

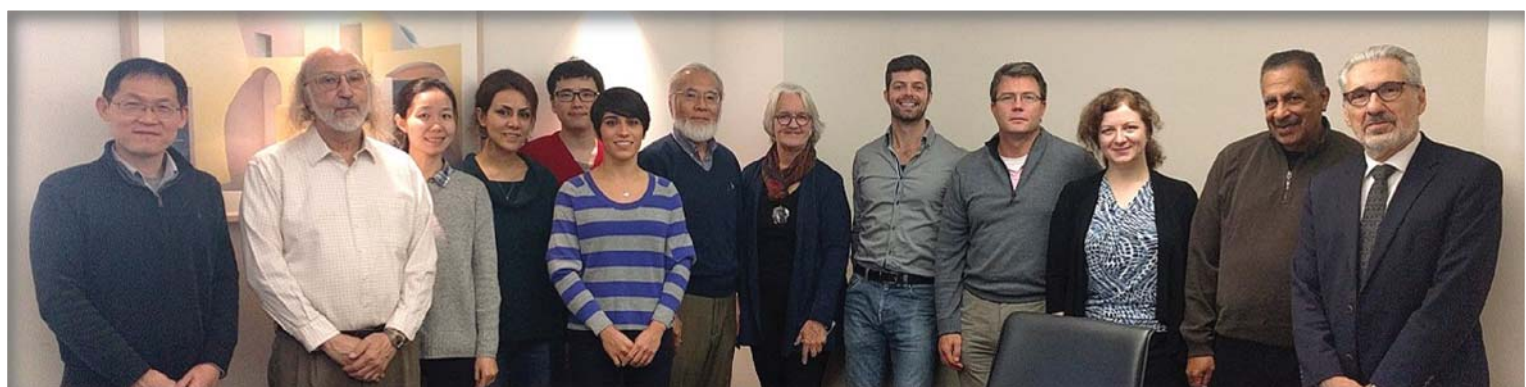
Shepard Hall and Quadrangle - City College of New York (CCNY) 1904

Chemical Engineering Newsletter

Grove School of Engineering at The City College of New York

03/2018

ChE Faculty in Collaboration with ME and Physics Win \$5.2M NSF PIRE Award



PIRE team members with visitor Berit Johne from the Research Council of Norway (center)

The National Science Foundation's (NSF) Partnerships for International Research and Education (PIRE) program awarded \$5.2M over five years to support the efforts of Chemical Engineering Faculty at CCNY in establishing a multidisciplinary, international team of researchers including a total of 11 partner institutions in France, Germany, and Norway. In a first of its kind research collaboration between the CUNY Energy Institute (www1.cuny.edu/sites/energy) and the renowned Benjamin Levich Institute for Physico-Chemical Hydrodynamics (www-levich.egr.cuny.cuny.edu), both of which are led by faculty from the Department of Chemical Engineering at City College, Chemical Engineering Profs. Sanjoy Banerjee, Rob Messinger, Jeff Morris, and Vincent Pauchard have teamed up with Profs. Masahiro Kawaji and Taehun Lee (both Mechanical Engineering) and Joel Koplik (Physics) to investigate microscopic phenomena occurring at interfaces and their impact on bulk fluid flow and transport properties toward advancement of diverse applications in oil & gas, thermal energy storage, and environmentally friendly refrigeration. The award provides research fellowships for students and travel support for international research exchanges.



Department website: www.cny.cuny.edu/chemeng



MESSAGE FROM THE CHAIR



Prof. Ilona Kretzschmar, Chair

Dear Alumni and Friends of the Department,

It is time again for an update from the Department. Time moves fast when you are having fun! I hope all of you had a good start into 2018 and that this newsletter finds you in good health and high spirit. I bet you did not expect to hear from us so soon again, but we are committed to getting in touch with you, hearing back from you, and engaging you. A portion of the Newsletter Vol. 1 Issue 2 is dedicated to celebrating seven of our alumni, who are Members of the National Academy of Engineering. In addition, we are expressing our gratitude to one of our alumni, who has made the first ChE Department endowment possible. Our student organizations continue to engage alumni through the alumni nights, an event series founded by Evgeniya Rubin (BE ChE '14), and provide professional networking opportunities to our undergraduate students. Last but not least, the newsletter highlights graduate student and faculty achievements from the past Fall 2017 semester.

