From the Vice Chancellor

This past academic year at CUNY was notable for many impressive research accomplishments, and was also marked by the opening of doors at several important new research facilities. Throughout this newsletter, we not only recognize the remarkable achievements of many of our faculty and students, we also celebrate the programmatic and institutional advances that have strengthened the overall research infrastructure of the University.

In terms of opening new doors, in January of this year Hunter College moved into its new lab space in the Belfer Research Building of Weill Cornell Medical College (p. 3). Also in January, Brooklyn College opened its new office space for the Science and Resilience Institute at Jamaica Bay and welcomed Adam Parris, the new Executive Director (p. 2). Both initiatives feature important collaborations with research institutions in and around the City. Hunter’s association with Weill Cornell is already leading to collaborative research discussions between faculty from the two institutions. The Science and Resilience Institute at Jamaica Bay, led by CUNY and particularly Brooklyn College, includes a consortium of institutions including Columbia, Cornell, Rutgers, Stony Brook, Stevens Institute of Technology, and the Wildlife Conservation Society. This is a prime example of collaborations across institutions leading to something greater than the sum of their parts, and we are excited to see the Institute grow and address important issues related to the resiliency of the Bay and beyond.

Activity at the CUNY Advanced Science Research Center (ASRC) also started in earnest this year, and in April the first ASRC scientific program was held in partnership with the World Science Festival (p. 7). Next to the ASRC, City College faculty and students began moving into the Center for Discovery and Innovation this spring. Just around the corner, we opened our new business incubator, the CUNY Hub for Innovation & Entrepreneurship (CUNY iHUB) with the first event on May 19 (p. 4).

All of these new facilities and endeavors are indicative of the synergistic relationships that are continuing to evolve and strengthen ties between CUNY faculty and local and regional academic institutions and organizations. The promotion of collaborative and interdisciplinary research has long been one of the primary missions of my office and I am delighted to see all of the extraordinary progress in this area. The highlights covered in this newsletter range from research projects carried out by our students to the research achievements of a few of our many distinguished faculty; we also feature our recent entrepreneurial successes—all of these facets are tied to the ambitious expansion of research and education at CUNY.

Wishing everyone a great and productive summer.

Gillian Small
Vice Chancellor for Research

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Parris named Executive Director of Science and Resilience Institute at Jamaica Bay

The Institute’s mission is to increase understanding of how disturbances impact natural and human systems in urban watersheds through resiliency-focused research of Jamaica Bay, and to engage government and community stakeholders in the translation of that knowledge toward a more resilient system.

In January, the Science and Resilience Institute at Jamaica Bay (SRI@JB) named Adam Parris, an expert on social and environmental change in US coastal zones, as its first Executive Director.

Parris comes to CUNY from the National Oceanic and Atmospheric Administration (NOAA), where he served as the Climate Assessment and Services division chief, Regional Integrated Sciences and Assessments program manager, and as a physical scientist. Prior to his work at NOAA, Parris was a coastal planner for the San Francisco Bay Conservation and Development Commission.

The SRI@JB is a new CUNY-led consortium, with Brooklyn College taking a leading role, that advances innovative thinking and learning about the resilience of urban coastal regions through programming that promotes research and public engagement. The SRI@JB is a joint initiative among the National Park Service, the City of New York, and a consortium of leading research institutions, including CUNY, Columbia University, Cornell University, Rutgers University, NASA Goddard Institute for Space Studies, New York Sea Grant, Stevens Institute of Technology, Stony Brook University (SUNY), and the Wildlife Conservation Society.

Since its launch in August 2013, the SRI@JB has received $4.3 million in research funding from Federal and private sources and $16.2 million in capital funding from city, state and federal sources. This includes $7.7 million from New York State as part of the CUNY 2020 challenge grant initiative, $3.6 million from the Department of the Interior’s Hurricane Sandy Mitigation Funding, and a commitment of $7.5 million from the City of New York for the permanent SRI@JB home within Gateway National Recreation Area. It has also received significant support from the Rockefeller Foundation directly and through the Jamaica Bay-Rockaway Parks Conservancy.

The SRI@JB is using CUNY 2020 funds to develop a top-tier research and engagement facility at Floyd Bennett Field and a research vessel for ongoing monitoring and research of Jamaica Bay. The institute has begun to study the water quality within Jamaica Bay and the health and resilience of its salt marshes, and also monitor and evaluate ecosystem restoration efforts. SRI@JB affiliated researchers have also secured a contract with Island Press to write a book entitled Prospects for Resilience, which provides an integrated framework for the strategic research goals of the SRI@JB going forward.
CSI-CUNY Speech Laboratory promotes linguistic research

The new CSI-CUNY Speech Laboratory, a lab led by Director Jason Bishop for the study of speech production and perception at the College of Staten Island, opened in Fall 2014 and has already had several notable achievements.

The lab, housed in the CSI Linguistics Program, merges faculty, graduate and undergraduate research. Since its inception in Fall 2014, the lab has produced several refereed journal articles and conference papers, and has sent students and faculty to major international conferences.

This month, CSI linguistics undergraduates Juliana Colon and Nicole DiMeglio will be presenting research at the annual convention of the Association for Psychological Science (with Bishop); another linguistics undergraduate, Steven Arriaga, will be presenting at Formal Ways of Analyzing Variation 4 with Bishop’s colleague at CSI, Christina Tortora.

The Lab also provides resources for Tortora and her NSF-funded post-doctoral researcher, Greg Johnson, in their large-scale corpus projects. This corpus work focuses on two varieties of spoken English — namely Appalachian English, funded by NSF, and New York City English, funded by a CUNY Collaborative Incentive Research Grant.

In addition to supporting undergraduate research at CUNY, the Speech Laboratory is also engaged in collaborative work with the Phonetics Laboratory at the University of California, Los Angeles, and the Speech Production, Acoustics and Perception Lab at the CUNY Graduate Center.

Department of Justice Awards John Jay $4.7M for National Initiative for Building Community Trust and Justice

David M. Kennedy, professor of criminal justice at John Jay College of Criminal Justice, was named the director of the National Network for Safe Communities initiative and was awarded an accompanying three-year, $4.75 million grant.

Attorney General Holder announced the plan — tied to the National Initiative for Building Community Trust & Justice — in March.

As director, Kennedy will assess the police-community relationship in six pilot sites, as well as develop a detailed site-specific plan to enhance procedural justice, reduce bias and support reconciliation in high-need communities.

The six pilot sites are Birmingham, Ala.; Ft. Worth, Texas; Gary, Ind.; Minneapolis, Minn.; Pittsburgh, Pa.; and Stockton, Calif.

The project will be based at John Jay in partnership with Yale Law School, the Center for Policing Equity at UCLA and the Urban Institute.

This is just one highlight of an exceptional year for John Jay as a research institution. It has brought in more than $22 million in external research funds in the 2014-2015 fiscal year — a historic milestone in the College’s expanding research profile.
Institutional news

Entrepreneurship at CUNY

Over the last decade CUNY has built significant capacity in research, especially in science and engineering, positioning the University as an important regional resource for economic development. A major goal of the Research Office is to cultivate and oversee an environment that fosters innovation and entrepreneurship at CUNY, and for the past several years we have been building the infrastructure and programming to support this goal. The diagram at right illustrates the relationship between the various programs and Centers that constitute the CUNY Innovation and Entrepreneurship Infrastructure. All of the programs are either explicitly or potentially linked, which allows CUNY innovators multiple entry points into this support system.

CUNY iHUB designated NYC Innovation HotSpot

CUNY greeted a diverse group of investors at an introductory event at the Hub for Innovation & Entrepreneurship (iHUB) on May 19 in Harlem.

The iHUB, a NYSTAR-designated Innovation Hot Spot, is a business incubator designed to promote faculty entrepreneurship and start-up companies. Operated under the supervision of the Office of the CUNY Vice Chancellor for Research Gillian Small, the iHUB will embrace entrepreneurship in science and engineering as well as in non-science based companies.

The launch event featured three panel discussions, which covered understanding entrepreneurial programs, the demands of beginning a life science startup in New York City and the challenges of continuing to gain funding. The panels featured an array of business owners with connections to various institutions within CUNY.

The iHUB occupies 7000 square feet at its location on West 125th Street in Upper Manhattan. It is expected to host about 15 companies in the initial 18 months, ultimately housing 25 to 30 companies by the end of its third year.

During its initial stages, the iHUB will be a business incubator, offering tenants professional mentorships in addition to a host of collaborative and supportive services.

“The iHUB will allow CUNY to offer a robust support system to entrepreneurs who aspire to start new business through professional business systems specific to their needs,” Small said. “Through these services and the usage of the extensive facilities and equipment resources available at CUNY, the University will continue to improve its standing as a major regional resource for economic development.”
Several CUNY start-ups meet corporate reps at DC conference

Three CUNY start-ups participated in the Company Showcase at the National Council of Entrepreneurial Tech Transfer (NCET2), University Startups and Global 1000 Conference held March 11-12, in Washington DC. InfoShield, Vista Wearables and ARL Designs were among a select group that received interest from corporate representatives.

The InfoShield team was led by Delaram Kahrobaei, (CUNY Graduate Center) and Vladimir Shpilrain (CCNY). InfoShield has developed a homomorphic data encryption algorithm for safe storage, fast retrieval and manipulation of protected data in the cloud. VISTA Wearables provides wearable navigation assistance for the vision-impaired and was led by two former CCNY students, Frank Palmer and Lei Ai, and one current graduate student Edgardo Molina. ARL Designs develops high performance, low-cost superhydrophobic surfaces for applications ranging from construction materials to medical devices and was represented by Elizabeth Kujan, the Entrepreneurial Lead for ARL Designs.

ELabNYC features 3 CUNY-related start-ups

Three CUNY-affiliated start-ups — ARL Designs, Optologix and Scalable Genomics — are participating in the Bio & Health Tech Entrepreneurship Lab NYC (ELabNYC), a prestigious six-month training and mentorship program for aspiring entrepreneurs in the local life sciences and healthcare technology community.

The program is an initiative of the New York City Economic Development Corporation and provides support to graduate students of science, post-docs, early-career researchers and engineers interested in forming new biotech and health tech ventures.

The three start-ups cover an array of scientific interests. ARL Designs (pictured at top), founded by Alan Lyons, professor at the College of Staten Island, has developed superhydrophobic virtual-well microplates enabling accurate nanoliter dispensing for high throughput/content screening at low cost.

Optologix, created by Kevin Gardner, professor at City College and director at the CUNY ASRC, has developed products that use light to activate gene expression in cells and animals, allowing for nontoxic, rapid, precisely timed and localized induction unmatched by chemical-based methods.

Hunter College Professor Ntino Krampis founded Scalable Genomics, which provides bioinformatics software for plug-and-play analysis of Big Data from genomic sequencing of clinical, environmental, genomic, and forensic samples.

Empire State Development

Fund to provide pre-seed and seed funding established

The Empire State Development Corporation has awarded $1.5 million in New York State Innovation Venture Capital Funds to CUNY to create the New York City Innovest Fund. NYC Innovest is a CUNY-based venture fund developed by Douglas Adams, the Director and Senior Business Development Officer of the CUNY Technology Commercialization Office.

The New York City Innovest Fund will be an independent entity that provides pre-seed and seed funding to enhance technology commercialization efforts for New York City based ventures. NYC Innovest will capitalize on CUNY’s existing programs to support faculty entrepreneurship and technology development. The fund will initially target the life sciences and software sectors to include biotech, medical devices, healthcare, and social innovation.

For more information about the NYC Innovest Fund contact Doug Adams at douglas.adams@mail.cuny.edu.

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Recent start-ups at CUNY

The Technology Commercialization Office's (TCO) mission is to manage, market and commercialize inventions generated by CUNY inventors. The TCO introduces the CUNY teams to investors, entrepreneurs and potential licensees. The following are start-ups that have received or are negotiating investment funding, have secured highly qualified CEOs or have identified industry partners interested in partnering with CUNY-related start-ups:


**LITE (Light Inducible Transcription Effect) Switch** - Providing light-activatable reagents to control gene expression and consequently protein production. Inventors: Kevin Gardner and Laura Motta-Mena from CUNY’s Advanced Science Research Center Structural Biology Initiative.

**SIPPA Health** - Securing the privacy of electronic health records. Inventor: Bon Sy, Computer Science Department, Queens College

**PathMaker Neurosystems Inc.** - Neuro-modulation technology for treating and resolving paralysis and other neuromuscular dysfunctions. Inventor: Zaghou Ahmed, College of Staten Island; CEO: Nader Yaghoubi

**Avicenna Pharmaceuticals, Inc.** - Designs and synthesizes anti-cancer agents that target multiple pathways important in inflammation. Inventor: Kho Kashfi, City University of New York Medical School.

**Alumina Solar** - Dedicated to solving the world’s growing energy and climate change problems through an innovative thermal energy storage technology for concentrat-

**PowerBridge NY Cycle 2 Awardees Announced**

CUNY has partnered with New York University on PowerBridgeNY, a New York State Energy Research and Development Authority (NYSERDA) funded clean energy proof-of-concept center (POCC) dedicated to helping New York State inventors and scientists turn their high-tech, clean-energy ideas into successful businesses.

In March, the second cycle of PowerBridge NY awardees were announced and two teams from CUNY were selected to develop their one-year project plans.

During the year, they will conduct at least 100 customer interviews to determine their best initial target market and develop their technologies by building a commercial prototype and/or conduct in-field testing.

**Energy Efficient Recycling of Fiberglass for Reuse in Construction**

*Ardavan Yazdanbakhsh (CCNY)*

Fiberglass (FRP) wind turbines came to New York State in 2000. The maximum service life of FRP wind blades is 20 years. FRP recycling is energy-intensive and expensive, which is discouraging to potential investors in the wind energy industry. The Yazdanbakhsh team is presenting a less energy-intensive recycling approach: the recyclates can be incorporated into commercially used concrete, and, potentially, other construction materials.

**Weather-Driven Energy Forecasting System for Commercial Buildings and Energy Managers in Urban Areas**

*Jorge E. Gonzalez (CCNY)*

This CUNY team has developed a weather-driven energy forecasting system with days-ahead, zero-touch capabilities. The technology couples a building energy model with a weather forecasting system allowing for prediction of energy demands for every building in an entire city simultaneously. This forecasting system allows the team to bring detailed information to energy managers, traders, and other stakeholders for making more informed decisions.

The Cycle 2 cohort kicked off on May 11th at the Urban Future Lab at NYU Poly in Brooklyn. NYCRIN national I-Corps Instructors Micah Kotch (NYSERDA), Christina Pellicane (NYCRIN) and John Blaho (NYCRIN) led the training of these fledgling start up companies.
Brian Greene and John Hockenberry were among the many luminaries at the City University of New York (CUNY) Advanced Science Research Center’s (ASRC) “Transcending Scientific Boundaries” event on April 23. Chancellor James B. Milliken provided a warm CUNY welcome as the distinguished audience arrived at the ASRC.

The event, held in partnership with the World Science Festival, featured three of the ASRC’s initiative directors, Kevin Gardner (Structural Biology), Rein Ulijn (Nanoscience) and Charles Vörösmarty (Environmental Sciences). The directors discussed their own research and examined how multidisciplinary questions like urbanization of the planet, the greying of the population and sustainable technology will require interdisciplinary answers.

CUNY Vice Chancellor for Research and ASRC Executive Director Gillian Small, provided insights into the ASRC’s mission as a unique, university-wide integrated research venture designed to promote intellectual cross-pollination and partnerships between scientific disciplines and laboratories – a literal vertical integration of big ideas.

“I was delighted to have a diverse representation from the New York scientific community present to participate in the discussion among John Hockenberry and the ASRC directors related to the collaborative approach that science needs to drive innovation and truly unlock problems,” Small said.

Greene, author of ‘The Elegant Universe’ and co-founder of the World Science Festival, introduced the evening’s program. He commended CUNY and the ASRC for promoting and ensuring an environment of cooperative research.

Hockenberry, a four-time Emmy Award winner and three-time Peabody Award winner, moderated the panel discussion with the three directors that revealed how innovative and collaborative approaches that are enabled by the ASRC can push their work into exciting, unexplored territories and help solve some major 21st century challenges.

Alan Alda, the award-winning actor and World Science Festival board member, and Matthew Goldstein, CUNY Chancellor Emeritus, attended the event and contributed to the lively discussion following the panel conversation.
2015 Junior Faculty Research Award in Science and Engineering Program recipients

The CUNY Junior Faculty Research Award in Science and Engineering Program aims to cultivate the excellence and ensure the promise of research-intensive, early-career, science and engineering faculty at CUNY. It is expected that this early career opportunity will advance the research programs of the faculty recipients and accelerate their ability to attract significant external funding.

Mark Emerson, CCNY

Mark Emerson is an Assistant Professor in the Biology Department at the City College of New York. Since joining CUNY as a developmental biologist in the fall of 2012, he has quickly established a research presence, built an active research group and enhanced the neuroscience research program and the biology department.

The Emerson Lab’s research focuses on understanding the molecular and cellular mechanisms that underlie the development of the vertebrate retina. This allows them to investigate fundamental questions regarding the development of the nervous system. In particular, the lab looks at cone photoreceptors, which are “highly specialized cells that play a critical first step in the perception of bright light sensory stimuli that make up most of human visual stimuli.”

Emerson is a graduate of Oberlin College and completed his doctoral and post-doctoral work at Harvard University and Harvard Medical School. He has been an active mentor throughout his postgraduate career, working with both undergraduate and graduate students and participating in an outreach program that brings middle school students into research labs. Recently, Emerson was awarded an R01 from the National Eye Institute to study transcriptional networks involved in cone photoreceptor genes and a grant from the Retina Research Foundation to generate a stem cell model of these cells.

Mandë Holford, Hunter College

Mandë Holford is an Associate Professor in Chemistry at Hunter College. Her research focuses in the discovery, characterization and delivery of peptide therapeutics from venomous marine snails and has included the design of a carbohydrate peptide chip for screening peptidic snail toxins. Her lab identifies rich peptide toxins from a venom source, develops high-throughput methods for characterizing structure-function peptide interactions, and produces novel peptide targets for therapeutic development. This evolutionary approach to drug discovery and development puts her at the forefront of Venomics, an emerging scientific field.

Since joining CUNY in 2008, Holford has played an active role in both the development of her lab and in encouraging research and scientific education more broadly. She developed educational outreach programs to high school students at both the American Museum of Natural History and at the Utah Museum of Natural History. She also cofounded RAISE-W (Resource Assisted Initiatives for Science Empowerment for Women) with funding from the NSF.

She has received several awards including being recently named a New Champion Young Scientist by the World Economic Forum, a prestigious Camille Dreyfus Teacher-Scholar Award, an NSF CAREER Award, and named a 21st Century Chemist in the NBC-Learn, Chemistry Now series. Holford graduated from York College and the Rockefeller University. She completed postdoctoral work at the University of Utah, the Max Delbruck Center for Molecular Medicine and the Muséum National d’Histoire Naturelle in Paris.

Summer undergrad and faculty research program awarded $1.2 million for STEM

In September 2014 the Alfred P. Sloan Foundation awarded Vice Chancellor Small $1,123,106 to fund the CUNY Summer Undergraduate Research Program (C-SURP) and the CUNY Junior Faculty Research Award in Science and Engineering (J-FRASE). The Sloan Foundation provided this renewed support to encourage promising early career scientists at both the undergraduate and junior faculty levels. The C-SURP has provided summer research experiences for 90 students in STEM disciplines since launching in 2010, and the J-FRASE has awarded twelve $50,000 fellowships to outstanding junior faculty since the program commenced in 2012 with Sloan funding. The Sloan Foundation grant will continue to support both of these very successful programs for a further three years.
David Lohman, CCNY

David Lohman is an Assistant Professor in the Biology Department at the City College of New York. His work focuses on the role that geography plays in biological diversification.

Lohman’s lab researches the ecology, evolution, biogeography, and conservation of butterflies and other organisms in Southeast Asia to examine patterns of biodiversity and the processes that generate them. Lepidoptera (butterflies and moths) are the best characterized insects, making them ideal for comparative analysis. Recent projects investigate the role Buddhist temples play in biodiversity conservation and dispersal patterns of flying foxes that can vector human pathogens. Lohman collaborates with scientists in Indonesia, Nepal, Panama, the Philippines, Singapore, Sri Lanka, Taiwan and Thailand, where he helped establish a biological research station in collaboration with the Center for Tropical Forest Science of the Smithsonian Institution.

Lohman joined CUNY in 2009. He currently serves, among other roles, as a visiting scientist at the American Museum of Natural History and as a Research Associate at the Museum of Comparative Zoology at Harvard University. He is a graduate of Bradley University, was a Fulbright Scholar at Griffith University in Australia and completed his Ph.D. and postdoctoral work at Harvard and the National University of Singapore.

Ryan Murelli, Brooklyn College

Ryan Murelli joined the Department of Chemistry at Brooklyn College as an Assistant Professor in 2010. Over the past five years, Murelli has created an impressive research program that is making significant contributions to the fields of chemistry and medicine. His group has secured over $2 million in federal funding, and has established an international network of collaborators spanning over a dozen institutions from all over the world.

Murelli’s research is aimed at identifying challenges and opportunities in biology and medicine that are in need of new advances in synthetic organic chemistry. These studies can range from developing and improving individual reactions to establishing multi-reaction routes to valuable molecular targets. The group’s main research area involves α-hydroxytropolones, which are promising lead therapeutic targets for dozens of human diseases. The group has developed a powerful new route to access these molecules, and is using it as part of collaborative research programs in search of clinically viable drugs for HIV, Hepatitis B and Herpes Simplex Virus, antibiotic resistant bacteria and more.

A graduate of Hamilton College in Upstate New York, Murelli completed his Ph.D. at Boston College and postdoctoral work at Yale University. He is a zealous mentor to graduate and undergraduate students, both inside and outside of his lab, and has a diverse and active teaching load.

Joshua Sussan, Medgar Evers College

Joshua Sussan joined the Department of Mathematics at Medgar Evers College as an Assistant Professor in 2012. Over the past few years he has become a leading expert in applications of Representation Theory to low dimensional topology, the study of shapes in three or four dimensions.

Sussan’s current research is in the field of Categorification. Using sophisticated mathematical machinery in collaboration with colleagues at Columbia, Yale and other institutions, he has worked on categorifying classical knot invariants. With these collaborations Sussan is at the forefront of this exciting, fertile new field, which should quickly grow in significance and applications.

In addition to his academic research, Sussan organized a 2013 Columbia University conference on “Hecke Algebras in number theory and categorification”. He is also a co-organizer of the weekly CUNY Representation Theory Seminar at the CUNY Graduate Center. Sussan is a graduate of MIT, completed his Ph.D. at Yale University and did postdoctoral work at the University of California, Berkeley. Prior to joining CUNY, he was a visiting scholar at the Max Planck Institute for Mathematics in Bonn and an Assistant Professor at Mercy College.

Spotlight on...

Alfred Rosenberger, Brooklyn

The discovery of a supermassive underwater graveyard in Madagascar by Alfred Rosenberger and his team may offer insight into one of the most rapid extinctions ever in history. Such a large cache of fossils has never before been explored, but the murky 130-foot deep caves are perfect for undisturbed fossils, including the giant lemur — the extinct ancestor of the world’s most endangered mammal species. The sudden death of much of Madagascar’s wildlife coincided with the arrival of humans 2000 years ago. Rosenberger’s findings could offer perspective on species’ survival through a deeper understanding of the past.
Marom Bikson, professor of biomedical engineering in The City College of New York’s Grove School of Engineering, was inducted into the American Institute for Medical and Biological Engineering’s (AIMBE) College of Fellows on March 16 in Washington, D.C. Bikson researches the effects of electricity on the human body, with applications including the development of devices called “electroceuticals.” His lab has developed or validated new technology that is in use in over 200 medical centers around the world.

Steve Greenbaum, professor of physics at Hunter College and the CUNY Graduate Center, has been elected to work with the Global Entrepreneurship Program (GEP), an initiative launched by then-Secretary of State Hillary Clinton in 2010.

The GEP came to fruition after a speech from President Obama that highlighted the prospect of exporting America’s entrepreneurial spirit to the rest of the world, in particular the developing world.

More recently, Secretary of State John Kerry stated, “Foreign Policy is Economic Policy.” Promoting entrepreneurial activities is considered an important component of Secretary Kerry’s Shared Prosperity Agenda. Greenbaum, one of eleven 2014-15 Jefferson Science Fellows serving as senior advisors at the State Department, organized the first-ever entrepreneurship course module at the State Department’s Foreign Service Institute. The program included State Department and non-U.S. Government speakers who discussed the rationale motivating the State Department’s support for entrepreneurship, and practical tips for how officers can promote entrepreneurial activities back at their Embassy posts.

John Blaho, Director for Industrial-Academic Research in the Office of the CUNY Vice Chancellor for Research, spoke about university-based innovation and CUNY’s leadership in the NSF I-Corps program. The latter has been championed by CUNY’s Vice Chancellor for Research Gillian Small as an ideal mechanism to transfer technology from universities to the marketplace.

The Foreign Service Institute’s Economic Course leadership will use the student evaluations to determine if an entrepreneurship course should be part of their permanent offerings.

BMCC Professor and Presidential Scholar Jun Liang, along with Co-Investigator Cathy Savage-Dunn (Professor of Biology at Queens College), recently received $150,000 from the National Institutes of Health to research molecular mechanisms that respond to stress and impact on aging. This is the first NIH grant BMCC has received as the lead institution for active scientific research. It is also the first time a major NIH research grant has been awarded to a community college as a leading institution, within CUNY and the U.S.

Liang’s work will help address the critical need to define the mechanisms that extend a person’s health span, or the amount of time he or she is able to maintain good health.
Along with his research team, Vinod Menon, professor of physics at CCNY, has developed a method that could make optical computer networks far faster by utilizing metamaterials. Metamaterials are constructed to form precise patterns smaller than the wavelength of the type of radiation (or wave) they manipulate. These devices can bend waves, such as light and radar in unnatural ways. With a much better understanding of the science behind metamaterials, researchers have expanded their applications from building walls that help protect against earthquakes and tsunamis to developing better sunblock.
Spotlight on...
CUNY ASRC postdoctoral research grant winners

The CUNY-ASRC Cooperative Postdoc Research Grant was established for CUNY faculty who are not based at the ASRC full-time to support a postdoctoral scientist who will collaborate on a research project with a member of the permanent ASRC faculty or an ASRC core facility director. The program is competitive, with annual selections made by an external advisory panel. The 2015 CUNY-ASRC Cooperative Postdoc Research Grants have been awarded to Dr. Luat Vuong, Assistant Professor in the Physics Department at Queens College and Dr. Charles Maldarelli, Professor of Chemical Engineering in the Levich Institute at the City College of New York. Each investigator has received $70,000 to support a postdoctoral fellow for one-year on a collaborative project with an ASRC faculty or staff member.

CUNY students featured in Albany

In February, CUNY partnered with the Graduate and Research Committee of the State University of New York University Faculty Senate in organizing a graduate research symposium entitled “Graduate Research: Making a Difference in New York, Partnering with SUNY and CUNY.”

The celebration is held in legislative offices in Albany and is designed to bring together graduate scholars from both SUNY and CUNY to meet with university administrators — including Vice Chancellor Gillian Small, who was in attendance — and members of the New York State Legislative delegations.

Post-doc profile: Jessica Joyner

Understanding the emerging field of metagenomics and applying that knowledge to undergraduates across the university requires a new kind of training. Jessica Joyner joined CUNY as a postdoctoral fellow in 2014 to do just that as part of the National Science Foundation-funded Authentic Research Experience in Microbiology project. Jessica is mentored by the co-PIs of the project, Theodore Muth (Brooklyn College) and Avrom Caplan (CUNY Central Office and CCNY). The project broadens participation in undergraduate research by undergraduates across CUNY, who collect environmental samples for genomic analysis.

Besides performing analysis on the samples, Jessica also administers the program that is currently running across 14 CUNY schools with almost 700 students participating in this academic year.

A big part of Jessica’s responsibility is running analysis sessions at each participating college and she has developed novel pedagogies for illustrating and understanding local microbial diversity in a classroom setting.

Jessica earned her doctorate in Ecology in 2014 from the University of Georgia after completing her bachelor’s degree at Florida State University. Her dissertation focused on coastal water quality and coral disease in the Florida Keys.

Through integrating public health and coral reef health, Jessica navigated the process of communicating science to diverse audiences. Jessica’s goal is to continue researching and teaching in the field of environmental microbiology.
Summer Undergraduate Research Program

CUNY’s 2015 Summer Undergraduate Research Program (CSURP) invites applications from talented undergraduates interested in research careers in the sciences. The 10-week program offers a hands-on research experience and is open to students interested in five key research areas: environmental science, nanoscience, neuroscience, photonics and structural biology. Successful applicants will be matched with a faculty mentor at one of CUNY’s eleven senior colleges. All undergraduates completing their sophomore or junior year and community college students with at least 30 credits at the time of application may apply.

Sophia Carryl, Lehman College

Sophia Carryl (Lehman College) realized her interest in evolutionary biology at a very young age: “I announced to my parents [at the age of seven] that I would become a scientist.”

Working this past summer with Mark Hauber, a professor of psychology at Hunter, Carryl capitalized on that ambition as she studied how very young birds, who are intentionally left in nests of another species of bird by their parents — a phenomena known as brood parasitism — are able to recognize members of their own species without having ever been “imprinted” with the songs of their biologic parents.

Using both behavioral and neurologic assessment methods, Carryl and Hauber then went about implementing their experiment, gathering data and analyzing the results.

Though the findings were mixed, the team was able to sit down and together review the methodology in order to develop improvements.

Recently, Carryl was accepted in the Ph.D. program at the University of Chicago, and as she says it’s “all because of the CSURP program.”

Thomas Wilk, CCNY

The “intersections of electrical engineering and nanotechnology” is where Thomas Wilk’s (CCNY) interest lies, but his unique background and perspective have given him the direction to find it.

With a Master of Arts in English, Wilk taught as an adjunct professor before he decided to change career paths. Now in his junior year at City College, he has enrolled in the electrical engineering program.

This past summer, he worked with lasers in Swapan Gayen’s CCNY lab, where he experimented with manipulating light, reflecting it around a table and off small mirrors until it struck a tiny piece of metal. Glowing bright green from the light, the metal piece holds microscopic “Quantum Dots”, or tiny structures comprised of roughly 100 atoms that very efficiently pass along electrical charges as they absorb and release light.

The exact properties of Quantum Dots vary according to their structure and composition, which Wilk carefully recorded. Using optics to examine the internal structure of matter allows researchers to understand its various properties, like an object’s melting point, which is especially important for newly discovered or synthesized materials.

Microprocessors, light detectors, light emitting diodes (LEDs) and quantum memory storage could all be made more efficient from research like Wilk’s using Quantum Dots.
CUNY Research Scholars program encourages undergrad participation

Funds from office of New York City Mayor Bill De Blasio have been earmarked for research scholarships for associates degree students across CUNY. The funds are being used to fund the CUNY Research Scholars program at the three comprehensive schools (College of Staten Island, Medgar Evers College and the New York City College of Technology) and seven community colleges. The goal of the program is to encourage undergraduate participation in authentic research and to increase retention in STEM disciplines. There are 150 scholarships of $5,000 for the current academic year for students engaged in laboratory research experiences. Each student is paired with a professor and the research takes place during both semesters and the summer. The program enhances the laboratory experience with programming events and workshops, and will culminate in a summer symposium.

The CUNY Research Scholars Program is unique in targeting associates degree students to engage in faculty-led research projects on such a large scale.

CUNY launches new Data Science Initiative

With many industries relying more heavily on data-driven decision making, there is an increasing demand for talent who can easily navigate and decipher the endless flow of information, from consumer spending data to healthcare data.

To support this effort, the Office of the Vice Chancellor for Research launched the Data Science @ CUNY initiative with the goal of promoting data science research and education throughout all its colleges.

In addition, there is a need for new tools and approaches to not only analyze data but also to visualize it and make it more accessible to decision makers. CUNY is aiming to position itself as a leading institution in data science research and training.

On March 16th, more than 50 faculty members representing a diversity of specialties, from environmental sciences and economics to biology and sociology, participated in roundtable discussion to how to build on the existing programs and those in development to make this a cohesive and concerted effort throughout the CUNY system. Much was learned from that meeting and a Faculty Advisory Committee was established to facilitate participation among all of CUNY’s colleges and schools. Various efforts are underway to support the development and growth of data science at CUNY.

To learn more about the Data Science @ CUNY initiative, please contact Eric Vieira Ph.D., Director of Special Research Programs in the Office of the Vice Chancellor for Research, via email at eric.vieira@cuny.edu or via telephone at 646.664.8903.
NSF initiative supports STEM engagement between private industry and higher ed

CUNY is partnering with the Business Higher Education Forum (BHEF) and four other universities — Miami-Dade College, University of Massachusetts, University of Wisconsin and Washington University — on a five-year, $3.5 million dollar grant from the National Science Foundation.

The BHEF proposes to Implement & Evaluate Models for Business Engagement to Increase Undergraduate STEM Student Persistence. As a part of this project, CUNY is a founding member of their Undergraduate STEM Interventions with Industry consortium to develop and implement strategic, effective and sustainable engagements between private industry and higher education to increase the persistence and graduation of students in science and technology disciplines.

This year, CUNY established a collaboration with IBM to develop programming to create a pipeline of students who will transfer from CUNY community colleges to baccalaureate STEM programs at CUNY four-year colleges. IBM will provide direct input on the types of training and skills necessary for career success in the urban sustainability sciences field.

CUNY, Columbia, NYU, Cornell-Tech form NYC ASCENT tech consortium

The City University of New York, Columbia University, Cornell Tech-NYC and New York University have formed a consortium (NYC ASCENT) to connect the growing community of computing science and engineering postdocs, entrepreneurs, technology professionals and senior researchers both within academia and industry.

The program launched in Fall 2014 with an event near Times Square in Microsoft’s new NYC location. Guests enjoyed cocktails and hors d’oeuvres before taking part in a panel discussion on how computer scientists and engineers can better prepare for career advancement.

Over the past six months, the NYC ASCENT program committee has promoted and organized numerous career development events, including seminars in entrepreneurship and communicating science, and a two-day workshop on leadership. In addition, NYC ASCENT participants are invited to regular meetings at Microsoft Research where invited researchers from around the US present their latest developments. To attend, you must be a NYC ASCENT Fellow or Affiliate.

For Fellow eligibility requirements, please check the NYC ASCENT website, www.nycascent.org. Fellows also have access to annual travel awards. If you do not qualify as a Fellow, you can join as an Affiliate to get access to events and receive timely updates and invites.

For more information about NYC ASCENT, please contact Eric Vieira Ph.D., Director of Special Research Programs in the Office of the Vice Chancellor for Research via email at eric.vieira@cuny.edu or via telephone at 646.664.8903.
WHAP! brings community health issues to forefront

The Women’s Health Action Project (WHAP!), an initiative to illustrate to community health issues in the Bronx utilizing participatory research, showcased the results of its study at an exhibition on May 5 at Hostos Community College.

Led by Hostos professors Karen Winkler and Sarah Sandman, the project involved an interdisciplinary group of women students from the Community Health and Media Design programs researching their health concerns as women, while also exploring the socio-economic conditions that shape their lives.

The subsequent exhibition featured several visual displays, including large-scale photos of women with personal text placed in windows of the bridge over the Bronx’s Grand Concourse. There was also a gallery of photos and quotations about women’s lives that was displayed in the Hostos atrium and a wall of ribbon hung from a balcony with more than 40 questions about Hostos women’s health, written by the student research-participants.

Representatives from several community-based and women’s health organizations attended the open house, including members from Planned Parenthood of NYC, the Northern Manhattan Perinatal Partnership and the NYC Department of Health Citywide Asthma Initiative. Joining them in a provocative conversation about women’s health concerns and needs were Hostos students, faculty and administrators.

WHAP! received its initial funding via the CUNY Community College Incentive Research Grant Program (C3IRG), which supports the collaborative research efforts of faculty at CUNY Community Colleges in order to promote research productivity and to enhance, through multi-campus or multi-disciplinary collaborations, the prestige and prominence of the University.

The WHAP! exhibition was on display at Hostos through May 22, and Winkler and Sandman tentatively plan to put on the exhibition at other locations.

A website for the project is currently under construction. For more information, please contact Karen Winkler via email at kwinkler@hostos.cuny.edu.