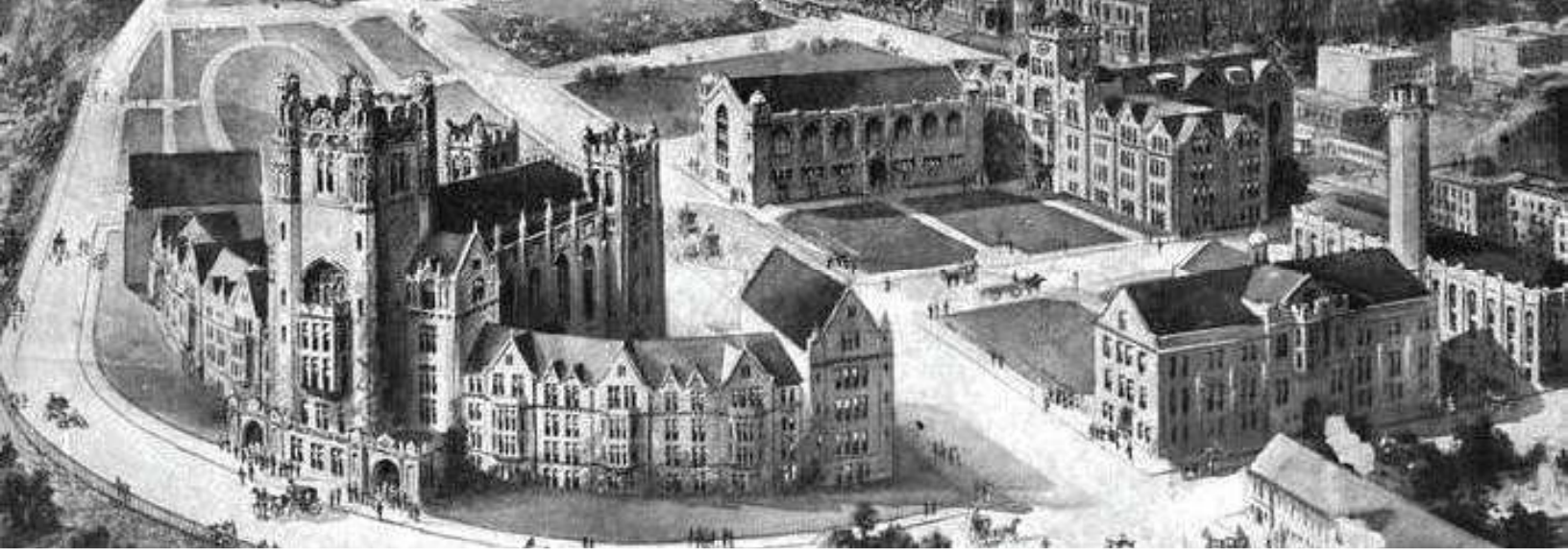


Shepard Hall and Quadrangle - City College of New York (CCNY) 1904

Chemical Engineering Newsletter

The Grove School of Engineering at The City College of New York 04/2025

Alumni Shine as Entrepreneurs

ChE alumni entrepreneurs are innovating for impact. We interviewed three recent graduates—Dr. Alla Zamarayeva (ChE BE '14), Olga Kapustina (ChE BE '17), and Gabrielle Abizeid (ChE BE '17)—who have each transformed their CCNY education into entrepreneurial ventures driving advancements in health, environment, and safety sectors.

Dr. Alla Zamarayeva (ChE BE '14) CEO and Co-founder of CellFE

Alla: What does CellFE do? CellFE is a biotech start-up based in the San Francisco Bay Area. CellFE is an innovator in cell therapy which is, in itself, a new treatment paradigm that can defeat life-threatening diseases. Unlike mass-produced pills, cell therapy involves taking a patient's own cells, genetically modifying them to fight disease, and returning them to the patient. This "one batch per patient" manufacturing approach is complex and costly—around $400K per dose; fewer than 5% of eligible patients can access these treatments. CellFE's mission is to drastically reduce the cost—so that cell therapies become the standard of care for patients worldwide.

How did it all start? While working on my PhD at UC Berkeley, I came across a publication from Georgia Tech describing a microfluidic technology capable of efficiently delivering gene-editing materials to cells for cell engineering. I was immediately drawn to how elegant and impactful this technology could be in transforming the manufacturing process for these emerging treatments. I met with the professors who had developed the technology and convinced them to join me in founding the company.

And what is next? We are busy deploying our product to the market. Despite the fast pace, I'm excited about everything that is happening in the company.

Olga Kapustina (ChE BE '17) CEO and Founder of ELKE

Olga: What has kept you busy? I've been consulting, launching a new venture (ELKE), and moving to the Upper West Side from Brooklyn.

What does ELKE do? ELKE, launching this summer in NYC, focuses on creating swimwear, activewear, and intimates without the synthetic materials that typically dominate these categories. After 20 years in the apparel industry, I wanted to create clothes that are truly biodegradable made from natu-

(cont'd on page 3)

MESSAGE FROM THE CHAIR

Prof. Marco J. Castaldi, Chairman

Dear Alumni and Friends of the Department,

I hope you are getting ready for spring and summer outdoor activities. The past six months have been quite action-packed beginning with our AIChE Alumni Reception in San Diego in October. Since then, we have spent a significant amount of resources to conduct a small, but important advertising campaign to increase PhD enrollment. The result of the campaign showed that what drew applicants to the ChE PhD program at CCNY were our world-class facilities, CCNY's location at the crossroads of the world, and our heritage. The campaign motivated us to revitalize and update our informational content (i.e., our website) and the appearance of our physical spaces in the department, both of which will be fully updated by the end of this summer.

In tandem with the marketing campaign, we have launched a substantial fundraising effort among alumni and friends of the department - *Campaign 2025*. The current goal is $2.23 million and I am pleased to announce that we are halfway to this goal. It is obvious to me that we punch above our weight among our peers and are well-known in academia, industry, and the engineering community. Our ultimate goal is to continue to attract top students and faculty.

On that note, we just signed a new Assistant Professor, Ian McCrum, who will start this Fall 2025. Ian's research expertise combines computational simulations and detailed experiments to uncover interfacial mechanisms that further enhances our current departmental research thrusts.

The Department of Chemical Engineering at
The Grove School of Engineering
The City College of New York

CAMPAIGN 2025

Invest in CCNY's ChE future

Join us in shaping the next chapter for Chemical Engineering at CCNY.

Donate Now & Double Your Impact!

Thanks to the generosity of Dr. Peter Compo (ChE PhD '89) every donation will be matched dollar-for-dollar, up to $100,000!

Click here and select "ChE Department Fund" to make your gift today.

The education and mentorship that the ChE Department provides continues to pay dividends in ways that cannot be underestimated. This is evident in the testimonials on pages 4-7 about ChE Emeritus Prof. Andrew ("Andy") Acrivos, a towering figure in the field of fluid mechanics who sadly passed away on February 17, 2025 but whose legacy lives on. We also highlight three examples of ChE entrepreneurs who have established very different successful start-ups, one in biotech, one in clothing, and one in nanotechnology. I fondly remember these entrepreneurs—Alla, Olga, and Gabrielle—when they took my two-semester senior design sequence. In addition to their achievements, you can read about many other alumni accomplishments on page 8.

Our current students continue to fire on all cylinders. You may recall that in the last newsletter we reported that our Chem-E-Car team, "VitaVroom," placed 4th in a regional competition making them eligible to compete nationally at AIChE's Annual Chem-E-Car Competition® in San Diego, CA. There they placed 4th among 51 foreign and domestic entries, beating out UCLA, UC Berkeley, University of Michigan, Yale, Stony Brook and Auburn.

The ChE Department's reach goes beyond ChE alumni and current students. We are lucky to have two "friends of the department," John E. Massucci (highlighted in our last newsletter) and Mark Halperin highlighted on page 12. Massucci and Halperin are NOT CCNY alumni, and yet both are actively involved with the ChE Department. Mark Halperin arrives every Thursday to assist with our Senior Design course and provides guidance, mentorship and career connections to our undergraduate students.

Members of CCNY's 2024 Chem-E-Car team with "VitaVroom"

Distinguished Prof. Umit S. Ozkan (right) 2024 Katz Lecturer, with Associate Prof. Elizabeth J. Biddinger

All are welcome to attend one of our two very prestigious lecture series; The Stanley Katz Series in the Fall (which featured Prof. Umit Ozkan from The Ohio State University this past fall 2024) and the Reuel Shinnar Series in the Spring. We also had a seminar combining ethics, engineering and climate from Dr. Karenna Gore, the founder and executive director of the Center for Earth Ethics and visiting professor of practice of earth ethics at Union Theological Seminary in New York.

In the meantime, continue to contact fellow alumni or friends to tell them about the many achievements and programs in the Chemical Engineering Department at The City College of New York.

- Marco J. Castaldi

Alumni Entrepreneurship

(Olga continued from page 1) ral materials that you can trace from creation to end-of-life. I call it "designing backwards"—starting with what happens to a garment when we're done with it, then working our way back to how it's made. My goal is to develop new technology that can work with single natural fibers and ultimately be acquired by a company that can implement our innovations on a global scale.

How did it all start? The idea for this company came from a personal frustration with the industry's addiction to cheap synthetic fibers that are harmful to our health, do not biodegrade, and cannot be recycled. I'm a huge lover of the outdoors, but there isn't one company out there doing "nature" well; it is all predominantly plastic. It is ironic to me that we walk into pristine natural environments, including our own bodies, and are dressed head-to-toe in plastic. From an engineering standpoint, approximately 100 billion garments are made annually and approximately 60 billion are thrown away with only about 1% recycled. This is a huge ecological burden on our natural resources.

Photo Credit: Lanna Apisukh

Gabrielle Abizeid (ChE BE '17) CEO & Founder of NanoSieve

Gabrielle: How are you? Very busy (in a good way)! I've been juggling investor meetings and pitches, conversations with potential customers for pilot projects, and deep R&D meetings as we push forward on our next prototype. It's a fast-moving phase for us—and I'm grateful for the momentum.

What does NanoSieve do? NanoSieve is a startup based in Miami and incorporated in Delaware, that is developing a disruptive gas safety technology that doesn't just detect gas leaks, but actually responds in real time to prevent them from escalating. Instead of relying solely on alarms and human intervention, our system automatically reduces gas concentrations before they reach flammable or toxic levels—helping prevent fires, explosions, property damages, and serious health risks. I lead our product strategy, investor engagement, and customer development efforts. We recently reached Technology Readiness Level 7 (TRL7) after successful testing in a real-world environment—specifically at The Combustion & Catalysis Lab at CCNY's Grove School of Engineering. Huge thanks to Prof. Marco Castaldi, who provided access to the lab, and Emeritus Prof. Gabriel Tardos, who offered key support on modeling and chemical engineering design.

How did it all start? NanoSieve started with a problem I couldn't ignore. While at Con Edison, I responded to natural gas leak incidents and saw the same dangerous cycle over and over: sensors would beep, people would evacuate, but the gas kept leaking. By the time the fire department or utility crews arrived, the concentration was already at flammable or toxic levels. The delay between detection and response was a clear safety gap—and I couldn't stop thinking about, "*What if we could reduce the gas concentration in real time, before reaching flammable or toxic levels?*"

We asked these alumni entrepreneurs if they had any advice for others looking to become entrepreneurs. Alla recommends learning to embrace change and failure—she writes, "entrepreneurship often means facing failure, ambiguity, and the need to pivot quickly when circumstances change." She also encourages building one's network early and learning from real-world experiences through internships or volunteering at a start-up. Olga states that "being an entrepreneur is hard. You don't have a set salary or set hours, so it requires a lot more discipline and a lot more mental resilience since all the wins and losses are on you." Gabrielle urges students to "focus on solving real problems—especially the ones that keep you up at night [and to] surround yourself with people who challenge you but also believe in your vision."

All three alumni were incredibly grateful for the education they received in the Chemical Engineering Department. Alla states that she was able to start a company "based on microfluidic technology precisely because of [her] undergrad research at CCNY." Olga says that she "is grateful for the foundation CCNY provided. The diverse perspectives, intellectual rigor, and practical problem-solving I was exposed to [at CCNY] continue to influence my approach to business challenges." And Gabrielle concludes that "[she] wouldn't have gotten here without professors and mentors at CCNY who encouraged her to think boldly and back it up with science and engineering."

Alla, Olga and Gabrielle, thank you for your time! We are immensely proud of you and what you have achieved and wish you much continued success!

These are interview highlights. Full interviews can be found on our Newsletter website. Would you like to see your company highlighted in our Newsletter? Contact the editing team at chealumni@ccny.cuny.edu.

In Memoriam: Remembering Emeritus Professor Andreas ("Andy") Acrivos

Emeritus Professor Andreas ("Andy") Acrivos was a beloved mentor, engaged colleague, and long-time friend who passed away on February 17, 2025. Prof. Acrivos had a profound impact on the Department of Chemical Engineering and beyond. These testimonials below show the breadth of his impact on his students and colleagues at CCNY.

Prof. Acrivos' Time at CCNY's Levich Institute

Prof. Acrivos joined CCNY as the Albert Einstein Professor in 1986 and taught until his retirement in 2001. During his tenure at CCNY, Prof. Acrivos was inducted into the National Academy of Sciences in 1991 and received the National Medal of Science in 2001. He supervised one physics and six chemical engineering PhD students, who have shared their memories below.

Andreas Acrivos (1928 - 2025)

Dr. Wolfgang Polifke (PHYS PhD '90), Professor of Thermo-Fluid Dynamics at the Technical University of Munich says, "I owe so much to Andy. I remember his passion for opera [and a funny] episode with the 'Levich Sofa.' Benjamin Levich was a disciple of Lev Landau. Legend has it that Landau never sat at a desk and instead, he lay on a sofa reading papers and discussing physics with his students and colleagues. When the Levich Center was created, Levich insisted on having a large sofa in his office too. After his death, the sofa remained - and rumor has it that tired graduate students after a long night in the lab would sometimes sleep there overnight rather than commuting back home to Brooklyn.

When Andy arrived to replace Levich, he felt strongly that the sofa had to go–it was clearly not compatible with his work ethic. A few graduate students removed the sofa from Andy's office and brought it, unbeknownst to Andy, to the graduate student lab, a former space on the 3rd floor with a few cubicles and a huge table in the center of the room. They placed the infamous sofa on that table since there was no other space in the room. The sofa rested very prominently on this 'pedestal'. A few weeks later, Andy was giving a tour of the facilities to important visitors and when he brought the delegation up to the 3rd floor, he was not amused to see the sofa atop the table. He felt the sofa gave others the impression that the work ethic in Steinman Hall was lacking. So, this time, the sofa had to go, for real and for good.

Queen of the Night Blossom

When I last visited Andy and his wife, Jennie, in Palo Alto in 2014, Jennie gave me a cutting from one of her plants. She told me, 'Just put it in soil and water regularly, but not too much.' Now the cutting she gave me has grown into a huge plant that's almost too large for my office. It's so big that every time I walk to my desk, I brush against its leaves. I learned that the plant is a relative of the 'Queen of the Night' plant and every few years a single, huge flower blossoms at night and wilts at dawn, a veritable reminder of how ephemeral our own existence is."

Dr. Bir Kapoor (ChE PhD '94), Chief Executive Officer at Gujarat Fluorochemicals Limited, India, writes that, "Prof. Acrivos was a brilliant mind and an extraordinary mentor. I was his first [ChE PhD] student at the Levich Institute at CCNY. As my PhD advisor, he was far more than a teacher—he was a guiding light who shaped my approach to both research and life. With his razor-sharp intellect, he had a remarkable ability to find elegance in solutions, cutting through complexity with insight and grace. Apart from being one of the greatest minds in the area of fluid mechanics, his mastery of scientific writing set a standard of clarity and precision that I still strive to emulate. He always believed that doing doctoral research with him was not about specific subjects, but more about learning to approach and solve problems. That philosophy became my foundation, propelling me to success in my professional life. Today, I owe a significant part of my achievement to the lessons I learned under his guidance. His kindness, patience, and brilliance touched countless lives, and though he is no longer with us, his legacy lives on in every problem I tackle and every milestone I reach. Rest in peace."

L-to-R: Dr. Kapoor (ChE PhD '94), Prof. Acrivos with Levich Institute members (1991) and in his lab (1993)

Prof. Anubhav Tripathi (ChE PhD '98), Brown University, remembers that, "Back in 1993, I was blessed to get a spot in [Andy's] research group at CCNY. I owe all my accomplishments to him. There are many never-ending academic and funny stories about Andy. For example, I remember when I installed his first computer in his office and taught him how to use the 'Pine' email platform—this was a big deal because previously all of his emails had to be printed out by his colleague, Mary Wright, so he could read them. Another benefit of teaching him how to use his new computer was that he could furtively check his investments in the stock market without anybody knowing. He browsed the stock market while working on yet another asymptotic solution for a different fluid mechanics puzzle. Andy has left an inspiring part of himself in everyone's heart who got to know him. My sincere condolences to his wife, Jennie, his friends, and his entire academic family. May his soul rest in peace."

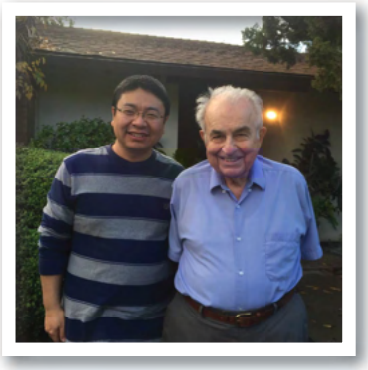
In Memoriam: cont'd...

Prof. Mahesh Tirumkudulu (ChE PhD '01), Head of Chemical Engineering, IIT Bombay, says that "I have incredibly fond memories of City College and my time with Andy. I joined his group in 1996 for my PhD, and the first few months were challenging—he wanted to be sure I was truly committed to dedicating the next 4–5 years to research. It soon became clear that what he was really teaching me was the value of passion and the importance of holding oneself to the highest standards. Andy genuinely cared about his students, not just academically but also personally. He stayed in touch, always eager to hear how we—and even our families—were doing. When my parents visited the US, he gave them a tour of the Met Museum. His influence on my intellectual growth and career has been profound. I will always be deeply grateful to him.

L-to-R: Prof. Tirumkudulu, Mary Wright, Prof. Acrivos, and Prof. Demetrios Papageorgiou at the 1998 Mayor's Awards for Excellence in Science and Technology reception held in 1999

One encounter in particular left a lasting impression on me. While working on a thin film problem, Andy and I encountered a pre-print with a dense derivation of a related problem. Andy suggested we go through it together to deepen our understanding. So, one Saturday morning, we met in the Levich classroom. He alternated between reading the paper aloud and deriving equations on the board, while I dutifully took notes. We started at 10 am, broke for a quick lunch at his favorite Greek diner around 1 pm, and then dove right back in. By late afternoon, I was completely exhausted, but Andy was as energetic as ever, charging through the equations well into the evening. He was 70. I was 25, yet, somehow, I was the one struggling to keep up! I also remember a funny episode when we discovered an instability in sheared suspensions—I had taken photos of this phenomenon for our manuscript. This was the era before smartphones and the film needed to be developed first. I trekked to a little camera shop near Lincoln Center where I ran into his wife, Jennie. She was there collecting photos from their recent holiday trip. She chatted with me for a bit, and, just before leaving, casually asked me to remind Andy 'to bring home Cuban biscuits.' When I reported this back to Andy, he laughed heartily and told me that without those biscuits, he would not have bothered going home!"

Dr. Bo Jin (ChE PhD '04), Principal R&D Engineer at Honeywell, recalls that, "During my PhD study in the ChE Department and the Levich Institute at The City College of New York from 2000 to 2004, Prof. Acrivos taught me many skills which are still useful in my current industrial R&D role: He taught me how to conduct asymptotic analysis on complicated mathematic model equations in fluid mechanics. The elegant asymptotic method from his lectures and guidance have not only left me with an incredible impression but have also provided a powerful means to enhance my understanding of many equations. When facing difficulties in solving problems, he always emphasized the importance of persistence and communication. I still clearly remember how he helped me to revise and modify numerous drafts of my thesis to achieve clarity in writing."



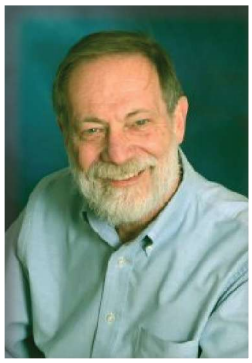
Dr. Jin & Prof. Acrivos in California (2014)

Dr. Anil Kumar (ChE, PhD '05), Senior Director at Kovalus Separation Solutions, says that "Andy really shaped my life. I came from India with no clue of what I wanted to do in my life. My first interaction with him was quite simple but powerful. I went to his office, knocked on the door and asked if I could introduce myself. He let me in, we spoke for 15 minutes during which he asked me about India and Delhi, and mentioned a frightening car trip he took from Delhi to Agra in an Ambassador car without a seat belt. In those 15 mins, I felt a different level of energy around him, something that made me declare, 'I want to do a PhD with you!' He demurred, saying he was retired. But I persisted even after he told me, 'Anil, it is not easy to work with me, you will be working 7 days a week, 365 days a year, for the next 5 years.' The following week, I was officially his last PhD student.

Dr. Zhiyong Qiu, Dr. Kumar, Prof. Acrivos, & Dr. German Drazer in the lab (2002)

The next 7 years were the best time of my life, where I not only did a PhD with him, but also became his last postdoctoral associate. As an immigrant himself, he knew the challenges one faces in a new country. He was there to help in every aspect of my life, from research to obtaining my green card, to getting my first job in industry. He gave me full autonomy to pursue research and was there when I needed help or had any challenges. I kept a picture of him watching our experiments in the lab as a reminder of him. After I graduated, we stayed in touch and even visited him and his wonderful wife, Jennie, in New York in 2012. Andy was a true legend and I am fortunate that I had the opportunity to work with him so closely."

Past & Present Levich Directors Pay Tribute



Emeritus Prof. Morton M. Denn

Emeritus Prof. Morton M. Denn, Levich Director, 2000-2015: Prof. Denn remembers that he first met Andy at Stanford, "more than fifty years ago, when I was a young chemical engineering faculty member at the University of Delaware. I will never forget the charm and grace with which he greeted me, asking about my work and even commenting on a paper that I had recently published. Andy had a reputation as a tough critic, and young researchers were terrified if he was in the audience during a presentation, but his questions, as disquieting as they might have been, were just a way for him to understand the essence of an idea that was being presented. Clarity was the simplest way to avoid an Acrivos cross-examination.

Andy and Leon Lapidus were the first two students to complete their PhDs at Minnesota under the direction of Neal Amundson, who was a leader in the introduction of mathematics into chemical engineering education and practice. Andy's PhD research was on the use of matrix analysis to understand separation processes, a far cry from what we think of as typical Acrivos research. It is important to recall that fluid mechanics was not a core subject in chemical engineering education at that time, and those chemical engineers of Andy's generation who worked in fluid mechanics were essentially self-taught. He moved into the field on his own and he ultimately owned it; the chemical engineering fluid mechanics community today is dominated by his academic tree.

The institute created at CCNY for Levich was mostly staffed by outstanding émigré physicists and mathematicians who had little interaction with the academic program. When Andy came to CCNY to direct the institute, now named for Levich, he made an effort to bring the institute into closer association with the academic goals of the College, and that association continues to this day. Levich Institute members are active participants in the educational missions of the chemical and mechanical engineering and physics departments. Andy's publications on suspensions, which continued throughout his tenure at CCNY, had an enormous impact on the profession as a whole, and on those of us at CCNY in particular. The progress made by Levich Institute researchers leading to a new paradigm in suspension rheology would not have been possible without his foundational work.

Andy and I overlapped on the faculty for a year when I came to succeed him as the director of the Levich Institute. He was his usual gracious self in making sure that I settled in easily and met the important people in the CUNY system to ensure a smooth transition. He was a welcome physical and intellectual presence after his formal retirement, and it was a sad day for us when he gave up his New York apartment and settled back fully on the west coast. His heritage remains a guiding presence for us."

Prof. Jeffrey F. Morris

Prof. Jeffrey F. Morris, Levich Director, 2016-present: I could talk for hours and days about Andy and his positive impact, but will touch on just a few instances that come to mind for me and things I hold dear in my good fortune of knowing Andy.

My interactions with Andy date to my first major conference presentation at the AIChE National Conference in 1993, while I was a graduate student giving a talk that served as a preliminary job interview for academic positions. As usual in a fluid mechanics session, Andy was seated in the front row, attentively watching and listening, and (as Mort Denn has noted) making young (and some more experienced) speakers rather nervous. When I finished my talk, Andy smiled, and for me that spoke volumes. Not all of my talks received quite such a positive response from Andy.

Throughout Andy's career, a number of workshops or technical sessions at larger meetings were dedicated to him; two stand out. One was a session at another AIChE meeting, at a dinner following the first day of talks by Andy's academic friends and academic family (the latter being former PhD students or post-docs of his, and their students, and so on and so forth to further generations). This took place in Miami Beach, famous for its nightlife, but shortly before 9 p.m. following several toasts lauding the importance of an Acrivos educational upbringing, Andy stood up to give his thanks...and to remind us all to go home and get some sleep because, "Tomorrow's a work day." So much for doing the merengue! The second instance I fondly recall was an international workshop organized by Andy in Istanbul in the summer of 2006. Just like the stunning city itself, I vividly recall Andy's recollection as we stood together on the back of a boat going up the Bosphorus toward the Black Sea. Andy spoke fondly of Istanbul, where as a child he had visited his uncle, and the joy he felt in sharing one of his favorite spots with those in his closest scientific community.

Going back to the idea of "academic family," I should say that I am an Acrivos academic grandchild; my advisor, John Brady, at Caltech studied with Andy at Stanford in the late 1970s. John recalled that in his student days, if Andy came by your desk to discuss research on a Friday afternoon, he'd invariably end with "let's talk about it tomorrow" which meant having to postpone Friday evening movie plans and prepare for the next day's discussion with him. When I came to CCNY, I was invited to take part in Saturday discussions of this sort with Andy and his last CCNY PhD student, Anil Kumar, as well as NJIT collaborator, Boris Khusid. These sessions were intellectually intense, and, for students, I am sure challenging. I am sure they were also profoundly valuable. Discussions of data and modeling approaches were broken by lighthearted recollections over coffee or lunch, and created more impact- *(continued on page 7)*

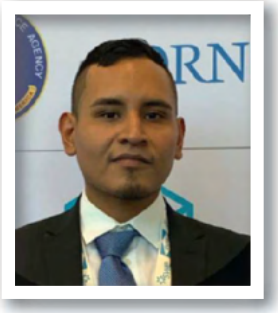
Prof. Acrivos' Enduring Legacy

(Prof. Morris continued from page 6) ful memories than any movie I have seen.

In closing, I'll recall Andy's words that resonated most deeply. When I was at a turning point in my early academic career, Andy and I spoke on the phone about various options. I recall Andy saying that a location is all about the people – "don't worry about anything else," he said, "if the people care for one another and want to do the best work possible, you will be happy in that place." For me, this sage advice captures the human element of our profession that Andy himself embodied. This human connection should always be emulated even though the void Andy left cannot be filled.

The Acrivos Graduate Fellowship

The Andreas Acrivos Graduate Fellowship commemorates the intellectual curiosity and academic leadership of late Emeritus Professor Acrivos. Each year, the Chemical Engineering Graduate Studies Committee awards a first-year PhD student with the Acrivos Fellowship. The criteria used to select an Acrivos Graduate Fellow is a combination of the performance in classes, qualifying examinations, and departmental leadership. The 2025 Acrivos Fellow is **1st year PhD student Milton Lliguichuzhca (ChE BE '20)**. After graduating from the ChE BE program, Milton worked as a process automation engineer at Automation and Control Specialists (Janssen Pharmaceuticals) for three and a half years before returning to the department as a doctoral student. In Fall 2024, Milton joined Prof. Castaldi's team, where he works on plastic waste pyrolysis to produce solid, liquid and gaseous fuels through catalytic thermal degradation in the absence of oxygen.



We asked our previous Acrivos Fellows to share their thoughts about winning this award.

Dr. Xiaoxiao Chen (ChE PhD '14), Principal scientist at DSM-Firmenich, says: "As a recipient of the Acrivos Fellowship during my PhD studies at CCNY, I am very grateful and proud of the recognition and encouragement it provided to me. Receiving this prestigious award as an international student was one of the greatest honors of my academic journey, especially given the challenges I faced in my first year of my study."

Dr. Archit Dani (ChE PhD '17), Process Engineering Manager at Intel, recalls: "One of my personal motivations about joining the PhD program at CCNY was to be able to learn more about fluid mechanics and the Acrivos Fellow award gave me confidence and validation to further that passion."

Dr. Sidhant Pednekar (ChE PhD '18), Head of Data Science and AI at Millennium remarks: "It was an honor to receive the Acrivos Fellowship in 2014—a recognition that deepened my admiration for Prof. Acrivos' groundbreaking work in complex fluid flow and suspension rheology. Though I never met him in person, his insistence on starting from fundamentals, being ruthlessly curious, and persevering with rigor has shaped my approach to problem solving. Carrying on his legacy in suspension research at the Levich Institute has been both a privilege and a profound motivator in my career."

Luis Ortuno Macias (ChE PhD '25), Advisor – Bioproduct Research & Development at Eli Lilly states: "Being named the Acrivos Fellow in my first year of the PhD program had a profound impact on my early academic journey. Coming from Venezuela, where opportunities for research and advanced education were limited, this recognition served as a powerful motivator. It affirmed my decision to pursue a PhD and gave me the confidence to overcome the challenges of transitioning to a new academic environment."

Eric McPherson, 4th Year PhD Student, comments: "I've been truly honored and inspired to be named an Acrivos Fellow after someone whose work continues to shape Chemical Engineering and informs my research on bubble-driven colloidal assembly."

Lauren Creadore, 3rd year PhD student, says: "I am honored to have been selected as an Acrivos Fellow. I made a conscious effort during my PhD to make the most of the once in a lifetime opportunity, meaning to focus deeply on the work at hand and enjoy the long and sometimes arduous journey. Especially in my first year, the time period for which the Fellowship is awarded, I was dedicated to learning as much as possible, considering that I was quite nervous about officially becoming a chemical engineer. Therefore, I was truly appreciative of receiving the fellowship as a form of validation of my efforts."

Colleen J. Jackson, 2nd year PhD student, states: "It is a great honor to be named the Acrivos Fellow. To have my name associated with his in any way gives me confidence in my ability to make a positive contribution to science. I am grateful that my efforts towards department leadership are recognized and appreciated. Acrivos' work in fluid dynamics and transport is taught in our classes today. Getting this award was definitely a big boost in my PhD career and he will always be a big inspiration to me."

List of Acrivos Fellows (2002 - present)

2002 Dr. John Paul Bir Singh	**2010** Dr. Genti Zylyftari	**2018** Dr. Yegor Nikitin
2003 Dr. Rajesh Goyal	**2011** Dr. Eric Fried	**2019** Dr. Leo Gordon
2004 Dr. Rohit Ingale	**2012** Dr. Archit Dani	**2020** Dr. Seungri (Victor) Kim
2005 Dr. Pandurang Kulkarni	**2013** Dr. Stéphanie Marenne	**2021** Dr. Luis Ortuno Macias
2006 Dr. Mehrdad Kheiripour	**2014** Dr. Sidhant Pednekar	**2022** Eric McPherson
2007 Dr. Prasad Karanjkar	**2015** Dr. Fanny Thomas	**2023** Lauren Creadore
2008 Dr. Ehssan Nazockdast	**2016** Dr. Michael D'Ambrose	**2024** Colleen J. Jackson
2009 Dr. Xiaoxiao Chen	**2017** Josephine Chen	**2025** Milton Lliguichuzhca

Alumni Awards and Accolades

BEYA 2025 - The Modern Day Technology Leader Award

Nkechi Anako (ChE BE '07) received the 2025 Black Engineer of the Year Modern Day Technology Leader Award at this year's BEYA GLOBAL STEM Conference held in Baltimore, MD. The award is one of two outstanding achievement awards granted annually to individuals in the workforce who are recommended by their employer. It recognizes bright women and men who are shaping the future of engineering, science, and technology. Nkechi was nominated by Corning Incorporated, where she has held various roles for the past 14 years, in recognition of her impactful contributions.

Nkechi states: "This recognition is a testament to the power of leadership, innovation, advocacy, community service, and education in driving progress in the technology sector. This award serves as a profound reminder that discipline, hard work, and unwavering commitment are essential to making an impact. And at a time when diversity, equity, and inclusion (DEI) are under attack, this honor feels even more significant."

Congratulations Nkechi, we wish you much success in your future endeavors!

Nkechi Anako (ChE BE '07)

Dr. Juan Jimenez (ChE BE '15)

2024 Blavatnik Regional Finalist

Dr. Juan Jimenez (ChE BE '15) was one of two finalists of the 2024 Blavatnik Regional Awards for Young Scientists. The award recognizes Juan's catalysis science contributions to capturing climate change-driving gases into industrially useful materials. Juan had his first research experience with Associate Prof. Elizabeth J. Biddinger at CCNY in the Green Chemistry and Energy Laboratory. Inspired by sustainable engineering, he pursued his PhD at the University of South Carolina. In 2020, he joined Brookhaven National Lab's Chemistry Department, serving as the Goldhaber Distinguished Fellow from 2021-2024, and now works as a Staff Scientist. Most recently, Juan taught the class that inspired him to go into research - ChE 43200 Reaction Engineering - as an adjunct assistant professor at CCNY.

Congratulations Juan, we look forward to your future success!

A Triple Accomplishment

Prof. Sepideh Razavi (ChE PhD '15), Susan Mallinson Professor in Chemical Engineering at the University of Oklahoma, has been awarded the esteemed Royal Society Wolfson Visiting Fellowship, supporting exceptional scientists in conducting year-long collaborative research at leading UK institutions. As a Royal Society Fellow, she will use her sabbatical to undertake research at the Cavendish Laboratory, University of Cambridge, focusing on biological and soft systems.

In addition, Prof. Razavi has been named the inaugural 2024/2025 Rokos-Menon Senior Research Fellow at Queen's College, University of Cambridge, which will be followed by a Visiting Professorship at Corpus Christi College, Cambridge, during Michaelmas term 2025. These prestigious appointments will allow her to engage with a diverse community of fellows and postgraduate students across a wide range of academic disciplines.

Congratulations Sepideh, we wish you an exciting and research-intensive sabbatical in the UK!

Prof. Sepideh Razavi (ChE PhD '15)

Philippe Jean-Baptiste (ChE BE '21)

From Janus Particles to Carbon Capture

Philippe Jean-Baptiste (ChE BE '21) was selected for CUNY's "50 Under 50," a list which celebrates distinguished graduates who have made headway in their respective fields over the past year. Philippe started his research career at CCNY with a summer research experience for undergraduates (REU) at the NSF-funded CREST IDEALS Center led by CCNY Distinguished Chemistry Prof. Maria Tamargo. The experience introduced him to Janus particles and their assembly in magnetic fields. Hungry to learn more, Philippe signed up for an internship with the NASA Jet Propulsion Laboratory organized through NASA MIRO led by Prof. Robert J. Messinger. Currently, Philippe is pursuing his PhD degree at MIT with Prof. Zachary P. Smith working to generate advanced materials for energy-efficient gas separations and carbon capture.

Congratulations Philippe, we look forward to seeing your MIT research publications!

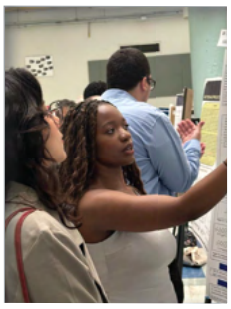
Undergraduate Student Updates & Activities

OXE & CCNY NYWEA Clubs Take a Field Trip to Sunset Park

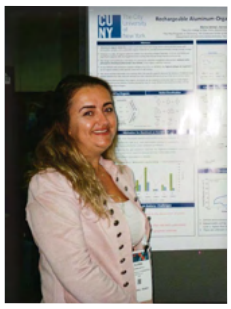
The Omega Chi Epsilon (OXE) and CCNY New York Water Environment Association (NYWEA) clubs visited a Material Recovery Facility in Sunset Park–the biggest recycling sorting plant on the eastern seaboard. Students learned about the pathways of recycled materials such as papers and plastics and how they are sorted and sold to producers. They were struck by how similar these pathways were to chemical engineering processes, especially the parts where different types of plastics are sorted using pneumatic pressure plates and lasers, exploiting physical properties such as absorbance of light and weight.

Students in front of the Tipping Building that holds up to 1000 tons of material daily

Undergraduate Research in Motion



Martina Hove
Class of 2026



Blerina Sehitaj
Class of 2027

ChE-BE students continue to engage in research projects with ChE faculty. This Fall 2024 **Martina Hove (Class of 2026)** worked in Associate Prof. Elizabeth J. Biddinger's lab on "Synthesis and Characterization of Tertiary Glyme-Based Ionic Liquid Electrolytes for Lithium Metal Batteries." She presented her research that was done in collaboration with the NASA-CCNY Center for Advanced Batteries for Space, Queensborough Community College and Brookhaven National Lab at the CUNY Research Scholars Program symposium and won the best poster award. **Blerina Sehitaj (Class of 2027)** from the Messinger lab presented "Understanding the Effects of Organic Electrode Design on the High Voltage Aluminum Sulfonamide Batteries" at the 2024 AIChE meeting in San Diego. Her research addresses the complexities of capacity behavior and presents their strategies for optimizing electrode design to unlock the full potential of this promising battery technology.

Julianne Villar (Class of 2026) front row, far left with her BioHackathon team

ChE-BE student, **Julianne Villar (Class of 2026)** is participating in GSOE's 2025 BioDesign Hackathon, on a team of GSOE engineering students that is developing a prototype for an automated, extendable grabber to support people with muscle dystrophy. The purpose of the competition is to "create a device to alleviate the symptoms of demyelinating diseases." Julianne says that the team is "learning to use power tools and CAD software to build their design. I am excited to see how I can use what I've learned in my Chemical Engineering classes and labs to contribute to this competition."

Chem-E-Car Team Showcases "VitaVroom" at Pre-College Engineering Day

Luna Silva (Class of 2027), a Chem-E-Car team member, presented "VitaVroom" to NYC high school students in March at CCNY as part of the 30th annual Pre-College Engineering Day organized by the Latin American Engineering Student Association (LAESA), a chapter of the Society of Hispanic Professional Engineers (SHPE).

Luna Silva (Class of 2027) Presenting to NYC High School Students

Seniors Celebrate the End of the Fall 2024 Semester

A group of ChE-BE seniors celebrated the end of a long semester by planning a group dinner. They enjoyed a relaxing evening sharing stories and laughter. The meal was a welcome break from their busy schedules and was the perfect way to mark the end of a challenging, but rewarding semester.

PhD Community-Building Activities

The COVID pandemic left many doctoral communities feeling isolated and disconnected. Gershon and Eric, the respective outgoing and incoming graduate council presidents, report that games and hiking have helped rebuild the PhD community in the ChE Department and have led to friendly competition and lasting friendships.

Gershon Starr (5th year PhD student) writes, **"**It was the summer of 2022 when Luis Ortuno (ChE PhD '25) introduced me to the game *Settlers of Catan*. We initially started playing sporadically with some friends we knew from here and there. He and I mentioned to some of the other graduate students that we needed players, and before we knew it, we had more players than spots on the board. Within weeks, we had two to three games going on at once!

For those of you who don't know the game, *Settlers of Catan* is a competitive/cooperative game of trading and expansion. The game is played by rolling dice to gather resources, trade them with other players, and (fingers crossed) expand your small settler community. Sounds wholesome, doesn't it? This simple game of cooperation and compromise has become a hub for brutal competition and bragging rights within the PhD community in the ChE Department. We currently meet most Fridays to play, decompress, and share a few laughs (and sometimes tears) before the weekend.

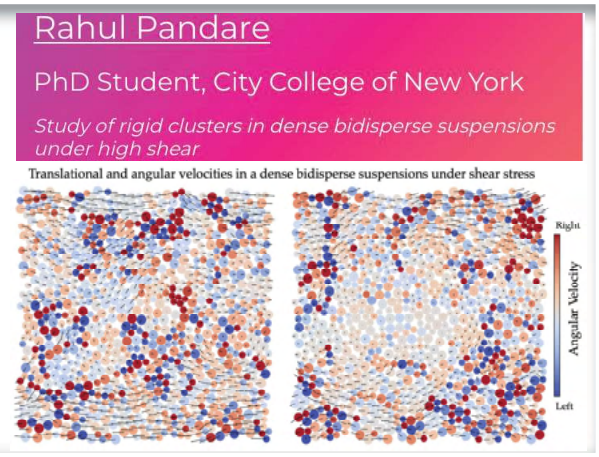
As we have played, students (and even faculty!) walking by see the tumult caused by this simple game and cannot help but stop and take it all in. By the next week, they are at the board, learning the game and joining in on this small piece of organized chaos. There are some consistent winners (we won't name names, but you know who you are!) and many losers, but we always walk away from the table laughing, refreshed, and ready for the next round.

If you ever find yourself in the ChE department on a Friday afternoon and hear some yelling, take it as an invitation to join in!"

Eric McPherson (4th year PhD student) writes, "Last September, several PhD students took the Metro-North to escape the city and hike Bull Mountain near Cold Spring, NY. The students, representing most ChE lab groups and cohort years (and one civil engineer!), braved the impending rain and completed the 4 mile, 1200 ft. elevation hike before heading back down to the quaint town of Cold Spring. By pure chance, we ran into Jennifer Harrington, the department's academic advisor, and her dog Chip. She took us out for lunch. We finished at the famous Moo Moo's Creamery on the riverfront. The hike was such a hit that multiple new trips are planned as the spring weather brings on perfect hiking weather."

Dr. Michel Orsi is a former postdoctoral fellow (2023-2024) of Prof. Jeffrey F. Morris, the Director of CCNY's Levich Institute. Michel is one of the creators of "The Hitchhiker's Guide to Rheology" an online forum providing an engaging, world-wide community for emerging rheologists. He hosted ChE PhD student Rahul Pandare for his first webinar.

Rahul Pandare (4th year PhD student) writes, "Giving my first-ever webinar was a thrilling experience! I had the opportunity to speak as part of The Hitchhiker's Guide to Rheology webinar series, a fantastic platform for young rheologists to learn and share their work. It was exciting to interact with like-minded individuals, engage in technical discussions, and receive valuable feedback from researchers in my domain. I truly enjoyed the exchange of ideas and perspectives. Many thanks to Michel Orsi and Léa Cailly-Brandstäter for organizing the series and giving me this opportunity. The experience was both enriching and inspiring, and I look forward to future engagements!"



ChE Faculty & Industry Collaborations

Prof. Marco J. Castaldi's Combustion and Catalysis Lab & the Earth and Engineering Center partnered with the start up ***Upcycle Technologies*** to design a wet-waste system that extracts energy from the solids in the waste and recovers materials for a variety of possible applications. Prof. Castaldi's expertise is in thermal conversion of carbon-based feedstocks (waste, biomass, oils, etc.) and reaction engineering and has extensive experience working with large high pressure and temperature systems. Prof. Castaldi's research group houses Upcycle's prototype, a three dry-ton per day unit, that they have worked on to improve several aspects of the operations and controllability. Prof. Castaldi's engineering team is the primary resource for both test and analysis, and provides support for possible applications. Several students have worked on the system ranging from the undergraduate to doctoral levels in the ChE and ESE programs, including visiting students from other universities (i.e., Manhattan College and University Pau, France). The project is supported by Upcycle Technologies and the North Carolina Collaboratory.

L-to-R: Postdoctoral researcher Dr. Michael A. Lugo-Pimentel (ChE BE '13, ME '17), 4th year Ph.D. student Kaitlyn Lawrence, and Chairman Prof. Marco J. Castaldi with the gasifier unit at CCNY

L-to-R: Dr. Jui Chaugule, Dr. Kelechi Ndukwe and Olayinka Ajumobi-obe from ProViZiGen in Prof. Tu's lab at CCNY*

Prof. Raymond S. Tu collaborates with ***ProViZiGen***, a 2023 biotherapeutics start-up in New York City that aims to use protein engineering to make protein-based injectable materials. The initial target is preventing and healing osteoarthritis after joint injuries. Prof Tu's research group is well known for their protein engineering insights and capabilities. ProViZiGen is using the Tu Lab expertise to synthesize and characterize protein-based materials. A team from ProViZiGen is working with the Tu Lab to accelerate the development process, from biomolecular design to interfacial characterization. The company has hired numerous CUNY students and is supported through an ASRC CAT matching program. ProViZiGen provides funding toward the research that helps accelerate their understanding of protein materials. NY state matches the funds through CAT. The CAT program is great at helping facilitate NY state companies with academic partners.

Faculty collaborations with start-ups like Upcycle Technologies and ProViZiGen expose our undergraduate, masters, and doctoral students to important professional skills such as problem-solving, teamwork, and communication. These partnerships also foster entrepreneurship and technology development between universities in NYC and the larger tri-state area.

ChE Faculty-Led TREAD Program Co-Organizes Entrepreneurship Workshop for CUNY PhD Students and Postdoctoral Scholars

The US Department of Education Translational Research Excellence Across Disciplines (TREAD) Center, in co-sponsorship with the NSF NanoBioNYC training grant and the ASRC CAT, held a Converge-to-Translate (C2T) Workshop called "Do you want to be an entrepreneur (for a day)?" on Friday, March 21, 2025. This workshop had ~25 CUNY PhD and Postdocs engage in a hands-on bootcamp, following the NSF i-Corp model. Teams were formed, innovation ideas shared, customer discovery activities run, elevator pitches given, fundraising models devised, and project pitches made. Six experienced entrepreneurs served as coaches and project judges throughout the day: Martin Krusin (Entero Therapeutics), Malcolm Paul (Ninjas in The Machine), Cris Mercado (The Knowledge House), Dr. Julien Lombardi (Homeostasis), Dr. Andoni Mourdoukoutas (City Innovations Collaborative, CInC), and Dr. Chris Bobko (Zahn Innovation Center at CCNY). The workshop was facilitated by Dr. Omar Green, TREAD Associate Director, who is also an entrepreneur.

Converge-to-Translate Workshop Participants

*Caption corrected 05/01/25

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 (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

Mark D. Halperin (Pfaltz & Bauer)

Mark D. Halperin is the President & Owner at Pfaltz & Bauer, Inc., a highly-specialized international chemicals supply company based locally in Waterbury, Connecticut, offering rare chemicals for research and manufacturing. He is a third generation New Yorker whose family resided in Manhattan and the Bronx, and later in Westchester, where Mark attended elementary and high school before going on to Tufts University for a BS in chemical engineering and then an MBA degree. Inspired by the example of his father, a dentist who chose to volunteer teach one day each week at Montefiore Hospital Dental Division, Mark reached out to CCNY and found a home away from home in the Department of Chemical Engineering where he has been volunteer teaching since 2021. His collaboration with Dept. Chairman Marco J. Castaldi on the advising of the final capstone Design I and II projects is something he finds immensely enjoyable. In addition to process design, he teaches students financial planning, time management and project leadership, and helps students with career planning and practical knowledge, including resume preparation. He is currently helping the Department to enhance its student recruitment and its web presence by applying marketing concepts.

If you are interested in contacting Mark, he can be reached via LinkedIn (https://www.linkedin.com/in/mark-d-halperin-0a316427/) or e-mailed at: chemicalmark@yahoo.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 bequeath $_____or_____% of my estate to the Department of Chemical Engineering, CCNY, Steinman Hall, T322, 140th Street & Convent Avenue, New York, NY 10031."

☐ 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)

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Please donate online or 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

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