

# CREST Semi-Annual Digest

A Publication of Cooperative Remote Sensing Science and Technology (CREST) Center

Volume 8 Issue 1

Summer 2010

## Director's Message...

In the ninth year of its existence the CREST center has once again proven its excellence both in the arena of science and education. Several research projects have come to fruition and many more collaborative projects are underway. Installation of new measurement infrastructure like the Long Island Sound Coastal Observation [LISCO]; as well as ground pointing Snow and Atmospheric Radiometers are some of the main accomplishments this year!

Sixteen CREST students graduated this summer. Judith Rivas; Vanessa Clarke; Leonardo DeLa Cruz; Gina Stovall; Ramdeo Singh; Fazlul Shahriar; Cheila Benavides (undergraduates); Javier Jimenez; Malka Rabinowitz; Kim Smith; Simone Hartley; Manuel Diaz Gonzalez (Masters) and Miguel Bustamante; Eduardo Hernandez; Charles Hill; Jasper Lewis (PhD).. CREST is committed to align and recreate its education and research strategic plans in line with NOAA's new "Next Generation Strategic Plan", while it prepares to re-write its next five year implementation plan, and a research road-map to thrive into next 5-year funding cycle.

Mary Kicza's visit to the CREST Annual Day celebration was very important event for us as was the CSC directors meeting with NOAA administrator Dr. Jane Lubchenco in January 2010.

As always, I am very proud of my CREST family members for their hard and zealous work that helps CREST remain a center of excellence in research and education!

- Reza Khanbilvardi, PhD, P.E.  
Director, NOAA-CREST

## 9th Annual CREST External Advisory & Scientific Board Meeting, May 13-14, 2010

The ninth Annual CREST External Advisory & Scientific Board Meeting was held at CREST/CUNY, NY, on May 13-14, 2010.

The one -and-a-half day meeting kicked-off at 9:00AM on May 13th with introductory remarks and a CREST overview presentation by Reza Khanbilvardi. Shakila Merchant presented the CREST Recruitment and Outreach activities to the members, while Fred Moshary briefed on the Education component. William Rossow, Pat McCormick, Ray Hoff, Barry Gross, Samir Ahmed, Charles Vorosmarty and Reza Khanbilvardi led the research presentations based on CREST's three main thematic areas. The luncheon poster session as well as selected advanced oral presentations by Debra/UMBC; Jasper Lewis and Charles Hills/HU; Ana Picon and Kibre Kibrewossen/CUNY was a good opportunity for the CREST students to showcase their re-

search work to the board members. The first day ended with a group dinner.

After these presentations and thorough review, the Board submitted 2010 recommendations to CREST. The members also agreed to provide technical insights to CREST in strategizing the next five year implementation plan and 5-year road map for CREST. The responses to the action items and the 2010 report will be made available to the Advisory Board one month prior to the 2011 Annual Meeting.



Dr. Reza Khanbilvardi

## Inside this Issue:

CREST Advisory Board Meeting	1
AMS Meeting	2
Vienna Conference	2
Flash Flood Conference	2
CREST Graduates	3
LSAMP Conference	3
CREST Picnic Day	3
Research Power Lunch	4
NESDIS-CI/CREST Directors Meeting	4
CREST Day	5
Snow Radiometer Launched	5
CREST Outreach Summer 2010	6
Pan American Conference	6
CREST Seminars & Publication	6
IN THE NEWS	7
International Collaboration at CREST—A trip to Argentina	7

For more information on the CREST program please contact:  
Dr. Shakila Merchant  
212-650-8379  
smerchant@ccny.cuny.edu

## EDITORIAL BOARD

MANAGING EDITOR  
Shakila Merchant

ASSOCIATE EDITORS  
Barry Gross  
Brian Vant Hull

EVENTS  
Nitta Monteiro

RECRUITMENT & OUTREACH  
Yajaira Mejia  
Nitta Monteiro

STUDENT CONTRIBUTORS  
Christine Chen  
Zulamet Vega

DESIGN AND LAYOUT  
Shakila Merchant

PRINTING AND PRODUCTION  
3D Studios

EDITORIAL ADVISORY BOARD  
Reza Khanbilvardi  
William Rossow  
Charles Vorosmarty

The NOAA-CREST Semi-Annual Digest is the Center's biannual publication that encapsulates all major yearly events that occur at the NOAA-CREST center and its partner institution.

