as Chairman, I am excited by the challenges ahead.

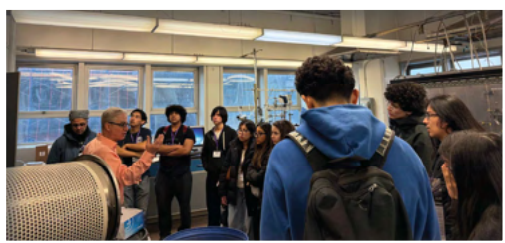
Last Spring, our graduate students organized a very successful research symposium to showcase their work and promote networking between industry, startups, collaborators, professors and doctoral researchers. Your support of the event was much appreciated, and we count on you to attend the Graduate Symposium being planned for next Spring.

You will see, we have been fortunate to reconnect with alumni here at CCNY through Alumni Nights (see reports from our AIChE and OXE clubs) and while traveling to various locations, a few of which are highlighted throughout the newsletter. There are so many ways to engage with us, but one of the easiest is to attend one of our endowed lectures. If you missed the Shinnar Lecture on February 9, 2026 presented by Prof. Benny D. Freeman of the University of Texas at Austin, your next opportunity will be the Katz Lecture given by Prof. Matteo Pasquali from Rice University on December 7, 2026. Please consider joining the lecture, lunch and reception with our esteemed 2026 Katz lecturer.

On a somber note, we have very sad news to share with you. The department lost two invaluable members over the summer. Prof. Charles Maldarelli, who joined CCNY in 1981, and Michael Nyce, who joined in 2008, both of whom passed away too soon.

Prof. Maldarelli's distinguished career is embodied through the legacy of his doctoral students over a span of 45 years at CCNY. A fund is currently being established by his family and former mentees and the Department is organizing a memorial event for him to take place in April 2027. More info is forthcoming.

Mike Nyce, a research associate in the CUNY Energy Institute, is remembered for his positivity, helpful attitude, and impact on students and their careers.



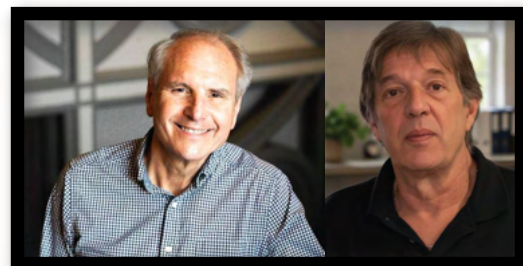
**Prof. Castaldi talks to HS students
during the Spring 2026 GSOE Expo**



**Prof. Castaldi and colleagues at the
Order of the Engineer Ceremony**

Reiner, Adjunct Professor of Finance at UCLA, who was elected as a 2026 AIChE Fellow.

I remain very optimistic about the future of our department. We have a great cohort of students and our faculty are venturing into relevant new topics such as cloud-programmable lab automation and battery recycling start ups. Many visitors who interacted with our team often remark that it is obvious we are a friendly, collegial, and happy group. I look forward to hearing from you after reading about the amazing achievements taking place in our department and beyond.



**Prof. Charles Maldarelli and
Research Associate Michael Nyce**

Sujana Shifon (ChE BE '20), Chem-E-Car captain in 2018 summarizes his impact succinctly, "He was such a passionate teacher. He taught us the fundamentals of battery design—sharing both the underlying theory and the hands-on process. He was very enthusiastic about it. The starting mechanism of Chem-E-Car wouldn't have been possible without him—the team was fortunate to have him!"

The Department continues to recruit new students, and I had the pleasure to introduce high school students to the combustion and catalysis lab during the spring 2026 GSOE Expo event. In addition, my colleagues and I celebrated with the successful graduating ChE BE class in June at the Order of the Engineer and GSOE honors ceremony.

Finally, we congratulate our External Advisory Board members Jean Tom, Professor of Practice in Chemical and Biological Engineering at Princeton, who received the American Chemical Society's Award for Encouraging Women into Careers in the Chemical Sciences, and Eric



Prof. Jean Tom and Prof. Eric Reiner

- Marco J. Castaldi

Alumni News

A Chance Meeting at the MIT Reunion

Prof. Steiner, who graduated from the Massachusetts Institute of Technology (MIT) in 1976, recounted an unexpected encounter at her 50th reunion: “MIT was a blast. And in a bizarre worlds-in-collision moment, as I was walking down the Infinite Corridor with my two freshman-year roommates after the graduation ceremony a young man in brand new MIT PhD regalia came up to me and said ‘Professor Steiner!’. It was Philippe Jean-Baptiste!” We followed up with **Philippe Jean-Baptiste (ChE BE '21)**, who completed his PhD thesis on “Functionalized Hollow Fibers Spun from Microporous Organic Polymers (MOPs) for Membrane-Based Separations and Carbon Capture” under MIT’s Prof. Zachary Smith, to hear his side of the story. Philippe responded, “I was attending the One MIT Commencement ceremony after receiving my doctoral hood and diploma the day before. I heard that the Class of '76 was in the crowd, but I didn't expect to run into Prof. Steiner once the ceremony was over. We were quite surprised to see each other, and it made the day feel that much more special to have someone from CCNY who was a part of my journey be there!” Congratulations, Philippe, you make your alma mater proud!



Philippe Jean-Baptiste (center) with Prof. Zachary Smith's group at MIT

Alumni Visit and Share Their Experiences

While sightseeing in New York, **Dr. Shyam Vaidya (ChE PhD '08)** and his family made a surprise visit to Prof. Ilona Kretzschmar's lab this summer where they were treated to some exciting experiments with magnetic Janus particles. In 2008, Dr. Vaidya completed his PhD with Prof. Alexander Couzis on the development of multiplexing high-throughput screening schemes using quantum dots embedded in polymer microspheres. After graduation, Dr. Vaidya started his research career as a Senior Scientist at Abbott Laboratories. After stints as Principal Scientist at Pfizer and BMS, Dr. Vaidya is currently a Principal Scientist in process engineering at AbbVie in North Chicago. Prof. Kretzschmar says, “it was good catching up. I still

remember Shyam's impressive thesis presentation - clear and to the point - one of the best ones I have seen.”

Also this summer, **Dr. Ankur Jadhav's (ChE PhD '21)** parents visited the US and he used the opportunity to show them around NYC and surprised Prof. Robert J. Messinger, his former PhD advisor. Since graduating from CCNY, Dr. Jadhav has worked as a Process Engineer for Intel in process development. Prof. Messinger reports: “He has been excelling—far exceeding expectations—and recently developed a new process to significantly decrease defects.”

Drs. Leo Gordon (ChE PhD '23), Andrew May (ChE PhD '23), and Debayon Dutta

(ChE PhD '26) graduated from the Messinger, Biddinger and Banerjee labs, respectively, and recently spent time with our current PhD students to talk about their lives since leaving CCNY. As reported in the last newsletter, Dr. Gordon is an Assistant Professor at DTU. Dr. May works as an Electrochemical Research Engineer at NORAM Electrolysis Systems, Inc., an engineering and process technology company that provides engineering solutions and products for a sustainable future. He is enjoying leading industrial research and family life in his hometown of Vancouver, Canada. Dr. Dutta is a Distributed Energy Resources/Microgrids Intern in the Advanced Energy team at TRC Companies, Inc., where he was recently named a Star Intern in TRC's STEP program.



Dr. Ankur Jadhav (left) with his parents and Assoc. Prof. Robert J. Messinger



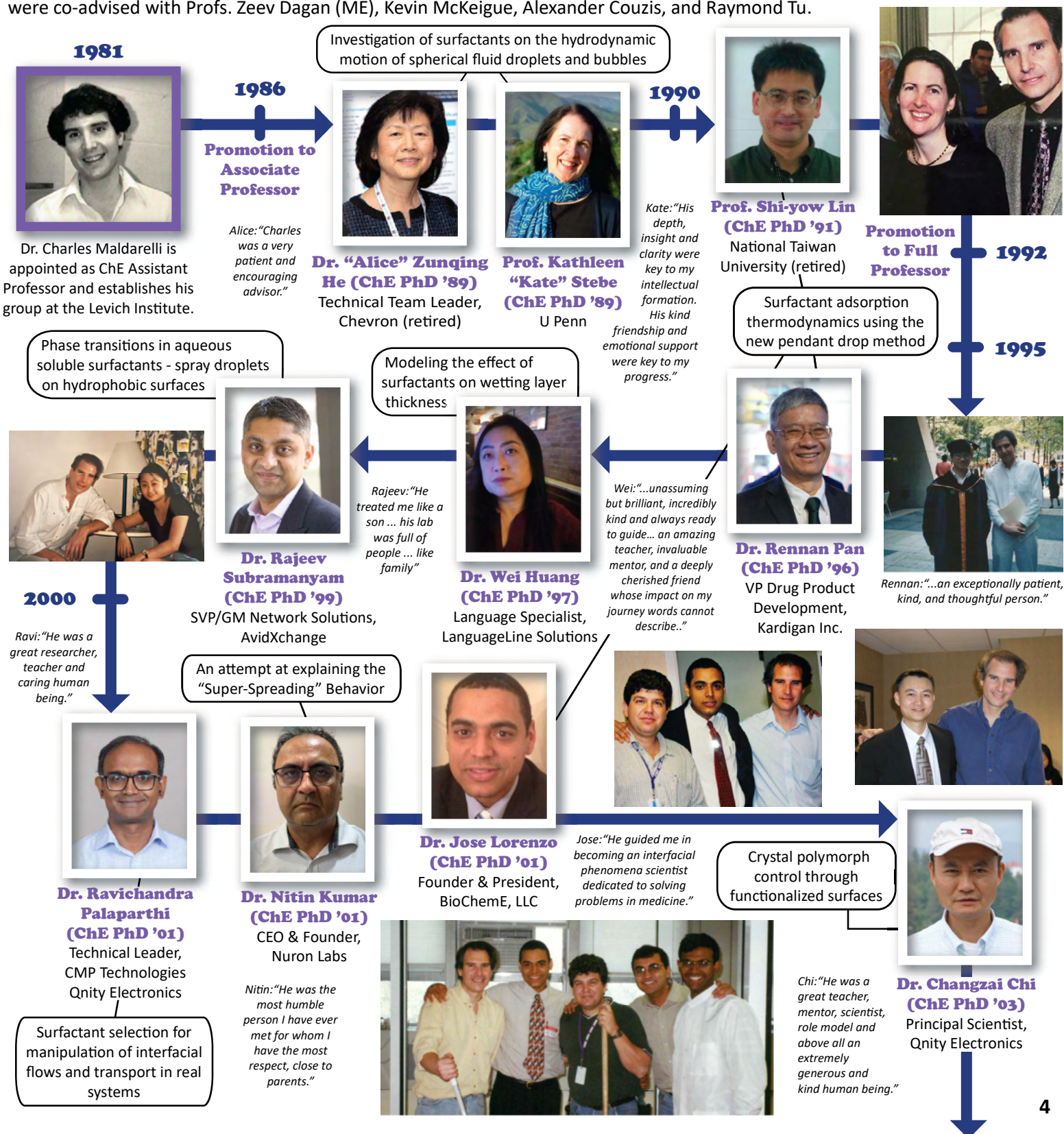
Dr. Shyam Vaidya (left) and his sons in Prof. Ilona Kretzschmar's laboratory



Drs. Debayon Dutta, 4th from left, Leo Gordon, 2nd from right, and Andrew May right, visiting with current PhD students

In Memoriam: Professor Charles Maldarelli's Distinguished Career At CCNY

Charles Maldarelli was born in Brooklyn, NY, on November 7, 1954. He received a BS in Bioengineering in 1976, an MS and a DES in Chemical Engineering in 1978 and 1981, all from Columbia University. His MS thesis provided the mathematical framework for his DES thesis on "The linear, hydrodynamic stability of interfacially perturbed thin films with applications to the onset of small-scale biological cell membrane motions" under the guidance of Profs. Rakesh K. Jain and Ivan B. Ivanov. He joined the Levich Institute at The City College of New York as an Assistant Professor of Chemical Engineering in fall of 1981, received tenure and was promoted to Associate Professor in 1986, and became a Full Professor in 1992. His 45-year career at the Levich Institute touched various fields, but had at its core, body forces and their influence on interfacial films. Sadly, Prof. Maldarelli unexpectedly passed away on July 20, 2026. The visual timeline traces his research at the Levich Institute through the work of his 29 ChE PhD students, some of whom were co-advised with Profs. Zeev Dagan (ME), Kevin McKeigue, Alexander Couzis, and Raymond Tu.



Charles Maldarelli's Career At CCNY (cont'd)

Fenfen: "His patience, kindness, and thoughtful guidance helped me navigate both the challenges of doctoral research and the difficulties living abroad ... his encouragement gave me the confidence and had a lasting impact on my academic and personal growth."



Dr. Fenfen Huang (ChE PhD '09)
Strategic Market Development Manager, Sasol International Chemical

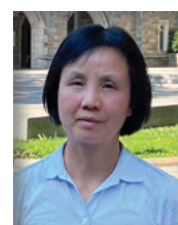
Transport of nonionic surfactants from micellar solutions below and above the critical micelle concentration to the clean air/water interface



Dr. Ashish Taneja (ChE PhD '07)
Technical Manager-Home Care, BASF India

Using surfactants to remobilize the interface of a rising bubble

Qing: "He was exceptionally kind ... he consistently explained complicated concepts in clear accessible language, making his classes genuinely enjoyable."



Dr. Qing Song (ChE PhD '04)
Senior Scientist, Unilever

2005

Ashish: "He was not just a professor for us but more like a fatherly figure and a friend ... he did not just guide me toward my PhD but also made me a better person."

Xiao Xiao: "He had an incredible ability to breakdown difficult fluid mechanics and surface phenomena into concepts that I could understand."

Thomas: "I would not be where I am today without his help."



Dr. Nikhil Suresh Bhole (ChE PhD '11)
Supplier Development Engineering Manager, SpaceX

2010

Nikhil: "He possessed a brilliant mind, but what made him unforgettable was his genuine heart and care for his students."



Dr. Xiao Xiao Chen (ChE PhD '14)
Principal Scientist, DSM-Firmenich



Dr. Thomas Leary (ChE PhD '14)
Experimental Physicist, ExxonMobil



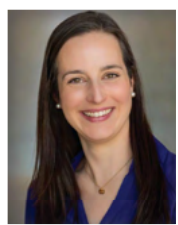
Dr. Nima Sharifi Mood (ChE PhD '14)
ML Research Scientist, Meta

Nima: "He shaped the way I learned to think as a scientist - questioning assumptions, examining problems from first principles, and continuing to probe until the underlying physics was truly understood."

2015

Lab on a chip: Microfluidic geometries for microbead assay screening of complex biomolecule interactions and their hydrodynamic and mass transport properties

Diffusiophoretic motion and active colloidal systems and their interactions with nearby solid boundaries.



Prof. Elizabeth Knapp (ChE PhD '15)
St. Thomas Aquinas College

Liz: "He was always ready to tackle a problem with a Coke in his hand and a smile on his face ... he was one of the most influential people in my career and what I learned from him will guide me for years to come ..."

Aggregation dynamics of micron and submicron particles at fluid/fluid interfaces



Dr. Setareh Manafirasi (ChE PhD '18)
Business System Manager, Power Service Group

Setareh: "My memories of Charles: His down-to-earth character, the way he would sit on his knees to answer a question, the casual way he dressed, his stumbling voice during presentations, the trophy on his desk that said 'Champion of Hide and Seek', and the endless support."



Dr. Ali Mozaffari (ChE PhD '17)
Scientific Software Developer, Cadence Design Systems

Ali: "I will always remember his deep scientific curiosity, the care and thoughtfulness he brought to research discussions, and the important role he played in my development as a scientist."



Dr. Archit Dani (ChE PhD '17)
Supplier Quality Manager, Intel Corporation

Archit: "Beneath his warm personality, he was a meticulous scientist committed to scrutinizing every little detail and ensuring only highest quality research got published ... his love for

Coca Cola and popular response on the phone 'I am on the George Washington Bridge' are among priceless memories etched in my mind."

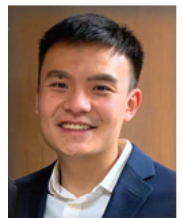


Charles Maldarelli (cont'd)

Hao: "My first AIChE meeting presentation, I was so nervous ... Charles spent 3 hours help me go through the presentation..."

2020

Eco-friendly surfactants for remediation of maritime oil spills



Dr. Hao Zhou (ChE PhD '20)
Associate Expert, L'Oreal China

Dynamics and phase behavior of mixed antibody-exipient adsorption at the air/water interface



Ankit: "He was so much more than my PhD co-advisor and BMS collaborator - he was a true cornerstone of my scientific journey"



Dr. Ankit Kanthe (ChE PhD '21)
Principal Scientist, Bristol Myers Squibb

Yu: "During COVID-19 pandemic ... I will never forget his support, encouragement and kindness."

Boundary integral methods for electro-deformation and coalescence of surfactant covered droplets



Dr. Yu Han (ChE PhD '22)
Software Engineer, Walmart Global Tech

Moving drops and particles driven by phoretic and surface tension forces



Dr. Subramaniam Chembai Ganesh (ChE PhD '24)
Senior Mechanical Engineer, ASML



CG: "...with Charles, it seemed we were tackling problems together every step of the way..."

Transport model for "solid with infused reactive liquid" carbon capture technology



Dr. Pedro Bertolini (ChE PhD '24)
Chemical Engineer, Sora Fuel

2025

High-affinity lanthanide-binding peptides for rare earth element separation



Dr. Surabh KT (ChE PhD '26)
Postdoctoral Researcher, CCNY

Nanoparticle stabilized interfaces for foams and emulsions



Dr. Luis Ortuno Macias (ChE PhD '25)
Scientific Advisor, Eli Lilly and Company

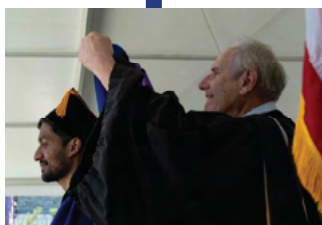
Prof. Nicole Donovan (ChE PhD '25)
Manhattan University

Luis: "He was the main reason I pursued my PhD - to this day, I still think I might not have taken the step without him ... I will always be grateful to him."

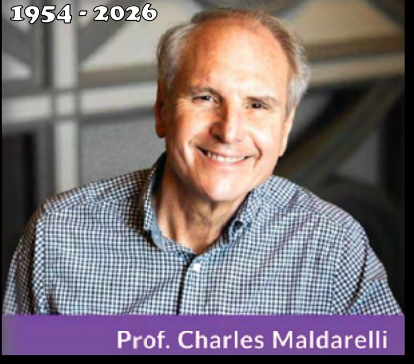


Nicole: "Once I asked him if he had ever considered a different career path ... he laughed ... 'No, of course not, I was made for this!' ... anyone who has learned from him knows this is true ... he was an incredible teacher, mentor and friend who will be dearly missed."

Surabh: "He did not believe in group meetings - I only remember one - we gathered around a few boxes of pizza ... instead of discussing research ended up sharing stories - probably the best group meeting I ever had ... that was him, informal, genuine, and always more interested in people than in schedules."



1954 - 2026



Prof. Charles Maldarelli



PhD students (l-to-r) Jonathan Fey (4th year), Nooshin Sadat Ayati (5th year), Barbara Stewart Palomo (2nd year), and Sellene Concha Carrasco (3rd year) mourn the passing of Prof. Charles Maldarelli, their PhD advisor and co-advisor. They will continue his legacy by advancing their understanding of interfacial phenomena and carrying forth Charles's love of life, passion for research, and his famous love of Coca Cola. His guidance will stay with them always.



Charles Maldarelli possessed a brilliant intellect motivated by curiosity, and at the same time was extremely kind and generous. He made major contributions to his fields of study and in his teaching of engineering science. While these are hard to replace, we will miss most his friendship and devotion to others: Charles was steadfast and selfless in his support for CCNY students and colleagues in both ChE and the Levich Institute. Over his remarkable 45 years at CCNY, Charles touched thousands of students and colleagues, and we were deeply moved by the outpouring of tributes from around the world upon his passing. From these, a clear message emerges that Charles spent his days imparting a love of learning along with a profound generosity of spirit. We will work to emulate those wonderful qualities as we keep the memory of Charles, his life, and his contributions forever fresh in the Department and Institute. —Jeff Morris, Director of the Levich Institute

Charles Maldarelli and the ChE Community

Thank you for sharing your memories with us!



You will be missed. Rest in peace, Charles!

Mike Nyce - A Gentle Giant is Mourned



**Michael "Mike"
E. Nyce Sr.
1957-2026**

The ChE Department and the CUNY Energy Institute (CUNY EI) mourn the passing of research associate (RA) Mike Nyce. The following are just a few testimonials about his impact on the department.

Batteries, batteries, batteries...

Michael "Mike" E. Nyce, Sr. passed away on June 29, 2026. He joined the CUNY EI in October 2008 to help set up the Institute's new battery lab. Prior to joining the CUNY EI, Mike worked for Electro Energy, Inc. as a prototype/operating manager from 2000-08 and as a production manager at Evercel, Inc. from 1976-2000. At the CUNY EI, Mike used his expertise to educate, mentor and collaborate with others about batteries and cells, significantly impacting his field. **Distinguished Prof. Sanjoy J. Banerjee**, Director of the CUNY EI, says, "His death was such a shock and I still can't believe he is gone. Mike will be greatly missed by all who knew him. A truly kind and gentle person. May he rest in peace." **Joshua Gallaway** (right), Associate Professor of Chemical Engineering at Northeastern University and former

CUNY EI postdoctoral researcher, shares, "It is possible Mike was the most frequent co-author I've had on papers over the years. His name was always in the middle of the list, and he wasn't going to conferences and giving talks, so one might have overlooked his name. Mike was a pillar of the CUNY EI Institute and taught me countless, innumerable things about making rechargeable aqueous batteries." **Jinchao Huang (ChE PhD '19)** Vice President of Research and Development at Urban Electric Power remembers, "Every battery we built at the Energy Institute passed through Mike. I worked closely with him and I learned as much from watching how carefully he worked as from anything in the literature. He was the person everyone turned to when help was needed - whether it was making electrodes, fixing a piece of equipment, or solving an unexpected problem in the lab, Mike was always there. To me, he was not only a colleague, but also a trusted friend and mentor. I will miss him deeply."



A Helping Hand: Mike and the Chem-E-Car Teams

Mike was the "go-to-person" for the ChE BE Chem-E-Car teams since 2008. **Luna Silva Esquinas (ChE BE '26)**, 2025 team captain, shares that, "Mike Nyce was an important part of our Chem-E-Car experience, especially when it came to helping us understand how to assemble and work with the battery safely. He was always willing to share his knowledge and guide us through something that could otherwise feel intimidating. He gave us confidence while working on the car and allowed us to focus on making the project successful. With his support, we were able to bring a trophy back to the department, which made the experience even more meaningful. I'm grateful that we had the opportunity to learn from him and for the time he dedicated to helping our team." **Kelvin Leo (ChE BE '21)**, 2019 team captain, shares similar sentiments, "Mike was a key part of getting the 'Manganese Prime' Chem-E-Car team ready for competition back in 2019 when the team was scrambling at the last minute due to group changes. When we came to him, he took the time to explain how it worked and patiently answered all of our questions. Most importantly, he showed us how to handle and transport the battery safely. Even though our time with him was short, his expertise and guidance filled in one of the most important pieces of the puzzle, and it played an essential part in our team placing fourth at Chem-E-Car. Thank you Mike!"



**The 2025 Chem-E-Car team at
the National AIChE conference**

Mentoring the Next Generation

Roman Yakobov (ChE BE '15 ME '17), SME & Engineering Manager at Plug Power, Inc., was the 2013 Chem-E-Car captain and worked closely with Mike at the CUNY EI. He relates that, "Mike Nyce—or, as I liked to call him, with a nickname he fully deserved, 'Mr. Nice'—first came into my life more than a decade ago when I joined CCNY's Chem-E-Car team. Mike brought decades of battery experience from industry into the Energy Institute, but what made him remarkable was how generously and humbly he shared that knowledge with everyone around him—from undergraduate students to seasoned researchers and faculty. Years later, when I struggled to get my first opportunity in industry, Mike was among the first to call, offer his help, and open doors for me. Even after I became a battery engineering manager and subject matter expert myself, he would still check in to see how I was doing and whether he could help. One of our last conversations captured Mike perfectly: while facing his own illness, he learned that I was working on my car and immediately began guiding me through how to fix it. That was Mike—always teaching, helping, and caring. He showed me that extraordinary knowledge and experience can coexist with extraordinary humility, warmth, and kindness. I hope those of us fortunate enough to have known 'Mr. Nice' will continue carrying that spirit forward."



**Roman Yakobov
(ChE BE '15 ME '17)**

Update from the UG Clubs

“Alumni Nights” Are Back

The AIChE and OXE student clubs collaborated on a number of in-person alumni nights that exposed students to a wide range of industries and provided insight into potential career paths.

The Merck Alumni Panel featured a distinguished group of our alumni—including (L-to-R) Associate Principal Scientist **Dr. Stephen Ma (ChE BE '11)**, Director of Engineering **Dr. Stephen Crowley (ChE PhD '17)**, Scientists **Lisa Feder (ChE BE '22)** and **Hamad Haider (ChE BE '19)**, and Field Engineer **Oneil Reid (ChE BE '08)**. The panelists shared their personal career journeys, day-to-day engineering responsibilities, and practical advice on transitioning from college into large-scale industrial operations highlighting the broad range of career paths available in the pharmaceutical sector.

Another “Alumni Night” featuring alumna **Renee Scarpaci (ChE BE '19)**, Corporate Capital & Projects Manager at Scientific Design LLC (a SABIC company), provided a platform for an open conversation about stepping into the professional world, navigating career growth, and project management in chemical manufacturing. Renee’s experience offered students practical guidance on making a smooth transition from university life to full-time engineering roles.

The students welcomed alumna **Mary Coraizaca (ChE BE '21)**, System Engineer II at General Dynamics Electric Boat, who shared her post-graduation journey and career path in naval engineering and defense. Mary discussed the challenges and triumphs of entering a complex industry and provided constructive advice on navigating early-career hurdles. The session was particularly helpful to students by highlighting non-traditional engineering fields and demonstrating how a chemical engineering background applies across diverse technical sectors.

Dr. John Pellegrino (ChE BE '73), Research Professor at the University of Colorado Boulder, was also an “Alumni Night” speaker. He reflected on his extensive research career focused on

advanced membrane technologies for water, energy, and sustainability. His talk served as an invaluable resource for Chemical Engineering students considering graduate studies, academic research, or technical paths in environmental engineering and sustainable technology.

Chemists’ Club: Pfizer Career & Engineering Pathways Talk

On April 28, 2026, the Chemists’ Club hosted James Galloway, a Senior Manager at Pfizer. Students were treated to an insightful discussion on career possibilities in chemical engineering. James shared his journey across various roles, industries, and countries, illustrating that careers evolve dynamically and non-linearly. The presentation highlighted that every experience builds onto the next and that one needs to be open to opportunities when they present themselves to advance one’s career.



Top to bottom: Alumni Visits from Merck, Scientific Design, General Dynamics Electric Boat, and University of Colorado Boulder.



**James Galloway
talking to ChE
students**

ChE Travel Award Fellow Reports

From Brookhaven National Laboratory to Deutsches Elektronen-Synchrotron



In summer 2025, **Jonathan Fey, a 4th-year PhD student** co-advised by the late Prof. Charles Maldarelli and Prof. Raymond Tu, interned at Brookhaven National Laboratory where he was mentored by Dr. Ben Ocko on the fundamentals of liquid surface X-ray scattering and reflectivity. Jonathan's research into the interaction of positively charged chitosan polymers with negatively charged perfluoroalkyl acid (PFAA) amphiphiles investigates whether chitosan can help capture and sequester PFAA contaminants from water sources. Under carefully controlled solution conditions, positively charged chitosan binds to negatively charged PFAAs, forming complexes that assemble into an ordered film at the air-water interface.

