Annual Report
2020-2021

Division of Science

The City College of New York

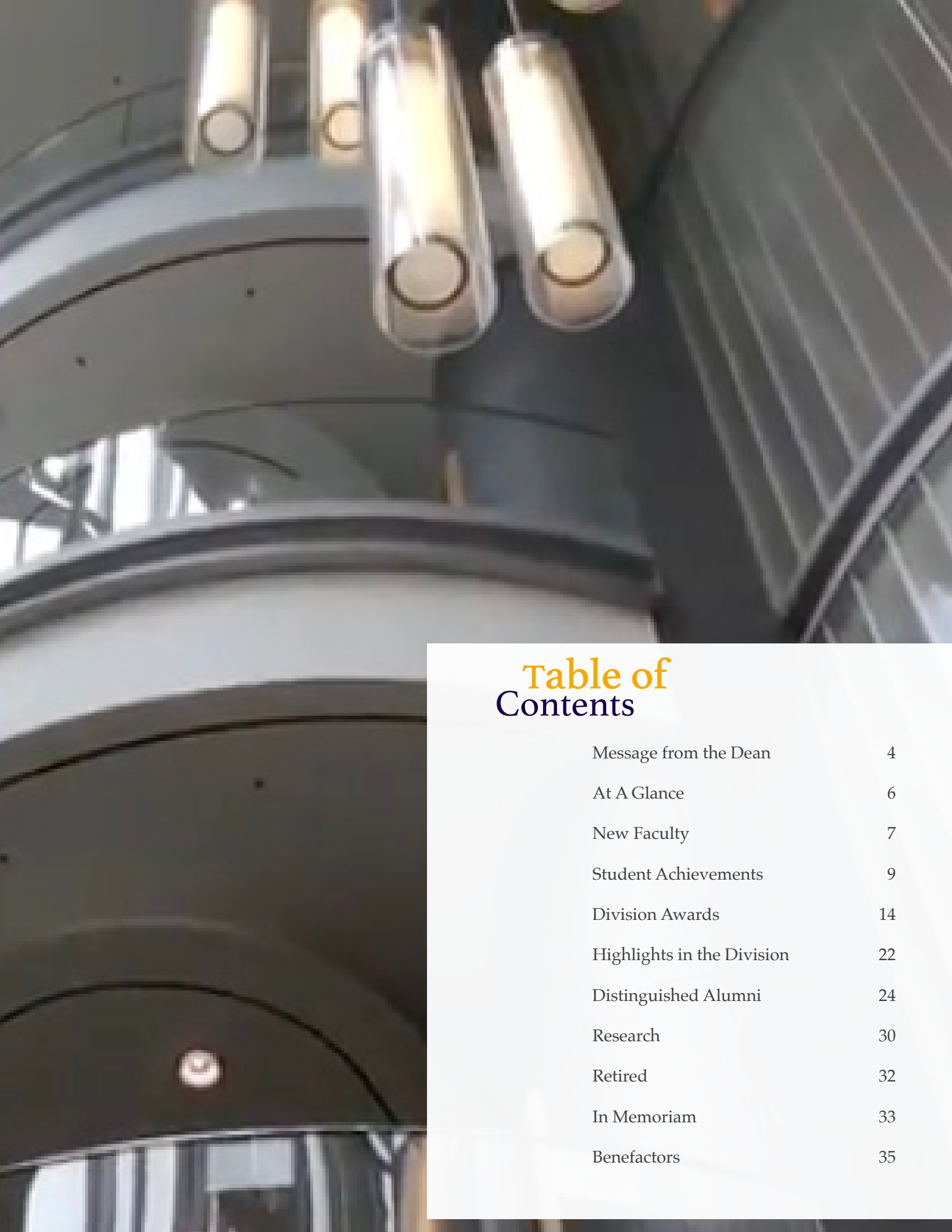

Table of Contents

Message from

The Dean of Science

Top (L-R): Susan Perkins, Dean of Science; Elizabeth Rudolph, Assistant Dean; Frank Pace, Procurement Officer. Center (L-R): Jason Redman, Special Projects Administrator; Millicent Roth, Deputy Dean of Science for Undergraduates; Daniel Fimiarz, Research Facility Manager. Bottom (L-R): Laurent Mars, Associate Dean; Cindy Gonzalez, Administrative Assistant; Michael Boydston-White, Science Facilities Manager

There's no way to soften it - the past year has been another one of extreme challenges. The global Covid-19 pandemic has continued on thoughout this whole year and shows no sign of imminent waning. The economic ripples from the pandemic have severely impacted our City and nation and the stress, grief and uncertainty have impacted our whole campus.

Yet, there are many bright spots from this past year and we should acknowledge those and celebrate them. In the coming pages, you'll hear much more about those successes and high points, including major new grants, exciting new research results, and awards to our faculty, staff, and students.

Once again, Commencement ceremonies were virtual, they were nonetheless monumental for all of us, especially for the more than 334 science graduates from this past year. We did our best with video tributes, recognitions and awards, and a community celebration that may have been distant, but was still decidedly social.

While our campus was very quiet this past year with most classes held online and offices largely working remotely, this time has also been one of increased connections in some ways, through our renewed efforts to connect with alumni and other supporters. One such way was the inauguration of Distinguished Alumni Awards from the Division of Science. The first of these awards went to Dr. Arden Warner (B.S. Physics, '89), Dr. David Rind (B.S. Meterology '69) and Dr. Carole Mendelson (B.S. Biology '64), who delivered wonderful seminars to our community in the months of November, February and March. Without a doubt, the greatest example of our expanded outreach from this past year was the "Week of Science" held in April. When plans for the second annual Day of Science were cancelled in April 2020, the Division came together and created a full week of online events that would help us to reach out to students, faculty, staff, and alumni to share broadly what we do here. We held a virtual tour of campus, a conversation with two recent graduates from the Division, an alumni happy hour

and trivia contest, a movie screening, a virtual planetarium show and concluded with the final presentation of three Distinguished Alumni awards to esteemed graduates from Mathematics. We have also enhanced our monthly newsletters and have been able to reach new audiences from our own campus as well as beyond. And much like last year, we took full advantage of the new world of Zoom meetings and seminars to invite top scientists from around the globe to virtually visit us in the Division.

While the budget cuts hampered much new hiring this year, we warmly welcomed a new professor of Biology, Dr. Stefan Pukatzki, who researches the genetics and molecular biology of the bacteria that cause cholera and were happy to bring Dr. Mary (Liz) Wright on in the Department of Chemistry and Biochemistry as a Substitute Lecturer. Sadly, though we lost Ralph Kooperman, Professor Emeritus of Math and longtime Research Associate Al Katz, who worked with faculty in both Physics and Earth & Atmospheric Sciences over this past year.

The team in the Dean's office has, as always, demonstrated their dedication to the Division and to all of the people who make it up. I appreciate this staff each and every day for the knowledge, commitment, and compassion that they bring to work each day - even when the commute is just to a temporary office set up in their dining rooms or spare bedrooms.
We are all very much looking forward to a renewed sense of normalcy soon - whenever that comes.

Dr. Susan Perkins
Martin and Michele Cohen Dean of Science

At A Glance
2020 - 2021

273
BACHELORS DEGREES AWARDED

14
UNDERGRADUATE & GRADUATE DEGREE PROGRAMS

*Biochemistry *Biology *Biotechnology *Chemistry *Earth & Atmospheric Sciences *Mathematics *Physics

112
FULL-TIME FACULTY

HPPCP
NEW PREMEDICAL PROGRAM COMING IN FALL 2021

15.9 million
GRANT DOLLARS

61
GRADUATE DEGREES AWARDED

06
COMBINED BS-MS OPTIONS
* Biology *Biochemistry
* Biotechnology
* Chemistry *EAS
*Math

1676
SCIENCE UNDERGRADUATES

06
PH.D. PROGRAMS
* Biochemistry * Biology
* Chemistry * Earth and Environmental Sciences
* Mathematics
* Physics

04
DISTINGUISHED PROFESSORS

71%
MEDICAL SCHOOL ACCEPTANCE RATE 2020 AND 2021 COHORTS

10%
SCIENCE MAJORS CONDUCTING RESEARCH

New Faculty

Professor Stefan Pukatzki

When Stefan Pukatzki was learning biology in school in Germany he had a teacher whom he describes as "very dedicated and very good at explaining concepts."

At the time, the experience helped Pukatzki choose his career path. "I really enjoyed the scientific method and understanding life on a molecular level," he says. First, he wanted to be a marine biologist before shifting gears and coming to New York to get his Ph.D. at Columbia University, researching how cells differentiate to take on new tasks.

He spent the last fifteen years on the faculty at medical schools but his work was really all about the research: he became an expert in microbiology and cell biology, focusing on microbial genetics and host-pathogen interactions, studying cholera and other infectious diseases.

"I would give maybe three lectures a year," he says. Eventually, however, Pukatzki wanted a different experience—one that was more like his former biology professor's—so he came to City College "I am now doing real teaching. I'm excited to have a chance to do this and it's a real honor to be here," he says, adding that he and his wife, a classical musician, also wanted to return to New York City. (He is particularly excited about the evolution of bike paths in the city since he last lived here, when biking the streets felt extremely dangerous.)

Pukatzki's lab explores why a minority of bacteria evolved mechanisms to harm the host when symbiotic strategies to co-exist with the host are available; the hope is to develop alternative therapies to treat antibiotic-resistant bacteria, a project he hopes will get City College students excited and educated about microbiology.

For Pukatzki, teaching doesn't just mean standing up in front of a class lecturing—he is enjoying every aspect from grading to answering student emails, but mostly he is reveling in the chance to pay homage to the teacher that inspired him.

"I think of her a lot, I'm trying to do exactly what she did," he explains. "I'm teaching the origins of molecular biology but I'm not teaching what we know but how we got here—if I just tell you what we know today, it may be outdated by tomorrow, but if you learn the approach and how to think then you can move forward on whatever scientific question you're trying to tackle."

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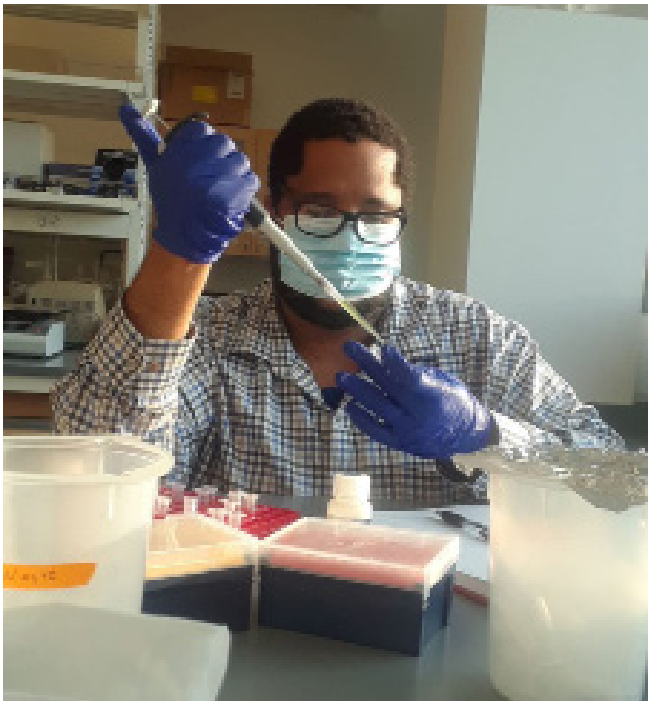
Research Training Initiative for Student Enhancement - G-RISE

For 35 years, RISE (Research Training Initiative for Student Enhancement) helped underrepresented students on their career paths in science. And from 2007 through 2019, Mark Steinberg, who first became a professor at CCNY back in 1986, was the director of the school's RISE program, bringing in more than $9 million in NIH funding to benefit the students and the school.

After 2019, the program was revamped, split into two, one each to focus on undergraduates and graduate students. The good news is that the new version remains a staple at CCNY: Steinberg is now, with Ruth Stark, co-director of CCNY's G-Rise program, the duo having secured a $3 million grant from the NIH to launch it in 2021, one of just two inaugural awards nationwide.

"G-Rise can foster careers in either academia or industry," Steinberg says. Awardees include African-American, Hispanic, disabled, and economically under-resourced students. They receive coordinated, innovative, and rigorous Ph.D. training in biochemistry, biophysics, bioorganic chemistry, (biomedical and chemical) engineering, neuroscience, and clinical psychology. At least 30 faculty members participate as trained mentors.

"It offers really rich training," says Stark, who has been at CCNY since 2007 (and within CUNY for decades). The program not only supports the students' research but it also offers professional development in areas like oral communication, writing and networking to help them prepare for job interviews and other next steps in their careers.



"We also develop a cohort of students who can rely on each other," Stark says. "The students come from six different programs but we bring them together because as underrepresented students, they do not have a lot of peers in their own labs. It can be affirming and powerful when they support each other."

The five-year program (which can be renewed) started in May, 2020, which was less than an ideal time to launch anything new. "Most meetings are on Zoom, which is obviously not what we prefer," Stark says. Despite not being able to recruit in person, Stark and Steinberg were able to fill all ten of their slots and have since grown the group to fifteen. "They've given us more training slots than we asked for, which is unprecedented."

Steinberg says that their proposal was not only strong enough to get money for those slots but also to get supplemental funding for more mentor training. That training, Stark says, can then be used throughout CCNY to mentor others, thus having a bigger impact.

"Despite the burdens of the pandemic, we really are delivering on the promises we made," Stark says.

Student Achievements

Division of Science Valedictorian

For Tzippora Chwat's eighth grade science fair, she covered the table in her family's Long Island home with flatworms. Doing this project, she learned about how vitamins affect planarian regeneration. But she also learned something else along the way. "That was when I knew that I wanted to make science my career," says Chwat.

The 2021 Valedictorian from the Division of Science, Chwat chose CCNY for several reasons—she wanted to be in the city but on a campus and she wanted to major in Biology and go into research. "City College, which has these great research buildings offered the best opportunity for me," she says.

Getting to explore different areas of research at CCNY also opened her mind about a potential career path as Chwat's interest in immunology was soon overtaken by a fascination with DNA genomic integrity. (She also minored in English and in Jewish Studies.)

Chwat joined Dr. Bao Vuong's lab, conducting research on antibody diversification and DNA repair. She completed some of this research as a part of CCNY's Opportunities in Research and Creative Arts program (ORCA) and received the Sharon D. Cosloy Undergraduate Scholarship in Biology. She is also the recipient of the 2021 Salk Scholarship. CCNY also exposed Chwat to opportunities for women in the field of science, she says, and as a result, she became president of CCNY Women in Science organization.

"I was definitely prepared to work in a lab at City College," says Chwat, who is now at the Weill Cornell Graduate School of Medical Sciences Program. "The classes were also good—we read research papers and learned in a way that is similar to graduate school, so I was more prepared than many other students when I arrived here."

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Student Achievements

The Annual Biomedical Conference for Minority Students

The Annual Biomedical Research Conference for Minority Students (ABRCMS) celebrated 19 years of encouraging minority students to pursue higher education and careers in science, technology, engineering and math (STEM). The initial funding was seen as a way to move the STEM fields forward by increasing diversity such that the STEM workforce population aligns more closely with the nation's population. Diversity includes minorities, veterans and people with disabilities. Due to the Covid-19 pandemic, this year's event "ABRCMS 2020 The Virtual Experience" was completely virtual but still delivered timely and relevant content and activities to the thousands of attendees. The four-day ABRCMS conference provided a unique opportunity for students to network with peers and future employers and to explore graduate school options all while presenting research.

Arielle Brutus and Taisha Gomez were the two Division of Science undergraduate winners of the more than 3,350 undergraduate, postbaccalaureate, and graduate students and postdoctoral scientist participants.

Arielle Brutus, a senior majoring in Biology presented in the category: Social and Behavioral and Public Health, with a project entitled "Surviving Breast Cancer Can Be Sexy! Women's Sexual Concerns During and After Breast Cancer Treatment".

This year Taisha Gomez, a junior and another biology major also presented in the category: Social and Behavioral and Public Health. Her project was titled "Redressing Access to and Disparities in Immunotherapy: A Qualitative Analysis."

We are proud of the Division of Science students who continue to excel at this event.

From left: Arielle Brutus and Taisha Gomez

Student Achievements

Jonas E. Salk Scholarships

From left: Miguel Chavez, Tzipora Chwat, Mathiu Perez

When Dr. Jonas Salk developed the first polio vaccine he demonstrated the power of science to change people's lives for the better. To celebrate his world-changing achievement, New York wanted to throw a tickertape parade in his honor, but the good doctor demurred, requesting instead that the cost of the parade be used to create scholarships. And so, the Salk Scholarships were born, with the city providing initial funding for this program in honor of the 1934 City College graduate. The program has continued to this day and this year's Salk Scholars each receive $8,000 over four years to defray the tuition costs of their graduate studies or medical training.

There were eight winners at CUNY in 2021, each recognized for being exceptional students who plan careers in medicine and the biological sciences. Three of those students were from the Division of Science.

Miguel Chavez:

Chavez, a biochemistry major, is pursuing an M.D./Ph.D. degree at Weill Cornell Graduate School of Medical Sciences. His research paper is entitled: "Proton Pathway Involvement in Gating Mechanism of Voltage-Gated Potassium Channel." He wants to study stem cells to find ways to help people suffering from heart disease and lupus; those are illnesses suffered by both family members and his mentor. Chavez also hopes to help underserved communities and be "at the forefront of the scientists who help improve their quality of life."

Tzipora Chwat:

Chwat, our valedictorian is also pursuing an M.D./Ph.D.. degree at Weill Cornell Graduate School of Medical Sciences. Read more about her on the previous page.

Mathiu Perez:

Mathiu Perez is the recipient of several nationally recognized awards in his three years at CCNY. He received one of the biggest research awards in the country, a National Institute of Allergy and Infectious Diseases (NIAID) Fellowship. The program emphasizes biomedical research training in allergic, immunologic, or infectious diseases. This is all on top of him receiving combined BS and MS degrees in biochemistry because he was the first student to graduate from CCNY's accelerated MS program in biochemistry. During his time at CCNY, he received a scholarship from the National American Chemical Society, Louis Stokes Alliances, AMSNY, City College and MARC fellowships, multiple undergraduate research honor awards from Harvard Medical School, the American Chemical Society's Scholar honor, National Institutes of Health Fellowships; and the Barry Goldwater Scholarship, America's premiere award for undergraduates majoring in STEM. After CCNY he is headed to Oxford University and the University of California, San Francisco to pursue is M.D.-Ph.D. degree as an NIH Oxford-Cambridge Scholar.