I am glad to report that the Department continues to thrive. We passed our ABET accreditation with flying colors, i.e., we have been accredited for six years – see you ABET 2023! Our research expenditures for FY 17, provided through external funding, amount to \$2.7M and keep growing thanks to the hard work of students and faculty in the department.

For example, as you read on the previous page, a group of our Chemical Engineering faculty has successfully partnered with faculty from Mechanical Engineering and Physics on a \$5.2M PIRE grant from the National Science Foundation that will connect CCNY to 11 international partner institutions providing

ample opportunity for student and faculty exchanges. Prof. Alexander Couzis has rejoined us after a five year leave of absence and Prof. Vincent Pauchard has returned to France to be reunited with his family. The college has a new president, Dr. Vincent Boudreau. President Boudreau is one of our own and moved into the position after serving as the inaugural Dean of the Colin Powell School for Civic and Global Leadership. He has a difficult time ahead of him due to a tight budget situation, but brings a lot of enthusiasm to the position.



A surprised Prof. Gaby Tardos



Nalla and Gaby Tardos

The Department celebrated the retirements of Zhenrong Xu and Prof. Gabriel Tardos this past Fall semester. We certainly managed to surprise Prof. Tardos with a retirement party that he did not expect. We brought many of his former graduate students, collaborators from industry, and his family to CCNY. We wish both of our retirees the best of health and many more happy years of retirement. Last but not least, Nick Cromie, our academic advising manager for undergraduate and graduate students, is now the proud father of a sweet, little baby girl.

In closing, I hope you will enjoy this update and I look forward to hearing from you!



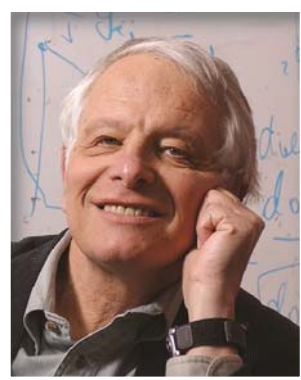
Bryan Ennis (ChE PhD '90), Irfan Khan (ChE PhD '98), Junan Kao (ChE PhD '87), Prof. Tardos, Mehrdad Kheiripur (ChE PhD '11), Peter Compo (ChE PhD '89), and Dominick Mazzone (ChE ME '81 PhD '86)

- Ilona Kretzschmar

HIGHLIGHTING CCNY CHE NAE MEMBERS



NATIONAL ACADEMY
OF ENGINEERING



George Nemhauser
ChE BE '58



Stan Sandler
ChE BE '62



Arnold Stancell
ChE BE '58



Martin Sherwin
ChE BE '60 PhD '67



Fred Krambeck
ChE BE '63 PhD '68



Amos Avidan
ChE PhD '80



Gabe Tzeghai
ChE PhD '84

Election to National Academy of Engineering (NAE) membership is one of the highest professional honors accorded an engineer. Members have distinguished themselves in business and academic management, in technical positions, as university faculty, and as leaders in government and private engineering organizations. Members are elected to NAE membership by their peers (current NAE members).

<https://www.nae.edu/MembersSection.aspx>

Election Citations:

George L. Nemhauser, 1986: For fundamental operations-research contributions in scheduling methodology, and for contributions to large-scale combinatorial optimization problems.

Stanley I. Sandler, 1996: For new applications of thermodynamics for chemical process design and for chemical engineering education.

Arnold F. Stancell, 1997: For petrochemical research and development and management of oil and gas resources.

Martin B. Sherwin, 1998: For technical leadership in the development of artificial organs, environmentally friendly insecticides, gas-separation membranes, and important petrochemical processes.

Fredrick J. Krambeck, 1999: For advancing the theory of complex reacting mixtures, and applying chemical reaction engineering principles to the design of commercial processes.

Amos A. Avidan, 2009: For contributions to the understanding, scale-up, and commercialization of fluid-bed reactors, liquefied natural gas facilities, and gasification plants.

Ghebre E. Tzeghai, 2014: For contributions to world health through the development and commercialization of dental care and personal hygiene products.

More information about our NAE members can be found at www.ccny.cuny.edu/chemeng/alumni. Congratulations! The Department of Chemical Engineering at The City College of New York is very proud to claim you as its alumni!

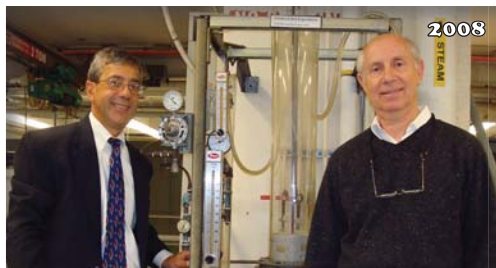
ALUMNI NEWS

Dominick N. Mazzone (ChE ME '81 PhD '86) Lectureship in honor of Prof. G. I. Tardos

It all started with Prof. Tardos' retirement party on December 8th, 2017. After too many years away since graduating in 1986 and only one visit in 2008 for Prof. Shinnar's 85 birthday celebration, **Dr. Dominick Mazzone** stepped back onto the campus of his alma matter, The City College of New York. He was delighted to see and reconnect with many of the PhD students, who graduated from Prof. Tardos' group. Even more, he enjoyed the look of surprise on his doctoral advisor's face when Prof. Tardos walked into the lecture hall and realized that colleagues, former students, friends, and family had come together to celebrate a long and distinguished career. In preparation of the visit, Dominick and his wife Connie sorted through old photographs and found one from 1984 showing him with a young Prof. Tardos. It reminded Dominick of his own modest beginnings as an immigrant from Southern Italy. It brought back memories of Connie and Dominick's cramped Brooklyn living quarters in his parents' basement apartment, while in graduate school. During the visit, Dominick had a chance to stop by the Powder Science and Technology (PST) Laboratory, in which he completed his doctoral thesis, co-authoring six papers with Prof. Tardos along the way. Earning his PhD helped start his exceptional professional career with technical leadership positions at Mobil, Exxon Mobil, and most recently Bechtel, while also obtaining an MBA and receiving 33 US Patents. It was in the PST Laboratory that the conversation turned toward the future and more specifically the legacy of Prof. Tardos' unique Powder Science and Technology course and Dominick decided to act.



**Dominick and Connie Mazzone
at the Melk Abby in Austria**



Prof. Gabriel Tardos and Dr. Dominick Mazzone

The Dominick N. Mazzone Lectureship created in honor of Prof. Tardos, will fund in perpetuity a semester-long lectureship position annually in the Department of Chemical Engineering. The lectureship position will enable the awardee to teach the CHE 45200 Powder Science and Technology elective course first developed by Prof. Tardos in 1993, one of the 1st in the Nation in ChE. The course provides students with knowledge about the characterization of particles and particle assemblies, packing of granular solids, inter-particle forces, and tribology in particulate systems. It introduces them to powder mechanics and the design of hoppers and will allow them to stay abreast of recent developments in the field. Some examples of bulk powder processing and powder testing covered by the course are storage of powders in hoppers and introduction to powder flow and the Jenike cell, respectively.

Sandeep D. Kulkarni (ChE PhD '10) honored by Halliburton



Dr. Sandeep D. Kulkarni presently works as a Principal Technical Professional at Halliburton Energy Services (an upstream oil & gas service company) in Houston, TX. Dr. Kulkarni completed his PhD in Chemical Engineering from the Levich Institute in 2010 under supervision of Prof. Jeffrey F. Morris. Dr. Kulkarni joined Halliburton after graduating from CCNY. In 2017, Dr. Kulkarni was recognized by the Halliburton drilling fluids' division as one of the top three inventors. The criteria for the award were contributions toward the intellectual property and commercial value of patents granted in 2015 & 2016. Dr. Kulkarni was granted eight patents in 2015/2016 in the area of drilling and completion fluids' modeling for the wellbore drilling application. His modeling research involved fluids' rheology, transient wellbore hydraulics, particulate and cuttings transport and sedimentation in the wellbore. Dr. Kulkarni contributed toward securing the intellectual property and developing several technologies in these areas from conception to the field implementation. More about his research can be found at: <https://scholar.google.com/citations?user=4Yell1EAAA&hl=en>.



STUDENT ORGANIZATIONS UPDATE

CCNY Chemists' Club



CCNY Chemists' Club members visiting the BASF R&D Innovation Center in Tarrytown, NY

to the CCNY campus for a recruitment event. A dozen Brenntag employees of various levels provided information about work and employment at the company. In September, the BASF R&D Hub at Tarrytown, NY hosted a tour for The Chemists' Club. Students interacted with BASF scientists at their laboratories, as well as had a Q&A and networking sessions with HR and scientific personnel at the end of the tour. In October, several CCNY chemical engineering students met and conversed with Kurt Bock, Chairman of the Board of Executive Directors of BASF SE, at the Kavalier Award dinner. The Kavalier Award dinner honored Bock for his outstanding achievements. With a successful 2017, the CCNY Chemists' Club will be planning more events in 2018. There will be a tour at an Ashland facility, the 2018 Bonding Conference on diversity, a career panel with industry representatives, Excel workshops to improve students' marketability, and more! For more information regarding the CCNY Chemists' Club, please, email the club at CCNYChemistsClub@gmail.com.

AIChE & OXE Alumni Night



Noani Propst (ChE BE '07) & Rayna Stern (ChE BE '14) (front center) with Alumni Night attendees

the Biomedical and Pharmaceutical Industries, where Donald Mitchell (ChE BE '16) and Oneil Reid (ChE BE '08) discussed their current roles in their positions at Pfizer and Merck, respectively. In November, Noani Propst (ChE BE '07) and Rayna Stern (ChE BE '14) gave insight into their positions and their individual journeys in consulting. Most recently, students heard from former AIChE President, Miyan Nagib (ChE BE '17) and former OXE President, Dane Fearon (ChE BE '17) sharing their experiences on the transition from school to industry. We look forward to hosting Evgeniya Rubin (ChE BE '14) and Jannatul Ferdaous (ChE BE '16) for a Women In Engineering themed Alumni Night on International Women's Day (March 8th).

The CCNY Chemists' Club is a student chapter of The Chemists' Club, a non-profit professional organization that promotes and engages the chemical industry. As a student chapter, the CCNY Chemists' Club aims to bridge the gap between academia and industry in chemical and chemical engineering fields. It provides networking opportunities for members to mix and meet with industry professionals in the chemical, pharmaceuticals, consumer products, oil and gas industries, and more.

In February 2017, several CCNY students attended the Bond Conference co-hosted by The Chemists' Club and UNESCO. In addition to attending the sustainability panel with UNESCO scientists and sustainability professionals, students presented posters of their personal interests and achievements to the attending professionals at the Reverse Job Fair. In March, Brenntag North America, a major chemical distributor, came

Alumni Night is an event, where alumni of our chemical engineering program are invited back to speak to graduate and undergraduate students about their experiences post-graduation. Many of the alumni describe how they used their knowledge and skill set gained at CCNY in their everyday lives. They advise students on the job search, the transition to life in the industry, and the furthering of their education. Alumni Night allows students to network and develop relations with the speakers. These events are sponsored by our chapters of AIChE and Omega Chi Epsilon (OXE), as well as the Department. Every three weeks Alumni Night is held in our Department's new student design space, allowing students and faculty to hear from alumni working in a specific industry. To start off the Fall 2017 semester, Dimitri Foster (ChE BE '16) and Saurabh Parikh (ChE BE '11) discussed the Chemical Industry. Our October theme were

2017/2018 Alumni Night Line up

09/28/17	Chemical Industry Dimitri Foster - Brenttagg/Military (Navy Nuclear School) Saurabh Parikh - Scientific Design	02/15/18	Former AIChE and OXE Presidents Miyan Nagib - Pfizer Dane Fearon - Corning
10/19/17	Biomedical and Pharmaceutical Industry Donald Mitchell - Pfizer Oneil Reid - Merck	03/08/18	International Women's Day - Women in Engineering Jannatul Ferdaous - Sun Chemical Evgeniya Rubin - Accenture
11/16/17	Utility and Transportation Industry Noani Propst - Enercon Services Rayna Stern - Environmental Resources Management	04/12/18	Cosmetics Industry TBD TBD

DOCTORAL STUDENT HIGHLIGHTS



Tasnuva Moutushi won the Floyd Hasselriis Award offered by the American Society of Mechanical Engineers (ASME) Materials and Energy Recovery (MER) Division in Fall 2017. The ASME MER program offers awards to students for their research work in solid waste management to stimulate interest in the field. Tasnuva is a 2nd year PhD student at CCNY in the research group of Prof. Marco J. Castaldi in the

Combustion and Catalysis Laboratory. She is originally from Bangladesh, and she completed her B.E. in Chemical and Molecular Engineering at Stony Brook University in New York. Her research focuses on characterization of ash residue from waste to energy processes and pursuing beneficial use of the ash residue after metal recovery. She is also working on a project using synthetic MSW to demonstrate thermal pyrolytic reactions at conditions similar to landfill sites.



Adeyinka (Yinka) Lesi has been awarded a scholarship from the CCNY Rise Program, an NIH funded project intended to support members of underrepresented groups conducting biomedical research. He is a 4th year PhD student and a techno-optimist, a believer in using code to address our most difficult problems. This principle motivates his research with Prof. David Rumschitzki at CCNY, which

involves developing a mathematical model for cancer growth. To validate the model, he conducts experiments with melano-afflicted zebra-fish in collaboration with Dr. Richard White at the Memorial Sloan Kettering (MSK) Cancer Center. This work is funded by the CCNY-MSK Partnership for Cancer Research. Yinka, a native of Madison, Wisconsin, presented this research at the AIChE annual meeting in 2017.



Alexandros Karaiskakis won the Physical and Analytical Electrochemistry Division of The Electrochemical Society Travel Award to attend the Electrochemical Society Meeting in National Harbor, Maryland during Fall 2017. Alexandros presented on the “Controllable Product Selectivity on Polycrystalline Cu through Tunable Surface Morphology” and the “Evaluation of Morphology Related

Factors that Influence the Product Selectivity on Polycrystalline Cu in CO₂ electroreduction”. He also received the 4th place Poster Award from the Catalysis Society of Metropolitan New York at the ExxonMobil Research and Engineering Center in Clinton, New Jersey in March 2017 for his research. Originally from Greece, Alexandros is a 5th year Ph.D. student working with Prof. Elizabeth Biddinger. His research is focused on the evaluation of the main catalytic factor that influences the product selectivity in the CO₂ electroreduction process. CO₂ electroreduction is a sustainable process if combined with renewables that can deliver carbon neutral chemicals and fuels.



Ellen Knapp was awarded the Corning Inc. Office of STEM Graduate Research Scholarship. As such, Corning assigned a Corning Scientist as a mentor, who will advise her on research and professional development, and has offered Ellen an internship at their R, D & E facility in Corning, NY for the summer of 2018. Ellen was born and raised in Tappan, NY just north of New York City. She received her B.S. in Chemical

Engineering in 2013 from Villanova University in Pennsylvania and came to City College in the Fall of 2013. Ellen is a 4th year PhD student co-advised by Prof. Ilona Kretzschmar and Prof. Raymond Tu. Her proposal to Corning, “Rapid and Reversible Synthesis of Ordered Colloidal Patterns on Glass Surfaces: A Route to Films with Tunable Optical Properties,” relates to bio-inspired design of films. The research focuses on using the combined phase behavior of polypeptides and Janus particles at an air-water interface to achieve patterning that yields structural color. After graduating, she hopes to find a position in industry working in the field of material science.

FACULTY NEWS AND ACHIEVEMENTS



Rosemarie D. Wesson
Associate Dean for Research

Through its varied programs, the American Institute of Chemical Engineers (AIChE) is a focal point for information exchange on the frontier of chemical engineering research. In their latest pioneering move, AIChE members have elected **Prof. Rosemarie D. Wesson**, who also serves as the Grove School of Engineering's (GSOE's) Associate Dean for Research, the organization's first ever female treasurer. She began her three-year term as AIChE Treasurer in 2018. Prof. Wesson previously served AIChE in several senior positions. She sat on the Board of Directors from 2012 to 2015, was elected AIChE Fellow in 2014, and has been a Trustee of the AIChE Foundation since 2015. Prof. Wesson also chaired AIChE's Washington Internships for Students in Engineering, between 2010 and 2015. AIChE has honored Prof. Wesson for her contributions with its MAC (Minority Affairs Committee) Eminent Chemical Engineers Award (2014) and Achievers in Chemical Engineering accolade (2010). Now, with this history-making appointment, AIChE has once again recognized Prof. Wesson's unwavering commitment to excellence in the field of chemical engineering.

Prof. Alexander Couzis, after a five year leave of absence, has returned to teaching and conducting research in the department. In 2013, Urban Electric Power (www.ue-pinc.com) was formed from licensed technology developed at the City University of New York (CUNY) Energy Institute, which is housed within the Department of Chemical Engineering. Urban Electric Power (UEP) is a New York based technology start-up commercializing a breakthrough zinc manganese dioxide rechargeable battery technology for stationary energy storage applications. The founder of UEP, Prof. Sanjoy Banerjee is the director of the CUNY Energy Institute, a Distinguished Professor in Chemical Engineering, and the principal investigator of the ARPA-e grant that led the technology development. Prof. Couzis, who at the time was the department chair, went on leave from the school to serve as the chief technology officer in this new start-up. As the CTO of UEP, he had the responsibility of adapting the technology from the lab scale to commercial scale and developing the full-scale manufacturing process. As UEP is moving to its more commercial phase, Prof. Couzis has decided to return to the City College and teach and conduct research. Much of the experience gathered from the unique endeavor is already trickling into the classroom as Prof. Couzis resumes teaching the introductory thermodynamics course.



Alexander Couzis
Professor



Xi Chen
Assistant Professor

Prof. Xi Chen, an assistant professor in the Department of Chemical Engineering at The City College of New York and a member of the ASRC Nanoscience Initiative, participated in the 2017 Future Leaders Network and the Dialogue Between Future Leaders and Nobel Laureates. One of five researchers selected to represent the United States, he joined other outstanding young scientists from around the world to discuss his research and its impact on society. Founded in 2003, the conference aims to create a global network and provide a framework for open discussions that address ways to advance science and technology for the benefit of humankind. The conference gave Prof. Chen an opportunity to introduce his research and contribute to discussions with prominent members of the scientific, political, and business communities. "It's a great honor to be selected to participate in this year's STS forum," Prof. Chen says. "My research on renewable energy and other areas of nanotechnology can be applied to solve some of today's most pressing challenges. It was great to meet other top researchers at the conference and to share findings and discuss collaborative opportunities." More about his research can be found at: www.xchenlab.com.

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 the departmental seminar on technical and research topics (Monday 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



Evgeniya Rubin , ChE BE '14

Evgeniya has been actively involved in the GSOE Engineering Alumni Association. After graduating from CCNY in 2014, she started a career at Accenture as a Technology Analyst and most recently became an Artificial Intelligence Consultant. She is currently pursuing her MBA part-time at NYU. Over a year ago, Evgeniya started helping with our alumni efforts by initiating and attracting speakers for the ChE alumni nights. Since then, nine alumni nights have been held featuring 14 outstanding ChE alumni who have provided our students with insight into the various industries, professions, and life lessons they learned after graduating from CCNY.

If you are interested in participating in alumni night, Evgeniya can be reached through our alumni email address chealumni@ccny.cuny.edu, LinkedIn or through evgeniyarubin@gmail.com.

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Contribute

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

Name _____

Graduation Year & Degree from CCNY (if applicable) _____

Company _____

Address _____

City _____ State _____ Zip Code _____

Phone _____

Contact email _____

Signature _____ Date _____

\$ _____ towards Fund for Excellence

\$ _____ towards Undergraduate Student Activities

\$ _____ towards Graduate Student Development

_____ A Gift in Kind

- My employer makes matching gifts.

To leave a gift in your will, simply share this sentence with your attorney or financial planner:

"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: Department of Chemical Engineering (CCNY)

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

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

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