Through Dr. Ocko, Jonathan met Dr. Chen Shen, a beamline scientist at Deutsches Elektronen-Synchrotron (DESY) in Hamburg, Germany. After receiving the ChE Travel Fellowship again, Jonathan traveled to DESY in May 2026 to perform experiments at PETRA III's P08 high-resolution diffraction beamline to probe the film's microscopic bending stiffness and elucidate how stability relates to the structural properties. This international collaboration in Hamburg opened new doors for him, including collaboration that allowed him to further work on his manuscript detailing the DESY experiments and findings and led him to his first conference presentation at ACS Colloids 2026 in Newark, DE. The opportunity also provided time for sight-seeing.



"Down Under" Visit Supports Research Collaboration

In spring 2026, **Samhita Kattakola (ChE PhD '26)** utilized the ChE Research Travel Fellowship to visit Prof. Ray Dagastine's Lab at the University of Melbourne in Australia. The primary objective of her visit was to train on HaloElement by Tiny Bright Things, which utilizes Resonance Imaging Microscopy, a technique developed in the Dagastine Lab to resolve objects as small as 20 nm. The Kretzschmar Lab at CCNY is the first U.S. lab with access to the HaloElement, and a collaboration was initiated to combine the Dagastine Lab's imaging expertise with optically active structures developed in the Kretzschmar Lab. Samhita's Ph.D. research focused on hyperbolic metamaterials (HMMs), alternating metal and dielectric multilayers with unusual optical properties, translating them from planar films to colloidal Janus particles with an HMM cap on one side. HaloElement uses multi-angle evanescent-wave illumination to collect light scattered by the sample from several directions into a composite image. She used the HaloElement to investigate how particle orientation and coating material affect the scattering response, making

HMM Janus particles distinct from conventional metal or metal-oxide Janus particles as well as isotropic particles. She gave a seminar on HMMs in the ChE Department at the University of Melbourne. Outside the lab, Samhita explored Melbourne's amazing food scene and Australia's unique biodiversity along the coastal landscapes of Victoria while pursuing her interest in photography.



Three Generations Come Together

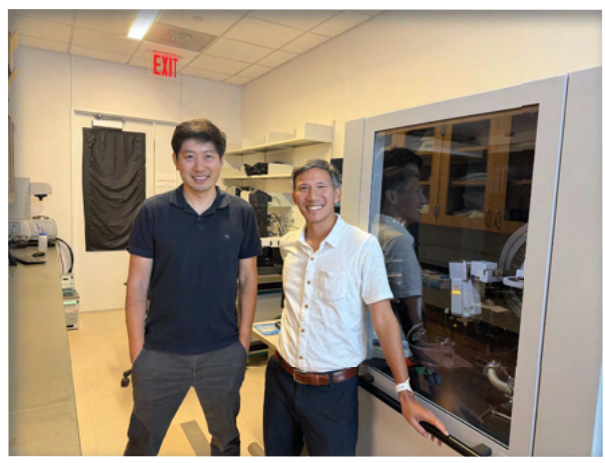
From April 1 to May 1, 2026, **Ali Rahmani, a 2nd-year PhD student** in Prof. Jeff Morris' group, visited the California Institute of Technology to work with Prof. John F. Brady, who was Prof. Morris's PhD advisor. Working in Prof. Brady's research group marked the beginning of a collaboration focused on how to model dense suspensions flowing through complex geometries. Dense suspensions, liquids containing a large concentration of solid particles, appear in many natural and industrial systems, from mud and concrete to pharmaceutical formulations. Their behavior can be surprisingly complex because the motion of each particle influences its neighbors and, collectively, the flow of the entire material. The goal is to develop a multiscale framework that connects these two descriptions: the microscopic dynamics of individual particles and a continuum

model that can predict the behavior of the suspension at much larger scales. During his visit, Ali used the Stokesian dynamics code to simulate the motion and interactions of thousands of particles. He then combined insights from these particle resolved simulations with a finite-element continuum solver developed in the Morris group. By comparing the two descriptions under the same flow conditions, the groups aimed to determine what information from the particle scale must be incorporated into continuum models, particularly near boundaries and in regions where the flow changes rapidly. Ali's time in Pasadena was not limited to equations and simulations—he also explored several museums in LA and visited the famed Huntington Library, Art Museum, and Botanical Gardens.



ChE Faculty News & Activities

ChE Faculty Bring an \$18.1M Cloud-programmable Lab to CCNY



Assoc. Prof. Xi Chen and Prof. Raymond S. Tu in the new small-angle X-ray instrument facility

CCNY received an \$18.1 million National Science Foundation award to create **AI-BIOME**, a cloud-programmable laboratory that will use artificial intelligence (AI) and robotics to speed the discovery, design, and production of advanced bio-inspired materials. Chemical engineering plays a central role in the AI-BIOME node, driving key scientific initiatives centered on systems design, material processing, and formulation. As part of the project's leadership team, Chemical Engineering **Profs. Xi Chen** and **Raymond Tu** serve as two of five co-PIs, leading major cross-disciplinary efforts that translate molecular designs into functional, high-performance materials. Together, Chen and Tu lead a project that leverages automated multimodal workflows and AI-assisted processing to scale up high-performance silk-based water-responsive composite films for water management, actuators, and energy harvesting. Their expertise in material characterization, embedded systems, rheology, and peptide materials underpins AI-BIOME's continuous closed-loop discovery platform, bridging the gap between fundamental biomolecular designs and practical, scalable applications.

Sabbatical 'Forges' a New Battery Recycling Start-up

Assoc. Prof. Robert J. Messenger was on sabbatical in fall 2025 and spring 2026. During his sabbatical, Prof. Messenger co-founded Blue Forge, Inc., to commercialize a novel lithium-ion battery recycling technology coined "aluminometallurgy," which uses aluminum-based chemistry to break down battery cathode materials and recover their valuable critical materials. Compared with conventional pyrometallurgy and hydrometallurgy, aluminometallurgy enables high-purity metal recovery at mild temperatures without strong acid leaching, allows solvent recovery and reuse, and simplifies battery preprocessing and logistics, offering a pathway to lower waste and processing costs. Blue Forge, Inc. is based in Manhattan.

While on sabbatical, Prof. Messenger also visited **Dr. Leo Gordon (ChE PhD '23)**, his former PhD student and now an Assistant Professor at the Technical University of Denmark (DTU) in Copenhagen, Denmark. Leo was delighted to show his former PI his new laboratory with a fully equipped glovebox.

The two professors also spent time exploring Copenhagen, where they visited the Elephant Gate and Tower, a famous 1901 architectural landmark that features four giant granite elephants carrying a red-brick tower.



Left: Assoc. Prof. Robert J. Messenger and Assist. Prof. Leo Gordon in the new Gordon Lab at DTU, Right: in front of the Elephant Gate and Tower of Copenhagen

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Students Take Brain-relaxing Crochet Lessons

Sometimes experiments just do not work or an instrument breaks just when you need it the most or your code just keeps getting stuck or an empty page simply does not fill with the right words. This is when students need a break and a relaxing activity.

Enter **Prof. Ilona Kretzschmar** with a bundle of wool, to teach you how to crochet. She will happily show you her technique and teach you her tricks. It is fascinating what can be created with a hook, a skein of yarn, and an assortment of knots. Prof. Kretzschmar is right when she says "if you are upset or mad your crochet pattern will suffer - let it all go!"



Prof. Ilona Kretzschmar gives crocheting lessons to students during coffee break

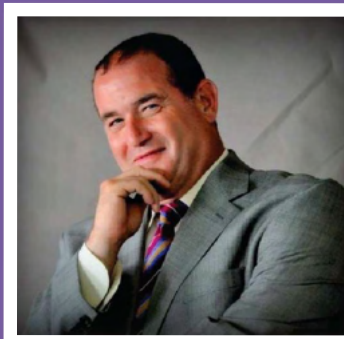
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Connect

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 (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



Aaron Deutsch (ChE BE '87)

Aaron Deutsch, a first generation Jewish-Hungarian ex-New Yorker, earned his ChE-BE from CCNY in 1987. He began his career as a pilot plant engineer at Komline Sanderson, a maker of wastewater equipment. This eventually led to his work as a lab engineer, where he determined the best equipment and water treatment for waste products, including municipal, industrial, and chemical waste. He developed a patent for a chemical treatment that improved the ability of chemical mixing more efficiently in water to reduce chemical usage. After working for a scrubber company as a manufacturer's rep dealing with process equipment, he fell into the air conditioning industry. For the last 20 years, he has been the owner and President of Drymaxx Air Solutions, a consulting and equipment supplier company in Las Vegas, NV, that specializes in custom systems and helps engineering firms flesh out their designs. Aaron has visited CCNY a few times to meet with faculty and students. This September, he was an invited speaker for an Alumni lunch at which he talked to our undergraduate and graduate students about his career path and experience in applying his ChE degree along the way.

If you are interested, Aaron can be reached on LinkedIn <https://www.linkedin.com/in/aaron-deutsch-25770b3/> or emailed at aaron@drymaxxair.com.

Contribute

Please fill out this form to provide an information update and/or to make a donation to the Department of Chemical Engineering at CCNY.

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- ☐ I have included the Department of Chemical Engineering (CCNY) in my will.

Checks may be made out to: The Foundation for City College - Department of Chemical Engineering (CCNY)

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

Please donate online or return information/pledge card and checks to: Department of Chemical Engineering Office, The 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