## NOAA-CREST attends AMS Meeting, January, 2010

CREST attended the AMS student career fair held on the weekend preceding the main conference. 8-10 meteorology/ earth science students deliberately sought out the NOAA-CREST booth based on their interest in remote sensing as well as coastal studies, and Brian Vant-Hull, CREST Research Scientist discussed the program with them.



During the AMS conference, Zulamet Vega managed a booth set up at the vendor exhibit that was shared by NOAA-CREST, ISET and NCAS with the assistance of Sameh Abdelazim and Mark Arend. There were three oral presentations on behalf of CREST and ISET at the technical sessions with Mark Arend making two oral presentations "Inter-comparison of Vertical Profiling Instruments for Boundary Layer Measurements in an Urban Setting", "Assessment of CMAQ model outputs using remote sensing" and was an author on a third paper presented by Sameh Abdelazim "Development of All-fiber coherent Doppler LIDAR system for wind sensing" in the technical sessions of the conference.

These presentations communicated the latest developments and capabilities of CCNY's NYC

MetNet, its Lidar facilities and its air quality modeling efforts, all of which are funded by NOAA CREST and NOAA ISET grants.

In addition, during the poster sessions and the vendor exhibits, Dr. Arend engaged in some fruitful discussions with both government officials and industrial partners to help coordinate future investigations for the ground-based remote sensing

networks at CCNY and to promote a positive image on behalf of NOAA CREST and NOAA ISET.

Students found this as an extremely beneficial experience, Nathan, a graduate student said "as an attendee of the AMS 2010 meeting, I was quite appreciative of the exhibitor booths, it gave me an opportunity to meet with the people who create many of the tools I use in my own research'. After canvassing the entire floor plan, he had made contacts with the folks from Weather bug, and they told him how he could improve and further his research. It was nothing short of an invaluable experience, Nathan said and further added, "that the events at the Georgia Aquarium and the Georgia Dome were cool too and apparently scientists aren't all books and formulas!"

## Alvaro Gonzalez presented his research work at an International Conference, at Vienna, Austria, April 2010

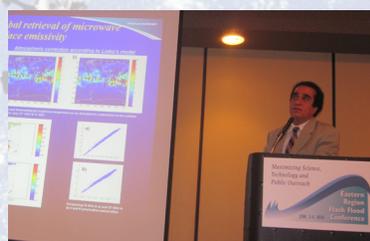


"As my first conference abroad, it was not only a pleasant experience to be given the opportunity to visit a new country and culture, but also, and most importantly, an invaluable experience gained being part of a different academic and scientific environment", says Alvaro Gonzalez, a PhD Student at CREST/CUNY. His interactions with other students and faculty from multiple academic institutions, and having been exposed to questions by the evaluators on his work made his trip indeed remarkable. "I also believe that our research work at NOAA-CREST when compared to other researchers is not due to an individual effort but is a result of team work and all the resources and tools which allow us to address significant and well recognized problems" he further added.

## CREST Scientists participated in the Eastern Region Flash Flood Conference, PA, June 2-4, 2010

NOAA-CREST scientists and students participated in the Eastern Region Flash Flood organized by the NOAA NWS in Wilkes-Barre, PA from June 2nd to June 4th 2010. Several NOAA experts, scientists and researchers from different universities attended the meeting.

The conference was an excellent opportunity to network and explore future potential col-



laborations between NOAA NWS and the academia. Prof. Reza Khanbilvardi was invited to contribute as a keynote speaker in the session on the opportunities of collaboration. Dr. Marouane Temimi gave an oral presentation on flood mapping and monitoring from space. Dr. Naira Chaouch- Temimi won the best poster award after presenting her work on ice detection and mapping in the Susquehanna River.

## *CREST participated in the CCNY recruitment/information session and career fair, March, 2010*

A 2-hour information session for NOAA-CREST program was organized by the Career Center at City College of New York on March 3, 2010. About 40 students attended the session and found it very informative. Most students came back to the CREST recruitment booth on March 4, 2010, in the Great Hall of City College of New York. Several students inquired and applied for the CREST program— 3 of them have been recruited to join the program as undergraduate students.



NOAA-CREST shared the recruitment booth with the NOAA-Corps, who discussed various non-civilian and exciting job opportunities available at NOAA for the new undergraduate and graduate students. CREST also provided information brochures/flyers for the NOAA-graduate and undergraduate scholarship opportunities that are available through NOAA's Education Partnership Program. CREST intends to participate in the fair coming up in October 2010.

### *CREST Graduates.....*

Sixteen CREST students graduated this summer. They are— Judith Rivas; Vanessa Clarke; Leonardo DeLa Cruz; Gina Stovall; Ramdeo Singh; Fazlul Shahriar; Cheila Benavides (undergraduates); Javier Jimenez; Malka Rabinowitz; Kim Smith; Simone Hartley; Manuel Diaz Gonzalez (Masters) and Miguel Bustamante; Eduardo Hernandez; Charles Hill; Jasper Lewis (PhD). Judith may continue her PhD/Master

degree with CREST; while Javier; and Eduardo have Federal jobs; Miguel is in Academia; and Cheila is working in the office of Vice President of Facilities at CCNY as an Environmental Liaison. Vanessa joins Con-Edison as Environmental Engineer in Fall 2010, and Fazlul Shahriar who received the prestigious Chancellor doctoral award will continue his PhD research with CREST faculty members.

### *LSAMP—Urban Series Annual Conference, April 2010 - Zulamet Vega-Martinez*



On April 23, 2010, CREST students participated in the Urban University Conference held in Brookhaven National Laboratory, NY. CREST students presented their research posters and had a great opportunity to interact and exchange ideas with other researchers/students from the entire CUNY research community working in science; engineering and technology fields. CREST also had a recruitment booth that allowed students and faculty members from other CUNY colleges to learn more about CREST and its affiliated programs. About 8 graduate students attended this two day event.

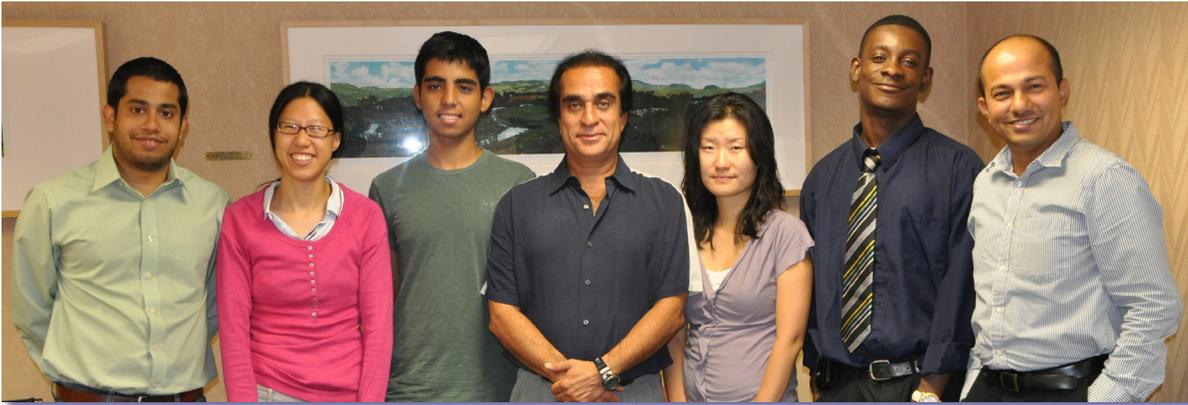
### *Food, Fun and Games at Riverbank State Park - Christine Chen*

GOOO!.....FASTERRR!.....COME ONNN!.... Such shouts were heard throughout Riverbank State Park on July 16, 2010 as six CREST family members crouched down on their hands and knees, huddling together in a pyramid. Despite the heat and reports of temperatures over 90°F many of the CREST researchers and administrators participated in the fun and games held at the annual CREST picnic. For those relaxing on the sidelines, there was plenty of food and conversation to enjoy.

The picnic allowed the CREST



researchers and administrators to gather around freely in discussing topics related to science and engineering and otherwise. While some discussed their preparations for the NOAA/NESDIS' summer exchanges, others talked about the best strategies for the picnic games. As the afternoon gave way to the evening, the bonds within the CREST community became visible as Nitta Monteiro, Shakila Merchant, and Nir Krakauer, sat on a couple of tree limbs, quite symbolic of a CREST family tree. With an ending like that, it's hard to call the picnic anything but a success.



gatherings, Phillip Bacon, an REU student, “got to know other people in the group,” and has “received help from everyone.” Nasim mentions she has been “helping Phillip with MATLAB” and has been “giving him direc-

Once a month, two PhD students, two Masters students, and Dr. Lakhankar share an informal working lunch. With conversations flowing around the latest cell-phones or hyped-up chatter about the FIFA World Cup, these sessions appear to be nothing out of the ordinary happenings and goings around the CCNY campus. However, if you wait long enough, a different type of conversation starts to flow. Phrases like “soil moisture,” “snow depth,” “flooding,” “MATLAB,” “LINUX,” “FORTRAN,” and “L-band radiometer” fill the air. It is then that you realize there might be something more to these meetings that are held among members of Dr. Lakhankar’s research group at NOAA-CREST, whose research interests range from soil moisture to snow to flooding. Dr. Khanbilvardi is invited to attend every other month and receives updates

on the group’s work through quick research presentations.

This summer the group is mentoring two REU (Research Experience for Undergraduates) students whose research interests are aligned with those in the group. These meetings are beneficial to its members in a number of ways. In terms of production, the presentations every other month keep its members on their toes. Moreover, they allow for “first hand opinions and suggestions to our work before we present it formally,” says Jonathan Muñoz Barreto, a Masters student. Nasim Nourozi, a PhD student, agrees. “They help us prepare for a more professional career.”

The lunches foster a sense of community within NOAA-CREST and encourage a more collaborative environment among the group members. As a result of these

tion as to where the research is going, what the goal of the project is, where we expect to be.” Additionally, Nasim has benefitted from the lunches through a discussion with Dugwon Seo, a PhD student, on her previous research on soil moisture. Jonathan has also gotten help from Dugwon, who has shared “ideas and suggestions.” Dugwon says she has given her “journal and work note collection” to Jonathan.

The gatherings increase the possibility of future professional networking among its group members. With all of these benefits over the course of an hour each month, it’s hard to resist the idea of a **research power lunch**. So gather up your research group today and try one!

### *NESDIS-CI/CREST Directors Annual Meeting, June 15-16, 2010*

CREST hosted the NESDIS-CI/CREST Directors’s Annual meeting in New York on June 15-16, 2010. The two day meeting was kicked-off with the CoRP overview presentations by Ingrid Guch, followed by Al Powell’s talk on STAR Priorities for the future including the Satellite Operational Algorithm Readiness (SOAR) program, current and future interactions with GOES-R and JPSS, the importance of calibration and international partnerships. Ms. Sharon Leduc spoke about NCDC activities and future NOAA Climate Services. Ingrid Guch went over Louisa Koch’s presentation on Environmental Literacy/partnerships with education program and other strategies, while Tom Achtor continued on Education and Outreach activities at CIMSS. The first-day of the meeting ended with a group dinner at a restaurant in Uptown Manhattan.



More details and the action items from this meeting is available at [http://www.star.nesdis.noaa.gov/star/CoRP\\_2010CIMtg.php](http://www.star.nesdis.noaa.gov/star/CoRP_2010CIMtg.php)

## *NOAA-CREST Day celebrated on April 21, 2010 at the CREST Center, The City College, NY*

As it has always been the tradition at CREST for the past eight years — the 9th Annual NOAA-CREST Day was also celebrated with the same zeal and enthusiasm on April 21, 2010. About 300 participants including high school & college students; several invited guests; and CREST family members attended the event. It was a day full of informative events and activities mostly for our young audiences/students from all across the five boroughs of the NY metropolitan region, and clearly serves as one of the most important and major recruitment event for NOAA- CREST.

The day began with the meet-and-greet session at the Presidents' conference room for our invited guest Ms. Mary Kicza, NOAA Assistant Administrator for Satellite and Information Services; with CUNY Administrators— Dr. Gillian Small, Vice Chancellor for Research; CCNY Interim President Dr. Robert Paaswell; other NOAA dignitaries and CREST members, which preceded the CREST facilities tour.

More than 200 High School students attended the event this year to gain knowledge on various opportunities that CREST offers to incoming students as they get ready to enter into their college lives. The day began with a poster session in the lobby by our students from CCNY, LGCC and Bronx High School of Science. The events in the auditorium began with welcoming remarks by the CCNY Interim President, Dr. Robert Paaswell and several very interesting presentations by our invited guest speakers; HS students; CREST faculty members and the students. