Three ChE Assistant Professors Win $1.76M in Federal Grants in Summer 2018

Profs. Elizabeth J. Biddinger, Robert J. Messinger, and Xi Chen, have been awarded a $750K Department of Energy (DOE) Early Career Award, a $450K Nuclear Regulatory Commission (NRC) Award, and a $558K Office Of Naval Research (ONR) Grant, respectively.

Prof. Biddinger is one of 84 recipients nationwide to receive the 2018 DOE Early Career Award. Her research focuses on the emerging field of biomass electroreduction — processes that use electricity to transform organic substances into fuels and chemicals. The findings Prof. Biddinger will obtain from her DOE project will contribute to the development of small scale, on-site equipment, known as biomass upgrading depots.

Prof. Messinger was awarded one of 11 grants nationally by the Washington, D.C.-based NRC. Prof. Messinger will establish a nuclear safety research program at CCNY’s Grove School of Engineering aimed at significantly improving the emergency electrical power systems of nuclear power plants. His overarching research objective will be to mitigate core damage frequency and core meltdown risks during station blackout and extended-loss-of-alternating-current-power events, during which back-up power is essential to ensure core cooling and operation of critical shutdown procedures and instrumentation.

Prof. Chen has been awarded a grant from ONR to explore and develop water-responsive materials for evaporation-energy harvesting techniques that his team has pioneered. Prof. Chen’s research project will focus on gaining a fundamental understanding of how water-responsive materials react through studies on nanoscale levels. Understanding the scientific reasons for how these materials respond to water or humidity levels will lay the foundation for developing new hybrid and synthetic materials with potentially broad applications for underwater robotics, artificial muscles and their evaporation energy harvesting techniques.
Dear Alumni and Friends of the Department,

Welcome back to the Fall 2018 semester! I hope this newsletter finds you well. The semester has started off in its usual hectic fashion with last minute registrations, room changes and scheduling after a nice summer break. How have your Spring and Summer been? We would love to hear back from you about new positions, recognitions you received, and fun you have had. Do you have new ideas about engaging with your Alma Mater? Please, let us know! The Newsletter Vol 2 Issue 1 mentions an upcoming celebration. The Grove School of Engineering is turning 100 years old in 2019! What a great opportunity to meet, reconnect, and talk about the good old times! We are in the midst of planning events for 2019-2020 - stay tuned. Already, one of our alumni has come up with a matching challenge for you. Will you step up to the plate? A number of our junior and senior students have participated in internships this summer. Many of these opportunities were realized through the help of our alumni. For example, Saurabh Parikh (ChE BE '07) has been engaged with our students coaching them through interview processes. The newsletter highlights a few of our graduate student achievements from the Spring 2018 semester and also brings to you a brief update from many of our faculty including the courses they taught in F2018 and their research interests.

I am delighted to report that our students and faculty continue to thrive! We graduated 35, 4, and 5 students with BE, MS, and PhD degrees in Chemical Engineering, respectively, in the 2017/2018 academic year. We had another insightful round of feedback from our EAB. Congratulations to Prof. Levi Thompson (EAB) on accepting the Dean of Engineering position at U Delaware. Our graduate students organized their 1st ChE field day. The Chem-E-Car team (pictured above) is again competing at the 2018 national meeting with ZINCOTRON after winning regionals for the 3rd time in a row. The team in collaboration with our AIChE chapter has organized and continues to organize fundraising events to enable the team and additional undergraduate students to attend the 2018 AIChE annual meeting in Pittsburgh. Interested in supporting them? Please, let us know! We will have our annual AIChE dessert reception on October 29th, 2018 from 8-10 PM at the Westin Convention Center (Burlter West Room). Stop by and catch up with our faculty and students!

As announced on page one, our three junior faculty members, Profs. Biddinger, Messinger, and Chen, have brought in $1.76M in research funding alone to the Department. Their grants will support graduate student research in the fields of biomass, batteries and energy harvesting. Prof. Castaldi has been elected as a Fellow to AIChE. He will receive the medal at the 2018 AIChE Fellow’s Award Breakfast. Further, Prof. Castaldi has been selected as one of the 12 MICE (Meetings, Incentives, Conventions, Exhibitions) Ambassadors by the Governor of Gangwon Province, Korea (pictured left). GSOE Dean Gilda Barabino, a trained chemical engineer and a ChE Department affiliate faculty (pictured right), has set a new record for GSOE by earning two national awards for her excellence in Chemical Engineering, STEM teaching, and mentoring; 1) the Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring presented by the White House Office of Science and Technology Policy and the National Science Foundation and, 2) the Dr. Joseph N. Cannon Award for Excellence in Chemical Engineering presented by the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers.

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

- Ilona Kretzschmar
Peter, you have recently become re-engaged with CCNY as an alumnus. Let’s take the opportunity to get to know you again!

Tell us a little about your experiences while you were at CCNY!

After spending time in community college and getting a BA in biology from SUNY Purchase, I came to CCNY in 1981 to get a MS degree. I came from a musical family and didn’t really know what engineering was, but I had a girlfriend who was a ChE and it sounded cool, so I thought I would give it a try. A year or two later when I was taking Unit Ops with Prof. Tardos, he asked if I would like to try for a PhD, and that sounded cool, too, so I went for it. I’m indebted to him and Prof. Pfeffer for giving me the opportunity. And I’m indebted to Dominick Mazzone (ChE ME ’84, PhD ’86) for showing me the ropes and putting up with me.

What was your research?

I studied agglomeration in fluidized beds due to high-temperature softening of particle surfaces. I enjoyed the research and I enjoyed the years I spent at CCNY enormously. I was also lucky to be there with a wonderful group of talented PhD students, who went on to do good things, and many of whom I am still in touch with and happy to call my friends, some close friends.

What have you done since?

In 1988, I got a job with DuPont in Delaware, working in the titanium dioxide business. They had a 30-foot diameter high-temperature fluidized bed! I didn’t stay in technology, however, and had a diverse career in marketing, supply-chain, product management, planning and running various businesses. In 2013, I left DuPont to write a book on the theory of complex adaptive systems and the practice of strategy and innovation. It was going to take a year, and I’m positive I will finish the draft by early 2019.

What gave you the idea to write a book?

I had always been interested in how creativity and innovation occurred, and it was actually when I was at CCNY that I started to see it as an adaptive mechanism like biological evolution. A mechanism where instead of people imagining brilliant ideas in magical eureka moments, brilliant ideas were the fittest survivors after all the weaker ideas were destroyed. Eureka came at the end, not the beginning. Surprisingly, our agglomerating fluidized beds were an inspiration for this adaptive theory. The growth and nature of agglomerates is determined by the destruction of the weaker agglomerate configurations, leaving the fittest to survive.

You recently created a Matching Gift Challenge in honor of the School’s 100th Anniversary that will match dollar for dollar donations received before January 31, 2019 in support of the ChE Department. What led you to take this step?

When several of us attended Prof. Tardos’ retirement party last December, it woke me up to the lack of connection with the school. Truth is, I was a little angry at myself and at the school for not demanding a connection. Anyway, I decided to get involved and and established the 100th Anniversary Matching Challenge*, just as Dominick had in a big way as reported in the March’18 Newsletter. There are also other alumni who are getting more involved. Hopefully people will hear more about this.

What recommendations do you have for other alumni who are interested in getting involved?

First, donate before January 31, 2019 to double your contribution (maybe triple or even more if your company matches grants). And then, contact Ilona, or anyone in the department to ask how you can bring your experience and expertise to the school. It’s not just money that’s needed. CCNY is making a big push to connect with alumni, let’s help them make it happen.

* More information on Peter’s Matching Challenge at: https://www.ccny.cuny.edu/chemeng/petes-100th-anniversary-matching-challenge

Grove School of Engineering - 100th Anniversary - 1919-2019

The School of Technology (SOT) was founded in 1919 and initially included four disciplines: Chemical, Civil, Electrical and Mechanical Engineering. In 1961, SOT also began offering an Architecture degree, which led to renaming of SOT into School of Engineering and Architecture (SOEA) in 1962. Architecture split from SOEA in 1968 and SOE added Computer Science. In 2002, Biomedical Engineering was added as the sixth department to SOE. Andrew Grove (ChE BE ’60) donated $26M to the SOE in 2005, leading to SOE receiving its current name: The Grove School of Engineering.

For updates for the 100th Anniversary Events, please, visit: https://www.ccny.cuny.edu/chemeng/GSOE-100-anni
Prof. Anuj Chauhan has joined the Colorado School of Mines as Head of the Department of Chemical Engineering. Prof. Chauhan holds a BE degree from the Indian Institute of Technology in Delhi. He received his PhD degree under the supervision of Profs. Charles Maldarelli and David Rumschitzki from the Department of Chemical Engineering at CCNY. After a postdoc at the University of California, Berkeley he joined the University of Florida, where he achieved the rank of professor in the Department of Chemical Engineering in 2011 and served as associate chair from 2013 to 2018. Prof. Chauhan’s research is in the area of fundamental transport and interfacial phenomena with special emphasis on problems that have application in ophthalmology such as ophthalmic drug delivery, designing lubricious contact lenses, modeling ocular physiology, developing preservative free multi-dose eye-drops, and understanding tear film drainage and breakage. His work on ophthalmic drug delivery via contact lenses was named one of the Medical Breakthroughs of the Year by Readers Digest in 2004 and received media coverage in many countries. We congratulate Prof. Chauhan on his new position at the Colorado School of Mines!