Student Achievements

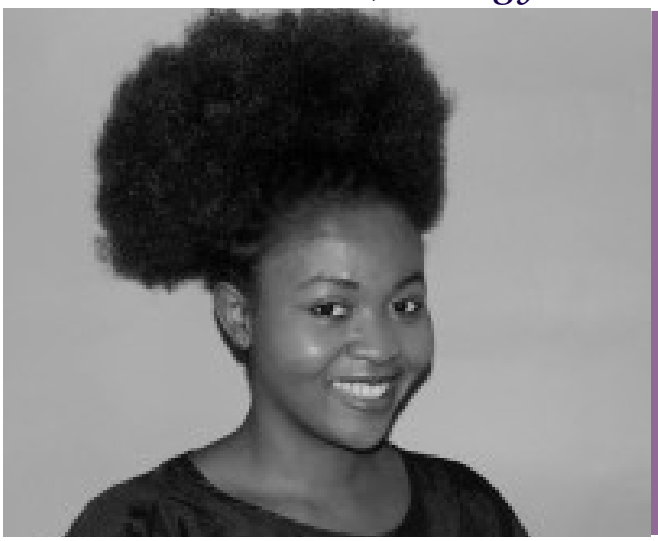
Great Grads 2021

Tzippora Chwat - BS, Biology

> “I love the process of gathering my own data and interpreting it, using my prior knowledge to discover something new.”

Since Tzippora was a kid, she was always fascinated by science. She shocked her father when she was in eighth grade by covering a table in flatworms for a science fair. Tzippora was involved so many areas at City College from research to being the president of the Women in Science (WINS) and CCNY Hillel. The next part of her journey continues at Weill Cornell Graduate School of Medical Sciences’ BCMB Allied program where she plans on running her own lab and mentoring students so they can start their own scientific journeys.

Peace Asumadu - BS, Biology



> With existing ethnic disparities in healthcare, evident by the disproportionate effect of COVID-19 on Black and Hispanic communities, it is my calling to help improve health outcomes for these groups through medical research."

Peace’s story begins in rural Ghana, where it was difficult to gain access to affordable and accessible healthcare. Seeing her grandfather work as a physician led her to pursue science and medicine. She came to the US in 2014 and then after finishing high school, she came to The City College of New York, where she continued to work as a nurse part-time while uplifting other students as a tutor and mentor. SEEK helped provide opportunities for her including becoming the president of the HOPE Worldwide Club and a member of the Student Leadership Academy. Having witnessed the disparities in healthcare during the COVID-19 pandemic that has disproportionately affected Black and Hispanic communities, she is dedicated to improve health outcomes for these groups through medical research. Peace will continue her studies at SUNY Downstate's Early Medical Education Program (EME).

Student Achievements

Great Grads 2021

Aidan Subrahimovic - BS, Physics

> “Within the four years I have been at CCNY, the knowledge I have gained has formulated the basis of my understanding of the natural world and will inform me throughout my career as an astrophysicist.”

Inspired by Carl Sagan at age 13, Aidan’s curiosity brought them to pursue a degree in Physics at The City College of New York. They dealt with imposter syndrome and the lack of queer representation in academia, but they received help and guidance from various professors they met. Aidan grew and flourished from the welcome environment that CCNY provided them. They were president of the Physics Club, a research intern at the American Museum of Natural History, and joined both the Brown Dwarfs in New York City (BDNYC) research group as well as the Sloan Digital Sky Survey (SDSS) Faculty and Student Team (FAST) at CUNY. They even had an opportunity to publish their findings in the Astrophysical Journal and received the Michio Kaku Scholarship in Theoretical Physics. They will be pursuing a doctorate degree at New York University (NYU) this fall in cosmology.

Peace Asumadu, Aidan Subrahimovic and Tzippora Chwat were among some of the remarkable young men and women in The City College of New York Class of 2021. They excel in the classroom, have personal stories that inspire us, and illustrate the transformative power of the City Experience. They were nominated by their mentors and represent all schools and divisions of the college.

www.ccny.cuny.edu/greatgrads2021

Division of Science Excellence in Research Awards

Professor Maria Tzortziou

The list of Maria Tzortziou's accomplishments is, if not quite endless, then endlessly impressive. In the past fiscal year, she published 10 new peer-reviewed journal articles in high impact journals and was awarded nine new grants or awards bringing more than $2.5 million in funding to CCNY. Her work was featured in two journals published by Nature Research and she was invited to present her work at several major conferences including the 2020 Fall AGU Meeting, the 2020 National Coastal and Estuarine Virtual Summit, and NASA's Changes in the Arctic Boreal System Task Group Quarterly Updates.

Her group's high-impact, innovative research on the environmental impacts of the COVID-19 pandemic has been featured on the COVID-19 Earth Observation Dashboard, a tri-agency Dashboard jointly developed by NASA, the European Space Agency (ESA) and the Japan Aerospace Exploration Agency (JAXA). Her work was also recently featured on The Thought Project Podcast, recorded at The Graduate Center of The City University of New York.

AN AMAZING YEAR

Anyone looking for an exciting and groundbreaking research project for their lab may want to pursue funding to study Professor Maria Tzortziou, seeking to understand how she manages to bend the laws of time to her will. That's the only logical explanation for how Tzortziou consistently manages to accomplish so much.

For instance, Tzortziou received a new grant from NASA's Ocean Biology and Biogeochemistry Program for a collaborative effort between Stevens Institute of Technology, University of New Hampshire, and CCNY. The study builds on Tzortziou's previous work in the Arctic Ocean and Long Island Sound to capture the impacts of climate change and extreme events on coastal ecosystems and communities. "This is an exciting project where we are developing a novel methodology for satellite remote sensing of aquatic ecosystems, based on scientific machine learning methods and many years of multidisciplinary field observations that we collected in nearshore environments" she says. "The approach we are developing will expand the utility of climate-quality ocean color products into complex coastal ecosystems around the globe".

Division of Science Excellence in Research Awards

> We were among the first groups to measure dramatic changes in air quality."

Meanwhile, she received an NSF RAPID award and an award from NASA's Rapid Response and Novel Research in Earth Science Program, to assess how changes in human mobility and other activities during and post-COVID-19 lockdown and other related restrictions have been impacting urban air-quality and water-quality, including coastal and estuarine habitats."As soon as the lockdowns were imposed, we started using measurements from our ground-based remote sensing instruments and satellite sensors to capture changes in air quality conditions due to the pandemic. The advantage with those remote sensing sensors was that they were already deployed, collecting measurements in an automated way, continuously reading how NY's atmospheric composition was changing in response to the social distancing measures.

By June, we were among the first groups to measure dramatic changes in air quality." Air quality and water quality in coastal areas are linked so with their studies Tzortziou and her team also wanted to examine how the quality and chemistry of waters in the New York area were affected. Another new collaborative project funded through NSF's Major Research Instrumentation Program, will allow Tzortziou and her collaborators, as well as students and citizen scientists, to use data generated by an autonomous underwater vehicle (AUV) to study the drivers, severity, and duration of hypoxia and algal blooms in the New York urban and coastal environment, and their linkages to changing fluxes of pollutants and contaminants, sediment movement and benthic habitat.

Research in Tzortziou's Lab at the CCNY Center for Discovery and Innovation is even making its debut on the silver screen. "Frozen Obsession" tells the saga of an 18-day, 2,000-mile expedition on the Swedish research icebreaker Oden through the Canadian Arctic, where three CCNY undergraduate students including an intern in Tzortziou's Lab had an opportunity to participate. The documentary features the students' experiences as they help the scientists in their research collect samples to document the changing climate and meet with the Inuit communities impacted by climate change. "This was a beautiful project because it was designed to study the changing chemistry, biology, ecology and biodiversity in the Canadian Arctic Archipelago, from marine birds to microscopic communities like plankton in the ocean. It also linked to history and social science," she notes, adding that the students also worked with the filmmakers to help communicate their own personal experiences along with the research findings.

Division of Science Excellence in Research Awards

Professor Vinod Menon

A Division of Science Excellence in Research Award was bestoved upon Vinod Menon who heads the Laboratory for Nano and Micro Photonics in the Physics Department. It focuses on the investigation of light-matter interactions at the nanoscale. Menon is leading multiple federal grants with funding surpassing $3 million and his research is cited more than 800 times per year. He has been published in journals like Nature Nanotechnology, and Optica, among others. Last year, Menon co-authored a paper in Nature, and helped oversee research that led to publications in Nature Communications and Advanced Materials. In 2020, he was chosen as a fellow of the Optical Society of America.

He has published in journals such as Science, Nature Photonics, Nature Nanotechnology, and Optica, among others. Last year Menon co-authored a paper in Nature and helped oversee research that led to publications in Nature Communications, Science Advances and Advanced Materials. In 2020, he was chosen as a fellow of the Optical Society of America (now Optica) and was chosen as a Distinguished Lecturer by the IEEE Photonics Society (2018-20).

Quoting Menon: “I am interested in studying the interaction of light with matter as this lies at the heart of several fundamental phenomena as well as technological applications." Most recently Menon’s group has been working on half-light half-matter quasiparticles (collective excitations) by confining atomically thin materials (10,000 times thinner than human hair) between light confining structures. The motivation is to use these quasiparticles to perform next generation computation and explore the possibility of engineering matter on demand using light. The work in his group is funded by the National Science Foundation, Army Research Office, Air Force Office of Scientific Research, DARPA, the Department of Energy and industry.

While work from Menon’s group has been published in several high impact publications, numerous invited talks and handful of patents, Prof. Menon considers the success of his students to be the biggest impact of his work. Students and post-docs from his group have gone on to highly successful positions in academia, national labs, and industry. A large fraction of the undergraduate researchers has joined graduate programs in some of the most prestigious departments. Currently his group consists of six post-doctoral fellows, and five graduate and four undergraduate student researchers.

> “I am interested in studying the interaction of light with matter as this lies at the heart of several fundamental phenomena as well as technological applications."

Division of Science Broadening Equity and Inclusion Awards

Professor Karin Block

Recognizing the importance of role models has helped influence and shape her passion and drive for scientific research, making an impact on students who may not see themselves in the academic ranks.

Karin Block brings the personal touch of broadening equity and inclusion following her family's tradition of educating and supporting students in the sciences. Karin's mother was a Professor of Microbiology and Dean of Students at the University of Puerto Rico (UPR) Medical Sciences Campus where as one of the few Black faculty in the medical school she experienced discrimination and racism, fueling her efforts to protect and support students throughout her career. Block's grandmother was born in 1907 and was a teacher in southern Puerto Rico who gave all to her students and her family. Early on in her career she traveled on horseback to a one-room schoolhouse, eventually transferring to the San Juan metropolitan area public school system, from which she retired after 30+ years. Block's father was a chemistry professor at UPR and, later, a pharmaceutical industry professional. He was raised by a dermatologist father and a nurse mother, all great role models for Block while growing up. Recognition of the importance of role models has helped influence and shape her passion and drive for scientific research, on students who may not see themselves in the academic ranks. Block is dedicated to using her privilege to support the next generation of scientists. Since 2018, she has advised 9 graduate students, 7 undergraduate students, and 6 high school students, all of whom self-identify as Black, Latinx or both, including her current Ph.D. student Jahnelle Howe, and her most recent Master's students: Finola Fung-Khee, Stephanie Peña, Natasha Arokium, and Tabahani Hayles. She devotes an enormous amount of time and energy to students in her classes, giving them advice and lending an ear, even long after they have graduated from CCNY.

Bock wants to continue to demystify for her students the world of science and takes pride in doing so every day. She believes that as a faculty she has a duty to uplift and support those who may be vulnerable and have experienced disadvantages. Block also participates in multiple efforts outside the university to promote equity and inclusion by serving on the Advisory Board for the Sloan Scholars Mentoring Network since 2017 and by contributing to the greater geoscience community's efforts to dismantle structural racism through her participation in the NSF-sponsored Unlearning Racism in Geosciences (URGE) effort, where she contributed an "inclusivity tip" on letters of recommendation in the program's 2021 iteration.

Division of Science Broadening Equity and Inclusion Awards

Professor Ruth Stark and Professor Mark Steinberg

Ruth Stark and Mark Steinberg each won the Broadening Equity and Inclusion Award for overseeing the new G-RISE program, which replaced the RISE Program; they secured $3 million from the NIH and CCNY was one of only two universities nationwide to launch the new program. The G-RISE program works to create a diverse and well-trained biomedical research workforce. There are 30 faculty members at The City College of New York working together to create rigorous Ph.D. training in biochemistry, biophysics, bioorganic chemistry, (biomedical and chemical) engineering, and neuroscience.

Professor Ruth Stark

Stark joined CCNY in 2007 from CUNY's College of Staten Island (CSI). Among the nearly 200 trainees she has mentored are more than 40 women and 30 persons from underrepresented racial/ethnic groups. She has been a research mentor for the Louis Stokes Alliance for Minority Participation at both CSI and CCNY, she signed on as a MARC and RISE mentor at CCNY and served on the college's RCMI Internal Advisory Committee. Stark obtained funding for training programs and designed professional development modules for 22 Ph.D. students, half of whom were from underrepresented groups. "The broad mission of the new G-RISE program is to focus biomedical research and professional skills development on UR PhD trainees at CCNY while also providing beneficial impact for our broader population of trainees and mentors in the STEM disciplines," said Stark.

Professor Mark Steinberg

Steinberg arrived at CCNY in 1986 and has long been devoted to finding ways to boost underrepresented minority students, giving them the help they might need to move on to professional careers in the biomedical and behavioral sciences. He was the director of the RISE program at the college from 2007 to 2019 and he also personally supervised the research training of 75 undergraduate and graduate student trainees, about 95% of whom were from underrepresented groups in STEM. He has served on the Internal Advisory Committees of the CCNY-MSKCC Partnership looking into cancer health disparities, the CCNY Research Centers in Minority Institutions (RCMI), and the Maximizing Access to Research Careers (MARC) program. Steinberg was CCNY coordinator for the NIGMS-funded Bridges to the Baccalaureate Program with Hostos Community College and currently serves in this role for the Bridges program in partnership with Queensborough Community College.

Division of Science Excellence in Teaching, Curricular Innovation and Assessment Awards

Professor Issa Salame

"I was just doing my job," Issa Salame says of the work that earned him the Division of Science Excellence in Teaching Curricular Innovation and Assessment Award. And to some extent, that is true, but it's also true that Salame's approach to his job is imaginative and innovative. During a meeting three years ago when people were talking about the lack of funding and how expensive it is to maintain labs without draining a budget, Salame suggested that the university try virtual labs. "I set out to improve student learning while cutting down on our costs," he says. "The idea was not to replace our labs but to supplement them."

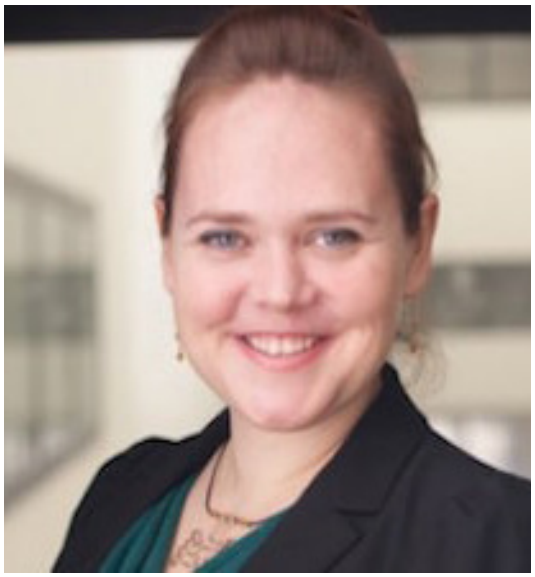
He pointed to a successful effort in this area by the University of Colorado—it saved money in various areas and allowed for teaching with hazardous, poisonous or corrosive material that one could not safely use in person with students. Additionally, working on measurements to understand gas laws for instance, does not often go well with students: "Gas is really hard to control, it is tedious to work with and you need expertise," he says, yet a virtual lab could teach the students in an efficient manner.

The Department of Chemistry and Biochemistry obtained funding from CUNY and Salame then selected topics, recruited students, tested labs, modified them, re-tested them and finally narrowed it down to the best four of the bunch: "pH Scale," "Reversible Reactions," "Reactions and Rates," and "Salts and Solubility."

That was in the fall of 2019 and Salame expected to introduce them to CCNY classes at the end of the spring semester. Then, of course, the lockdown happened and all the world switched to virtual teaching.

"We were fortunate because we had the virtual labs ready to go," Salame says. They were such a great success that now other CUNY schools have begun to use them as well, spreading Salame's innovation even further.

Professor Zajj Daugherty



During the pandemic, Zajj Daugherty strived to innovate to find ways to help her students continue to learn and develop. Even before the pandemic, Daugherty, who teaches everything from undergraduate Calculus to Masters courses like Modern Algebra, went above and beyond: her website features numerous resources for her students such as extra exercises but also guides for improving writing, which is also something she has emphasized in the classroom.

During the pandemic, Daugherty didn't simply shift her lectures online but restructured them by creating short video lessons with note packets that alternated with exercises to be done before class. She also developed specific projects (proofs and research projects), which she used for grading instead of focusing on midterm and final exams. Some of these initiatives will continue even as the pandemic ends and may eventually be adopted by other classes.

For these reasons she received the second of two Excellence in Teaching, Curricular Innovation and Assessment Awards.

Division of Science Faculty Service Award

Professor Marilyn Gunner

Chairing the Faculty Council of the College of Liberal Arts & Science is never an easy task but it grew only more challenging last year as the Council had to sift through difficult choices during the pandemic. Luckily, Marilyn Gunner has always taken a pragmatic approach to her role.

"People say I find a way to run the meetings effectively but it's mostly that I stay focused on getting small things done," says Gunner, whose father was a City College graduate who worked in community organizations and always knew how to get things done. "It's all about seeing what's doable because otherwise people feel mired in quicksand."

Before Covid, Gunner helped guide through a change in the way in which the faculty did their workload reports. "The process had become super-complicated and we were able to simplify it," she says. "It was just about making progress." "The pandemic was a bear," she says, but she did her best to guide discussions about difficult decisions about grading policies, academic integrity when teaching remotely, teacher evaluations, and what policies could or could not be changed. She made sure to get input from an array of voices and worked to ensure communication between the Faculty Council and Faculty Senate where necessary.

Gunner, who has previously served the Division as Dean and the Physics Departments as Chair, likes the Council role "because it's a lot less work but it still gives me the opportunity to contribute, to help make change for the better."

Division of Science Staff Service Awards

Nkem Stanley-Mbamelu

Truly deserving of the Staff Service Award, Nkem Stanley-Mbamelu serves all the students in the Division of Science in ways big and small; it is the perfect role for Stanley-Mbamelu because few in the division know better than she what the City College experience is like for students. Stanley-Mbamelu attended CCNY through the SEEK Program-- she majored in biochemistry, became a MARC Scholar, did research with Sharon Cosloy and graduated with honors.

Now Stanley-Mbamelu is the coordinator and supervisor of tutoring for biology and chemistry (although she is so respected that she is sought after to train tutors college wide) and she created the peer mentoring program for entering Division of Science majors. She has developed career workshops and built connections with places like Brookhaven National Laboratory to foster more opportunities for City College students. Understanding the stress of student life, she initiated CREATE, which provides canvases and paints to students to help them explore their creative side as a way to relax.

Additionally, Stanley-Mbamelu directs the CCAPP Pre-Freshman Summer Program. Her approach to recruiting STEM students, training team leaders and instructors for these students has been adapted by other colleges and universities statewide.

Division of Science Staff Service Awards

Christine Stefano

For Christine Stefano, summing up the most important part of her job is easy: "I'm always thinking about different ways I can help provide a better student experience at City College." But while she makes it sound simple, it is not… and her job involves so much more it can become dizzying. Stefano's work ranges from Department to Division to College-wide, all as she keeps the Biology Department running smoothly. So she is kept busy with tasks that include class scheduling, adjunct hiring, epermit processing, and acting as a liaison to the Department's fulltime and adjunct personnel.

"I'm part of the process," says Stefano, who grew up in Queens and attended Baruch College. She has worked at City College for eleven years. "I like to use data analysis and facts to figure out what works."
What she does best is facilitating communication between the school and the students, and not just with updates or information about resources. While she already oversees the Biology Department newsletter, Stefano continues finding new ways to enhance communication.

She started a new social media campaign that recognizes alumni and helps build connections and launched a database/bulletin board to keep Biology & Biotechnology majors informed about jobs, internships, academic, networking and research. She also helped launch a CCNY chapter of the national biological honors society, Beta Beta Beta, and assists with the monthly meetings with the Division of Science Student Council, focusing on what issues students need assistance with. She also served as the CCNY Women in Science Advisor and on the CCNY Graduate Constituent Council.

> "My favorite part of my job is connecting with the students."

"My favorite part of my job is connecting with the students," Stefano says," "seeing them as wide-eyed freshman and helping them grow until their celebration at Commencement." In between, she helps when students lose a job or have family issues or need help in other ways. "I form close relationships with the students and when they go through hard times I put them in contact with someone who can help."

The pandemic obviously changed her daily work life dramatically, though she says the job itself didn't become any harder. "I actually became more efficient—I had no commute and I didn't have to run between buildings here, and I just talked to everyone more and stayed in touch more," she says. "The hardest part was watching members of the community suffer. I tried to help. I felt fortunate to have this job throughout."

Highlights in the Division

New Postbac Program for Prehealth Careers

In the throes of the pandemic, people across the country sat at home and re-evaluated their lives. "There was a lot of interest from people in going into the medical professions and the number of applications for programs rose by double digits," says Susan Perkins, the Dean of Science at CCNY.

She adds that this dovetails with efforts by medical schools over the last decade to attract people who did not just study science as an undergraduate, but who might have a different background, in, say, politics or education. The catch with that outreach has been that medical schools have held tight to their strict course pre-requisites.

And that is where CCNY comes in. The College has just debuted an accelerated post baccalaureate in pre-medical studies aimed at career-changing people with a Bachelor's degree hoping to enter the medical field in the new program, the Health Professions Preparation Certificate Program (HPPCP), students will complete the academic prerequisites for admission to most medical schools in less than 18 months and at a competitive price.

"We know there is pent-up demand for this and our program is far more affordable for people in New York than the programs at Columbia and NYU," Perkins says, adding that Lehman College, another CUNY school, just started its own program but that it is aimed at more general health-related professions.

While students will pay only traditional undergraduate tuition for the courses and a program fee, Perkins says that the CCNY program stands apart from most programs in its structure. "Most programs give you a specific advisor but in your classes you are mixed in with undergraduate students," she says. "Our biggest perk is that we have dedicated class sections just for the HPPCP students."

The program was originally going to follow the standard semester structure but instead re-designed to include six eight-week long sections to also help professors manage their schedule. (Additionally, individualized services will provide students with assistance in clinical and research experience placement.)

An optional seventh session will focus on preparing for the MCATs exam as well as provide time for students to gain additional experiences and receive help preparing their applications.

Highlights in the Division

Week of Science

In 2019, City College introduced its Day of Science to show alumni and others the programs, facilities, and all that the Division has to offer its students. There were demonstrations, presentations and lab tours highlighting the diverse research by faculty in the Division of Science, all in one afternoon across three locations on the CCNY campus.

The program was a success and would have returned in 2020 but, well, the world shut down. Susan Perkins, the Dean of Science at CCNY, says that creating a virtual substitute last year was impossible. "There was no time to pivot because we were far too consumed with keeping the Division running," she says. "But once we got through the worst of it we knew we wanted to find a way to bring this program back in some way."

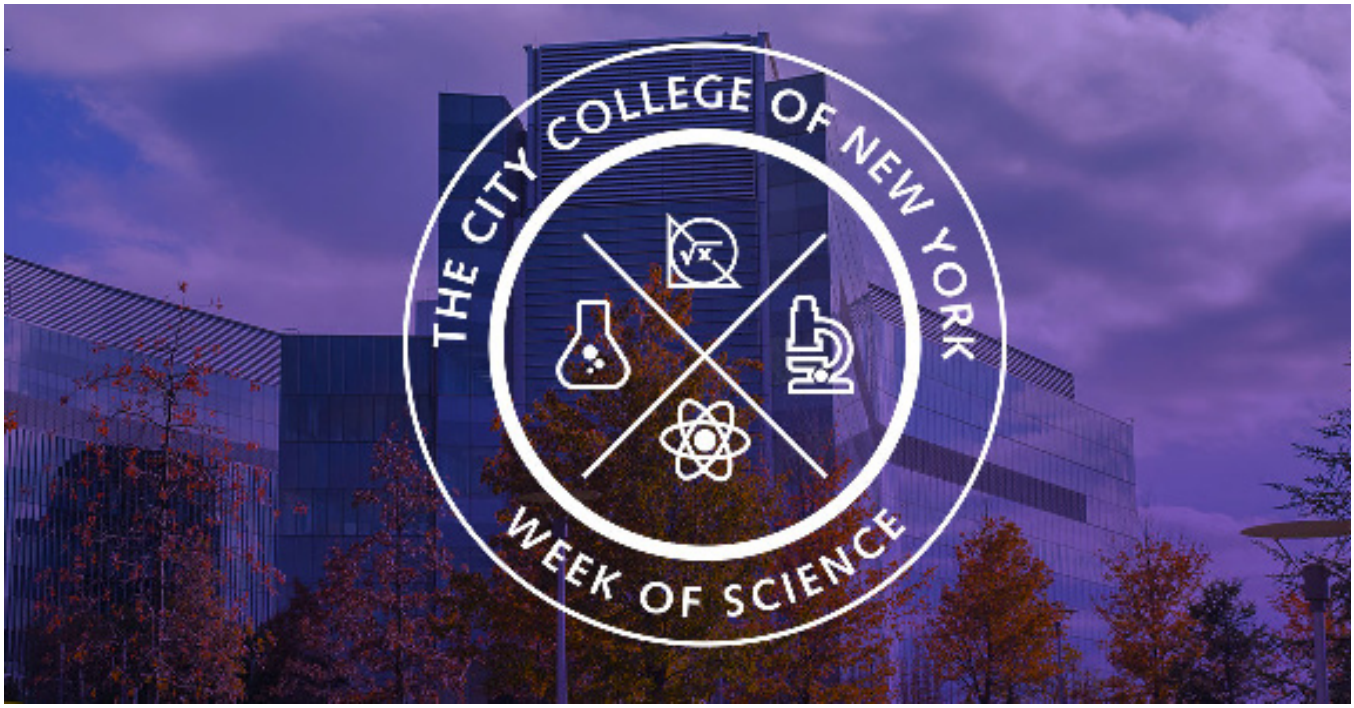
And so, in the spring of 2021, CCNY went digital… and went big. The Day of Science grew into the Week of Science. "By going virtual, it opened opportunities to grow our audience substantially," Perkins says, pointing out that the school sold 652 "tickets," "a phenomenal number and a massive leap in engagement from the first year. It was fantastic."

There were live programs and some that were filmed and edited, with everything from a virtual tour of the campus and the classroom and research buildings to conversations with recent graduates that drew in current students to ask questions about graduate school "and going out into the big wide world," Perkins says.

But there was also an entertainment factor as well, from a virtual happy hour for alumni that featured a trivia contest, a planetarium show, and a sneak peek screening of "Frozen Obsession" a documentary feature about the Arctic that involved three CCNY students.

Perkins says that there was another benefit to using Zoom. The school created a Distinguished Alumni Award and if there had been no pandemic, CCNY would have flown in Arden Warner to celebrate his achievements. "By doing it on Zoom, however, we were able to have a full class of distinguished alumni to inaugurate the award and we would never have been able to afford to bring them all in," she says, adding that flying in the three legendary mathematicians who went to CCNY seven decades ago and regaled audiences with great stories on another Zoom panel would not have been feasible either.

All the events were recorded and archived, and Perkins says she hopes the Week of Science will continue providing more ongoing engagement in the future. In the future, she hopes to be able to return to in person events but plans to blend those with digital events that will allow for a wider array of guests and for more people to join in the explorations and celebrations from around the world. "It's a great way to reconnect with alumni," Perkins says.



Distinguished Alumni

Arden Warner ('89), Physics

"What would you do about it?"

Those five words from Arden Warner's wife are what it took to transform him from an angry man yelling at the TV set into an inventor. Warner was the recipient of City College's first Division of Science Distinguished Alumnus award. After graduating from CCNY, he earned his Ph.D. at Brookhaven Labs and Stony Brook University and became an accelerator physicist at the Fermi National Accelerator Laboratory in Illinois.

But back in 2010 he would grow irate watching the news of the Deepwater Horizon oil spill. "It was on the news for weeks and my wife saw how animated and upset I was," Warner recalls. When she asked what he would do, he started thinking about using magnets to separate the oil from the water.

"That's not a bad idea," he remembers saying as he was drifting off in bed… only to get up in the middle of the night to start working on it, seeing what he had in his home to get the process started. He used shavings from his shovel, engine oil and a refrigerator magnet, to see if the idea might stick.
He ultimately ordered different types of oils and studied them and became more methodical in his approach. "I started in my garage with a bucket and cup and eventually scaled it up. Now I'm working with millions of gallons of water."

The approach proved effective at remediation and received patent approval. Meanwhile, on a trip to Malawi with his wife, he became involved in a project building small wind turbines that can be easily serviced and set up in a rural village setting to provide power for students to read at night.

So it's no surprise that in 2015 Warner founded the company Natural Science, which applies scientific solutions to environmental challenges. "I like using physics to solve real problems, not just to do research in a lab," he says. "Most solutions we seek are there in Nature."

Warner, who grew up in Barbados and came to America to go to college, says CCNY "had an enormous impact on me because I got to do research early on and there were strong teachers and a lot of research opportunities. I arrived not knowing my career path and City College was instrumental in helping me map that path."

> "I like using physics to solve real problems, not just to do research in a lab."

Distinguished Alumni

Carole Mendelsohn ('64), Biology

When Carole Mendelsohn went to graduate school at Rutgers University, she was planning to get her master's degree and then teach. Mendelsohn had only discovered science while at CCNY - previously she'd been an art student at the High School of Music and Art but had been floundering in college until she took her first science course. "I really found myself then," she says, giving credit to the school's great science professors. "It was a miracle."

She had another stroke of inadvertent good fortune when Rutgers changed its program, requiring her to get a Ph.D., which she earned in Zoology. "That sent me on a very different course," Mendelsohn says. She ended up spending five years as a postdoc and then Staff Fellow at the National Institute of Health, where she had a "fabulous female mentor," which would also inspire her in the years to come, after she joined the faculty of University of Texas Southwestern in 1978.

Her lab there has focused on reproductive and perinatal biology. "I'm most proud of the fact that through the years I've learned so much that I've been able to pull together disparate areas of research, in fetal lung development, pregnancies and the placenta, to understand that the fetus signals the mother when it's ready to be born because the lungs have matured and are capable of maintaining life outside of the womb." Mendelsohn held an NIH MERIT Award from 1998 – 2008 and served as a member of the Board of Scientific Counselors for the National Heart, Lung and Blood Institute, chaired the Reproductive Scientist Development Program Selection Committee and was a member of the Basil O'Connor Starter Scholar Research Award Advisory Committee. She has also been active within The Endocrine Society, chairing various committees, and she was a Presidential nominee of the Society for Reproductive Investigation.

But she also never forgot the importance of having a strong female mentor early in her career. Nor did she forget some of the obstacles she faced; as the mother of four children, she was back at work six weeks after each birth and, among other things, she lived in a world where lactation rooms for nursing were non-existent. "It was always a struggle for me, and I know child care is a key to enhancing women's career advancement," she says.

She was president of Women in Endocrinology at the Endocrine Society during the time their mentoring program was developed and she has co-chaired the Women in Science and Medicine Advisory Committee at her university to help nurture opportunities for women. "We do a lot to introduce students to careers in science and medicine because it's not easy for young girls to think about graduate school," she says. "Things have really changed over the years but there's always room for more improvement."

> "I really found myself then, ... It was a miracle."

Distinguished Alumni

Robert Aumann ('50), Mathematics

Robert Aumann knew as a child he was lucky to have any kind of a future, even if he couldn't have anticipated quite how well it would turn out. In 1938, shortly before Kristallnacht, Aumann's parents decided to take the family and leave Germany. They landed in Borough Park in Brooklyn and never stopped working hard to give their two children a "wonderful Jewish and general education," Aumann recalls. "To make ends meet, my father worked two jobs. My mother worked three."

CCNY was a long subway ride from Brooklyn, but it was also free, and Aumann says, it shaped his career. "My experience at college was critical to my success," says Aumann, whose success can be measured in his pioneering contributions to game theory--he was a founding member of the Stony Brook Center for Game Theory and is now a professor at the Center for the Study of Rationality in the Hebrew University of Jerusalem. Or, of course, you can measure it by the recognition of that work with numerous awards, most notably the Nobel Prize in Economic Sciences, which he was awarded in 2005.

"The teaching at CCNY was excellent," he says, citing the honors classes that featured just two or three students. "We also had an extraordinary group of students. Emil Post, an outstanding research mathematician, made his whole class assigning problems and the students would go to the blackboard and present solutions. It was a friendly competition, with everyone trying to outdo the others and show his mettle."

His later work on game theory may also have been influenced by all the chess he played (for a nickel a game) with his fellow CCNY students, who included some U.S. champions. At the time though, applied mathematics was sneered at as "second class" to theoretical mathematics that was "absolutely useless" in real world applications. That would eventually shift, in part to Aumann's work on game theory…

"Let me tell you a story," Aumann says, recounting a tale of how his later work on knot theory at MIT perfectly fit the "absolutely useless" mode in 1954, but how fifty years later he got a call from a grandson studying medicine who wanted him to explain it. "It turns out that DNA in cells can get knotted up and cause problems," he says. "So my knot theory went from useless to being part of second year medical training."

Aumann takes satisfaction from the impact of his work, but he does acknowledge that a Nobel Prize has its benefits. "It's nice to have recognition so when you talk people listen," he says, adding that people even seek his opinions out, having him write newspaper columns or inviting him on TV. Once he was invited onto an interview show that usually involved cooking too, although they said he could skip that part. "I said I want to do the cooking, I have a great chocolate mousse recipe," he says. Months later he was walking down the street when someone called his name. Usually, he says, people who recognize him want to talk about his most recent column. But this person recognized him as the Nobel Prize winner who also makes chocolate mousse. "He said, 'I tried your recipe, and it was really delicious.' I really enjoyed that. It's one of the nice things about winning a Nobel Prize."

> "It's one of the nice things about winning a Nobel Prize."

Distinguished Alumni

Martin Davis ('48), Mathematics

Winning a Guggenheim Foundation Fellowship in the 1980s was particularly satisfying for Martin Davis. "City College was wonderful and we had this great mathematics group of students that thrived there but my parents were concerned," he explains. His parents, both Polish immigrants, had struggled to earn a living here during the Depression and had been dealt a devastating blow when Martin's younger brother died at age eight. Pinning their hopes on Martin, his parents "thought I was making a terrible mistake and that I should become a doctor or lawyer because the chances of doing well in mathematics, they felt, were very small."

Davis tried preparing for alternate careers but could not shake his desire to become a mathematician. His father unfortunately died while Davis was still in college, but his career, (despite some struggles in graduate school at Princeton University which he describes as being intolerant and anti-Semitic) was one of constant success. Influenced by CCNY's Emil Post, he became a renowned logician.

He is proudest, he now says, of his vital work on Hilbert's Tenth Problem: Does there exist an algorithm that can, for any arbitrary Diophantine equation, decide whether that equation is solvable? (Davis's Ph.D. dissertation, contained a conjecture that, if true, would imply that Hilbert's Tenth Problem is unsolvable.) But he was also a computer programming pioneer and his 1958 book "Computability and Unsolvability" became a staple in theoretical computer science. As a longtime professor at New York University, he helped found the school's Computer Science department. And in 2000, he published another well-received book, "The Universal Computer." As a former high school bookworm, who had been bullied for that, becoming a published author made him "very proud."

But still, that was nothing compared to the Guggenheim Fellowship. "It took a long time for my mother to realize I wasn't still just that sloppy kid who got everything wrong," he recalls with a laugh. "But after the Guggenheim, someone sent my mother a clipping of the New York Times article about that. She looked at me with utter amazement and said, 'You are a great man.'"

> "City College was wonderful and we had this great mathematics group of students that thrived there."

Distinguished Alumni

Herman Chernoff ('43), Mathematics

Young Herman Chernoff liked math… except when he got to Townsend Harris High School in Queens and started taking geometry. "I didn't even know what an angle was, so that threw me for a while," he recalls. "But I finally figured it out."

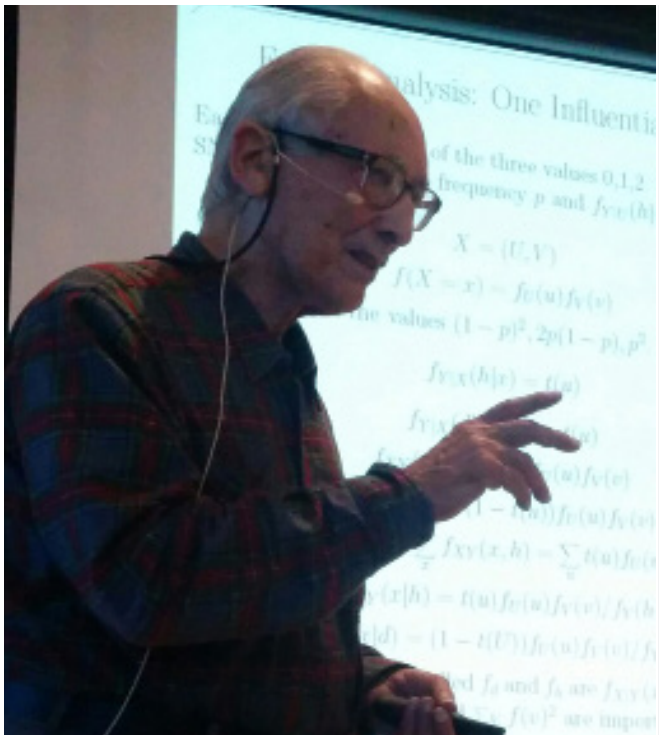
But even once he got to City College and began studying mathematics, Chernoff, the child of Russian immigrants did not think it would be his life's work. "There wasn't much of a future for Jewish math professors at that time so I figured I'd just enjoy my time learning there and then go work in post office," Chernoff says. "Then the war came and changed everything—when there were shortages, some places dropped their anti-Semitic attitude."

The war also kept Chernoff busy in other ways—having minored in physics at CCNY, he spent time during the war as a junior physicist for the Navy at the Dahlgren Proving Ground. He built equipment and fixed radios and counter chronographs used to measure the speed of shells fired by naval guns. Occasionally, he used statistical ideas to do his work and said that later shaped his decision to go into statistics.

He studied applied mathematics at Brown University but was frustrated by that field and, after his learning was briefly interrupted by a short Army stint, he completed a Ph.D. in statistics at Columbia University under the legendary Abraham Wald.

His time at Brown was also notable because he met a fellow student named Judy Ullman, whom he married in 1947. In 2021, they celebrated their 74th wedding anniversary. The Chernoffs now live in Massachusetts where Herman is a professor emeritus at Harvard University (after time at the University of Illinois, Stanford University and MIT) and where the younger of their two daughters, Miriam, is a biostatistician.

Chernoff did work in a variety of areas including Sample Theory, Optimal Design of Experiments, Sequential Analysis, and Sequential Design of Experiments, which led to him becoming a member of the National Academy of Sciences; he was also named an inaugural member of the American Mathematical Society.



> "I figured I'd just enjoy my time learning there and then go work in post office."

Distinguished Alumni

David Rind ('69), Meteorology

David Rind has spent four decades in a career in climate modeling at NASA's Goddard Institute for Space Studies; his work on the Intergovernmental Panel on Climate Change was recognized with a Nobel Prize to the group in 2007. But Rind says all of that is due, to some extent, simply to "kismet."

Growing up in the Bronx, Rind lived on the sixth floor of an apartment, with a view blocked by the next building over. "The only other things I could see out my window were birds going by or the weather," he says. "I've joked that I was destined to either be an ornithologist or a meteorologist. And I really loved snow, the way it covered all the sins of the city was beautiful."

So, after attending Bronx High School of Science, Rind chose CCNY because it was "one of the prime locations if you were interested in studying the weather." He took ten meteorology courses before graduating in 1969 and many of his classmates did go on to become TV forecasters or to work at the Weather Bureau. But Rind became disenchanted with the idea of a career spent looking at numerical models "that you had no control over even though you were responsible for the forecast."

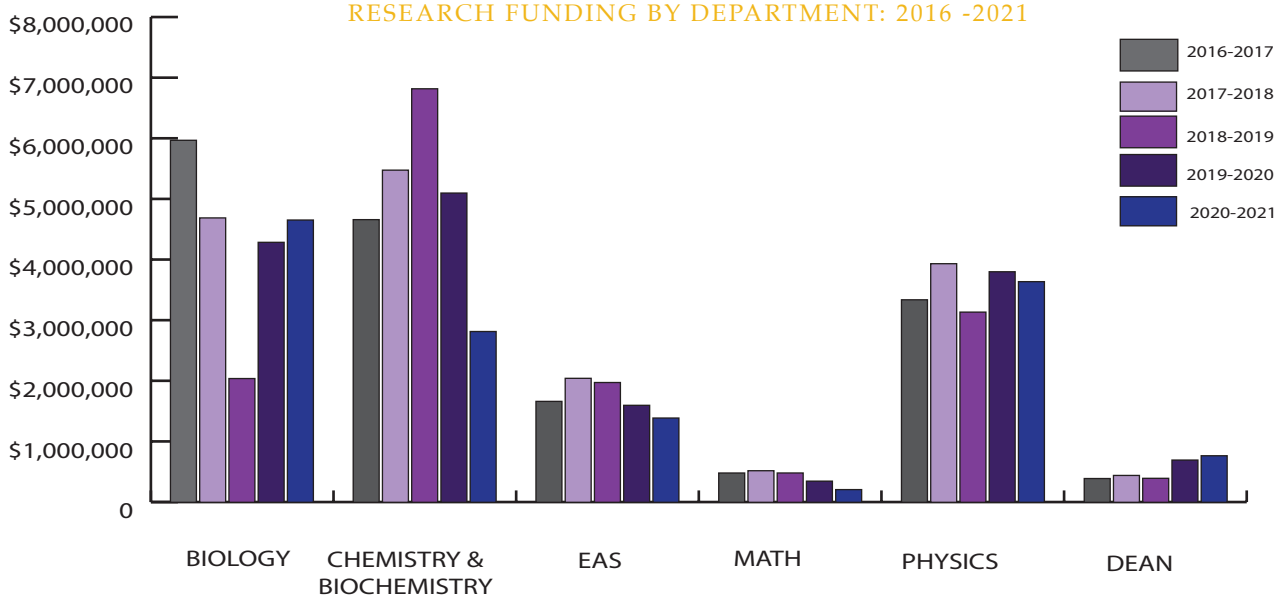
But, what to do after college, especially with the draft looming? Well, Albert Erhlich, a professor with whom Rind had taken several classes, shared an office with Bill Donn, who was a CCNY professor but who also did research at the Lamont–Doherty Earth Observatory at Columbia University. Erhlich said nice things about his student and Donn then told him, "If you come with me to Columbia then I can get you a deferment."

Suddenly, Rind was doing work related to the oceans and the climate; he got involved doing research on and teaching about the middle atmosphere and about ozone then improving the model being used for understanding the troposphere. He completed his Ph.D. in 1976 and joined NASA in 1978, publishing more than 400 peer-reviewed papers (he's among the leading NASA scientists in terms of citations), all while serving as an adjunct professor in atmospheric sciences in Columbia's Department of Earth and Environmental Sciences for over 30 years. So "kismet"—starting with the view from his window and then the draft and the intervention of a professor—turned out to be a pretty good foundation for a career for David Rind.

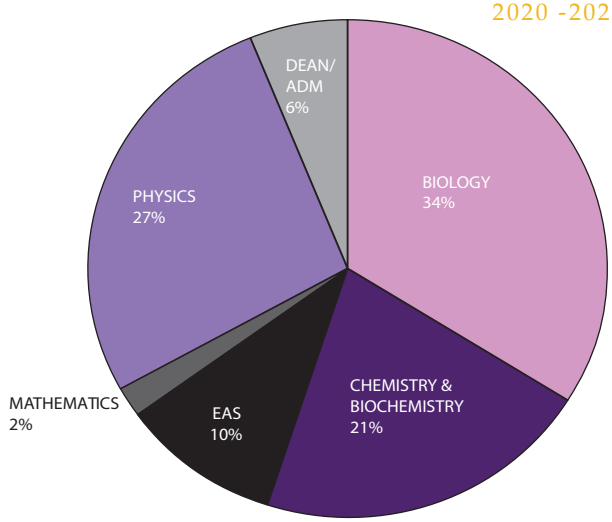
> "CCNY... was one of the prime locations if you were interested in studying the weather."

Research

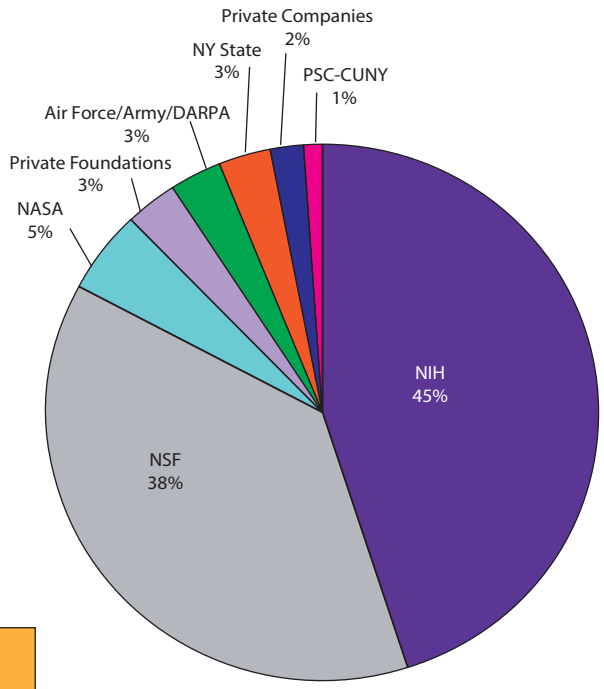
RESEARCH FUNDING BY DEPARTMENT: 2016 -2021



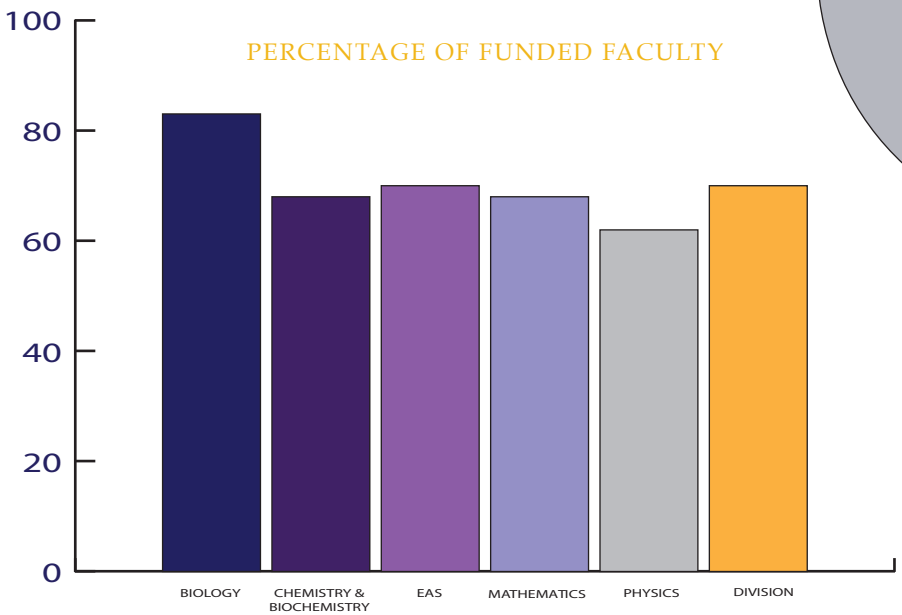
RESEARCH FUNDING BY DEPARTMENT 2020 -2021



EXTERNAL FUNDING SOURCE 2020 - 2021



PERCENTAGE OF FUNDED FACULTY



Research

Division of Science Top Awards

PRINCIPAL INVESTIGATOR	SPONSOR	DEPARTMENT	ANNUAL AWARD AMOUNT
Makse, Hernan	National Institute of Biomedical Imaging and Engineering	Physics	$1,064,970
Hubbard, Karen	National Cancer Institute	Biology	$1,042,065
Koder, Ronald	National Science Foundation	Physics	$900,000
Stark, Ruth	National Institute of General Medical Sciences	Chemistry & Biochemistry	$644,079
Pukatzki, Stefan	National Institute of Allergy and Infectious Diseases	Biology	$591,349
Lakshman, Mahesh	National Science Foundation	Chemistry & Biochemistry	$490,000
Pukatzki, Stefan	National Institute of Allergy and Infectious Diseases	Biology	$477,503
Jeruzalmi, David	National Science Foundation	Chemistry & Biochemistry	$469,832
Roth, Millicent	New York State Education Department - NYSED	Dean of Science	$450,000
Emerson, Mark	National Eye Institute	Biology	$392,500
Vuong, Bao	National Institute of General Medical Sciences	Biology	$392,500
Kidder, Steven	National Science Foundation	Earth and Atmospheric Sciences	$382,922
Khayat, Reza	National Institute of General Medical Sciences	Chemistry & Biochemistry	$378,250
Hubbard, Karen	National Cancer Institute	Biology	$362,428
Biscoe, Mark	National Institute of General Medical Sciences	Chemistry & Biochemistry	$307,160

Top Awards in each Department

PRINCIPAL INVESTIGATOR	SPONSOR	DEPARTMENT	ANNUAL AWARD AMOUNT
Pukatzki, Stefan	National Institute of Allergy and Infectious Diseases	Biology	$591,349
Stark, Ruth	National Institute of General Medical Sciences	Chemistry & Biochemistry	$644,079
Kidder, Steven	National Science Foundation	Earth & Atmospheric Sciences	$382,922
Hanson, Jack	National Science Foundation	Mathematics	$156,142
Makse, Hernan	National Institute of Biomedical Imaging and Bioengineering	Physics	$1,064,970
Roth, Millicent	NYS Office of Higher Education	Division of Science	$450,000
Roth, Millicent	NYS Office of Higher Education	Division of Science	$400,000

Retired

Professor Harold Falk

Harold Falk, Professor of Physics, retired in 2019 after more than 50 years at CCNY. Prof. Ngee-Pong Chang shared his memories of Harold Falk.

"I have known Harold Falk as a colleague, advisor, and friend for over 55 years, and it is such an honor to give a brief tribute to him as he retires from the CCNY Physics Department.

Harold is a colleague who has carried out his professorial duties with humility and diligence throughout his career. As the department grew in stature and size, there were many issues that were raised in department meetings. Typically, Harold would hold his peace and afterward send "Friend of the Department Remarks", which summarize and put forth good food for thought. The issues range from lofty ones in repeated searches for chairman, and for deans, to the seemingly lowly ones of departmental tutoring in MR 411, checking out the Smart Room in MR2 & MR3 that impact on the large room lectures, and on the choice of textbook for PHYS 20700 and 20800. He also worked with the Science Library in acquiring books and journals for the Physics Department.

Lest we think of Harold only as a hairsplitter or quibbler, he is ever a chronicler and historian, as when on Sep 23, 2010 he assembled a Physics Greet, Eat & Meet album that is a worthy archive of the time when the department gathered with the students for a lunch on the roof of Spitzer Hall. He also was the one who worked with Marty Tiersten and Bob Lea to identify the Old Physics Department Photo of 1960's that our aide Juan Paquelo had discovered.

On the personal level, I have benefitted from the many emails of encouragement and wishes for Lunar New Years, and the many dinners we shared in NJ and in NY.

As he now goes into retirement, may he & Cathy enjoy the time of joy and peace, and may we continue to benefit from his e-mails with ample `food for thought'."

Professor Joel Gersten

Joel Gersten, retired in 2020 after over 50 years of dedicated service in the Department of Physics. Prof. Gersten was a CCNY alumnus. He earned his Bachelor's at CCNY. He went on to Columbia University to earn his Masters and doctorate degrees. In 1970 he came to the CCNY Physics Department after two years in industry at Bell Labs. His research interests spanned theoretical condensed matter physics, surface physics, interaction of light and charged particles with solids, and STEM (Science, Technology, Engineering and Mathematics) education. His STEM interests spawned his status as an educator extraordinaire. Prof. Gersten's Foundation of Physics sections were sought out by all CCNY students. Of the many positive student remarks, the statement below sums it up. "I found Prof. Gersten's summer class quite enjoyable. I loved the material (it is much more interesting than physics I) and Prof. Gersten's knowledge and passion for the subject was inspiring. He is extremely fair and really wants to help his students grasp physics. Although the class was rushed (as all summer classes are), I gained a deep understanding of and appreciation for the material…you can actually learn something by taking Prof. Gersten's class."

In Memoriam

Ralph Kopperman

Ralph David Kopperman passed away on February 6, 2021, from COVID-19. He was born on February 17, 1942 in New York City and dedicated his life to his love of learning, teaching, travel, nature, and family.

He received his A.B. in Mathematics from Columbia College in 1962 followed by his Ph.D. from Massachusetts Institute of Technology in 1965. He joined the Mathematics Department at CCNY in 1967, where he stayed until his retirement in 2013 serving as chair for his last year. His academic career began as a Logician, but then changed to Topology in the late 1970s where he became an important figure in that field. He co-authored over 75 academic papers and a graduate textbook on Model Theory. He served on the editorial board of the journal Topology and its Applications from 1998 until he passed away and also founded the New York Seminar on General Topology and Topological Algebra and the Summer Conference Series on General Topology.

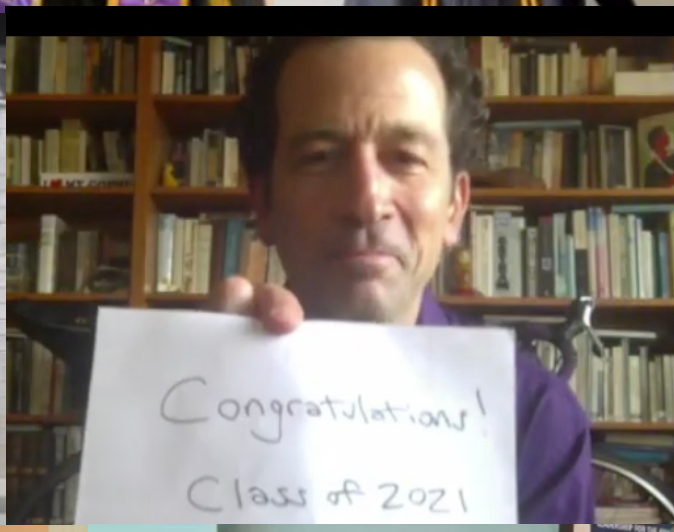
Demonstrating his love and pursuit of learning, he additionally received his M.A. in Psychology from City College in 1984. Even after his retirement, he continued educating and mentoring aspiring mathematicians.

Alvin Katz

Alvin Katz, a research associate in the Department of Physics, died on the evening of July 8, 2020 while walking outdoors. Al was born on June 3, 1949 to Mortimer and Ruth Katz. He received his Bachelor of Science degree in Physics in 1980 from the City College of New York, and his PhD in Physics from the City University of New York in 1988. After a postdoctoral research stint at CCNY, he joined the Interdigital Communication Corporation (ICC) in Port Washington, NY as a research scientist in 1991. He returned to CCNY as a research associate in 1994 and continued in that position to the end. Al was a devoted research scientist. His research at CCNY involved the use of time-resolved laser spectroscopy to study ultrafast processes in semiconductors; development of optical spectroscopic techniques for detection and diagnosis of diseases; laser welding of biological tissues to heal wounds; investigating the role of bacteria in modifying clay structure and the formation of new minerals; and exploring the role microbes play in storage of organic carbon in soils. More recently, he was using cryo-electron tomography to investigate the structure of viruses and virus like particles. He has successfully collaborated with researchers in the departments of Physics, Earth and Atmospheric Sciences, as well as Biology and Medicine. At ICC he was involved in developing components and methods for optical communications and information processing applications. Al was a wonderful colleague – knowledgeable and ready to help. He seldom missed any departmental colloquia, and would be there to help solve the glitches with audio-visual equipment that had a way of turning up before a talk. He served as a co-mentor to students of his collaborators from other departments, training them meticulously on optical, light-scattering, and numerical techniques. He was a cosmopolitan progressive in his views on political and social issues. Al had several serious health issues in recent years but was quite stoic about those. He would be hospitalized, undergo treatments, but would get back to the department, conducting his research at the first available opportunity. He told his family that he would never retire so that he could keep his "mind sharp." (Contributed by Swapan K. Gayen)

Graduation

2020 - 2021



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