More information on Prof. Chauhan can be found at: https://chemeng.mines.edu/project/anuj-chauhan

Israel E. Wachs (ChE BE ’73) awarded Fulbright Senior Scholar Fellowship

Prof. Israel E. Wachs, the G. Whitney Snyder Professor of Chemical and Biomolecular Engineering at Lehigh University, was recently awarded an impressive second Fulbright Senior Scholar Fellowship of his career. For the most recent award, Prof. Wachs will study at the Technion-Israel Institute of Technology in Haifa, Israel this academic year. He will utilize his world-recognized expertise in heterogeneous catalysis and operando spectroscopic characterization of catalytic reactions and materials at Technion to investigate energy-related research topics. Prof. Wachs holds a BE from CCNY (1973), and a MS and PhD (1978) from Stanford University, all in chemical engineering. Prior to joining Lehigh University in 1987, Prof. Wachs was a researcher at Exxon Research & Engineering. Beyond the most recent Fulbright, Prof. Wachs has been recognized for his research including the 2016 R.H. Wilhelm Award in Chemical Reaction Engineering and the 2003 Catalysis and Reaction Engineering Practice Award, both from AIChE; the 2008 George A. Olah Award for achievements in hydrocarbon and petroleum chemistry from the American Chemical Society; the 2001 Clean Air Excellence Award from the US EPA; the 2012 Alexander von Humboldt Award from AvH Foundation-Germany; and his first Fulbright Award in 2005 for study in Argentina; among many others. Prof. Wachs has published more than 300 papers and holds more than three dozen patents, resulting in more than 30,000 citations and an H-index of greater than 100. We congratulate Prof. Wachs on his Fulbright and many other great honors! More information on Prof. Wachs can be found at: https://www.lehigh.edu/engineering/faculty/profiles/wachs.html

George Nemhauser (ChE BE ’58) honored by CCNY Engineering Alumni Association

On May 10th, 2018, Prof. George L. Nemhauser, the Russell Chandler Professor at Georgia Tech, accepted the Career Achievement Award from the GSOE Engineering Alumni Association during the association’s Awards Dinner and Annual Meeting in recognition of his many years of teaching and research. After graduating from CCNY in 1958 with a ChE BE degree, Prof. Nemhauser went on to earn MS and PhD degrees from Northwestern University. Thereafter, he joined the faculty of Johns Hopkins University where he served until 1970. Following that, he was appointed as Professor of Operations Research and Industrial Engineering at Cornell University. In 1985, he joined Georgia Tech, and was elected to the National Academy of Engineering (NAE) in 1986 for his fundamental operations-research contributions in scheduling methodology, and for contributions to large-scale combinatorial optimization problems. He was appointed Institute Professor at Georgia Tech in 1991. Prof. Nemhauser’s principal research interests are in the area of Discrete Optimization. He has held visiting faculty positions in the United Kingdom, Belgium, and Australia, authored three textbooks, and supervised more than 60 doctoral dissertations. We congratulate Prof. Nemhauser on the recognition of his career achievements!

More information on Prof. Nemhauser can be found at: https://www.isye.gatech.edu/users/george-nemhauser

Anuj Chauhan (ChE PhD ’98) becomes Department Head (ChE) at Colorado School of Mines

Prof. Anuj Chauhan has joined the Colorado School of Mines as Head of the Department of Chemical Engineering. Prof. Chauhan holds a BE degree from the Indian Institute of Technology in Delhi. He received his PhD degree under the supervision of Profs. Charles Maldarelli and David Rumschitzki from the Department of Chemical Engineering at CCNY. After a postdoc at the University of California, Berkeley he joined the University of Florida, where he achieved the rank of professor in the Department of Chemical Engineering in 2011 and served as associate chair from 2013 to 2018. Prof. Chauhan’s research is in the area of fundamental transport and interfacial phenomena with special emphasis on problems that have application in ophthalmology such as ophthalmic drug delivery, designing lubricious contact lenses, modeling ocular physiology, developing preservative free multi-dose eye-drops, and understanding tear film drainage and breakage. His work on ophthalmic drug delivery via contact lenses was named one of the Medical Breakthroughs of the Year by Readers Digest in 2004 and received media coverage in many countries. We congratulate Prof. Chauhan on his new position at the Colorado School of Mines!

More information on Prof. Chauhan can be found at: https://chemeng.mines.edu/project/anuj-chauhan
Sitting in Steinman Hall 312 for a CCNY ChE Alumni Night in my sophomore year, I never imagined that the speaker that I would soon cross paths with would drastically change my outlook on my undergraduate career, educational path, and career goals. Over my sophomore and junior year, I made it priority to attend as many Alumni Nights as possible, even for industries I never envisioned myself being interested in. My mind was dead set on a career path in research and development for a pharmaceutical company and I was possibly looking towards graduate school for my PhD. However, listening to Saurabh Parikh (ChE BE ’07) from Scientific Design speak about his experiences climbing into reactors and visiting chemical plants he took part in designing, got me thinking that there is more to chemical engineering that needs to be explored. After hearing Saurabh speak for a second time during the fall of my junior year, I knew my interest wasn’t only in R&D anymore; but possibly leaning towards engineering in industry. I connected with Saurabh hoping to get some more headway on my thoughts and career plans. Within a few weeks, I had obtained an interview at Scientific Design and was later offered an eleven week internship in the Engineering department. In the first few weeks, I was challenged to learn to code some real-life Excel applications in VBA. My next project allowed me to participate in the expansion of a pilot plant. I saw first-hand how a plant is designed within budget constraints, the importance of safety by participating in a HAZOP, and the types of documentation that are necessary. I was also able to interact with very knowledgeable senior engineers (many of whom are CCNY alumni) and participate in meetings with vendors. With my very first pair of steel-toed work boots and hard hat on, and a set of P&IDs in my hand, I collaborated with plant operators who walked me through the plant day after day - chasing lines and leading a treasure hunt of valves, towers, and exchangers lined up from one end of the plant to the other. Seeing these units that I had only seen before as boxes in a Unit Ops. or Thermodynamics textbook come to life was something super exciting that I never imagined myself being interested in just two years ago. However, this internship has helped shaped my outlook and helped me decide to go into industry instead of graduate school. In just a few months, I was able to gain basic design experience, learn how to walk a plant, read P&IDs, see how process controls are implemented, learn firsthand how vast of a tool Excel is, and appreciate the importance of safety and teamwork. Every day came with a new problem and challenge to solve. I definitely learnt some valuable life lessons from my internship and was able to link material learned in the classroom to real life industry, while meeting new colleagues that I hope to cross paths with soon. The hour or two of my time at the Alumni Night surely changed and shaped my vision for the future.

Ways CCNY ChE students have obtained internships:

Alumni Night: For the past two years, the department has invited ChE alumni to speak to our students about their experiences transitioning into their roles in industry and their typical day-to-day responsibilities. These events with ChE alumni have led our students to make connections leading to internships.

Conferences/Networking Events: Undergraduate students of our department participate as members and executive board leaders for national organizations such as the Society of Women Engineers (SWE), the Society of Hispanic Professional Engineers (SHPE), the National Society of Black Engineers (NSBE), and the American Institute of Chemical Engineers (AIChE), as well as local organizations such as The Chemists’s Club. The career fairs at each organization’s national conference and other networking events have helped our students get in touch with recruiters and acquire both internships and full-time positions.

Workshops/Fellowships: Some of our students have been matched to internships after being accepted into professional development programs. These programs have allowed them to gain important skills needed for industry to prepare for their roles as interns.

Online Applications: Our students have also had some success with finding internships through online applications, however, often they have to send many applications to be successful with one.

Examples of companies at which CCNY ChE students have interned

- Apex Future Tech • BASF • Brenntag • Brooklyn Navy Yard Cogeneration L.P. • Chevron • ConEdison • Corning • Design 2 Build • DOW Chemical • Ecolab • Environmental Resources Management • Estee Lauder • ExxonMobil • ITAC • Lanxess • L’oreal • Johnson & Johnson • Mastercard • Merck • Mirimus, Inc. • Momentive Performance Materials • National Paints • Olin Corporation • PepsiCo • Pfizer • Rentricity, Inc. • Scientific Design Company, Inc. • Shell • United States Army Corps of Engineers • W.R. Grace & Co. •
**DOCTORAL STUDENT HIGHLIGHTS**

**Zohreh Jalilvand** was recently selected as the 2018 awardee of the National Association for Surface Finishing (NASF) scholarship, which is given annually to doctoral students with research of relevance in surface finishing across the globe. Zohreh is a 5th year PhD student who came to CCNY from Amirkabir University of Technology in Iran, where she completed her BS and MS degrees in Chemical Engineering. She works under the supervision of Professor Ilona Kretzschmar. The focus of Zohreh’s thesis research is to shed light on intricate hydrodynamic forces acting on patchy particles in the vicinity of various solid/liquid and liquid/liquid interfaces. Her work is a challenging combination of experimental investigation and computational modeling. For the latter, she collaborates with Professor Joel Koplik from the Levich Institute.

**Setareh Manafirasi** graduated in summer 2018. She joined CCNY following undergraduate studies in Chemical Engineering at the University of Tehran (Iran). Her doctoral study was with Professor Charles Maldarelli in the field of microfluidics. Setareh’s project involved a collaboration with Dr. Mohsen Yeganeh of ExxonMobil, on a project with the goal of in-situ measurement of electrical properties of particles and cells in a fluid. Setareh has published two papers from her thesis work. Following her defense, Setareh was offered an internship at a medical device startup company to develop a device to help physicians in prediction and detection of sepsis.

**Ankit Kanthe**, a 3rd year PhD student co-advised by Profs. Raymond Tu and Charles Maldarelli, was a recipient of the 2018 Faculty and Student Team Research Award at NSF’s ChemMatCARS (FaSTRAC) sector at the Advanced Photon Source (APS) at Argonne National Laboratory with Prof. Tu. He was awarded a one-month internship and four days of X-ray beam-time to study adsorption of antibodies at the surface of water. Ankit was born and raised in Mumbai, India. He received his BE in Chemical Engineering in 2016 from Institute of Chemical Technology, Mumbai, India and came to CCNY in the Fall of 2016. Ankit’s research is in collaboration with the Bristol-Myers Squibb Pharmaceutical Co., New Brunswick, NJ, and he is interested to continue in pharmaceuticals after his graduation.

**Jungeun Park**, a 1st year PhD student, was selected as the recipient of the 2018 Margaret C. Hauben Graduate fellowship. This $25,000 award was made possible by an endowment from Ms. Hauben, and is awarded based on the strength of each applicant’s previous academic record, faculty recommendations and research interests. Jungeun received her bachelor’s degree in Polymer Science and Engineering from Sungkyunkwan University in South Korea and worked as a research engineer in industry for seven years before returning to academia to complete a MS degree. Jungeun gained her MS degree in the Department of Chemical Engineering at CCNY in 2017, advised by Prof. Charles Maldarelli.

**Inaugural Annual ChE Field Day**

On May 17th, 2018, ChE had its very first Annual ChE Field Day organized by the ChE Grad Student Council (GSC) for undergraduate and graduate students, faculty, and staff from the ChE Department. The GCS designed activities and contests for both team building and friendly competition such as tug-of-war, whiffle ball, basketball and badminton games and a fierce three-legged race competition. There was plenty of food to keep the contestants happy. Overall, the event was a great success! The next GSC event will be on October 10th, 2018 in Morningside Park joined by students from Columbia University. Alumni are welcome!
Greetings to the CCNY ChE Alumni Community! It’s hard to believe I’ve been on the Faculty here for as long as I have. My own four children, none of whom were born when I started here, have all either graduated from or are halfway through college! Over my years here, I conducted research on novel polymer hydrogels and new drug delivery platforms, and have taught about 15 different courses at the undergraduate and graduate level. I recently volunteered to be an AIChE young faculty mentor, and have also been working with contacts at UN Women, with the goal of addressing gender-based considerations in technology and technology policy (you’d be amazed at how complex and far-reaching this issue is!).

I love to hear from friends and alumni – please email or stop in to say hello!  

Prof. Carol Steiner
**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 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.

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**Engage**

Saurabh Parikh has been an engaging speaker at our alumni nights and has helped the department with placement of students in internships and coaching them through interviews. Since graduating from CCNY with a Bachelor's in Chemical Engineering in 2007, Saurabh has worked at Scientific Design. He started his career as a process engineer designing new plants in the ethylene oxide and glycol industry. Next, as a technical services engineer, he was involved in several commissioning, grass root start-up and re-catalyzation projects around the world. He currently is a senior engineer in process development at Scientific Design working on several breakthrough technologies in the petrochemical industry. In his spare time, he pursues his MS ChE degree at the Stevens Institute of Technology and enjoys spending time with friends and family. Saurabh has been back to visit the department many times and is continuously engaged with students and faculty looking to help. If you are interested in getting in touch, Saurabh can be reached via LinkedIn (www.linkedin.com/in/saurabhparikh) or at sparikh@scidesign.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.

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Graduation Year & Degree from CCNY (if applicable)

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

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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

Any donations made to the department prior to 01/31/2019 will be matched by the 100th Anniversary Challenge.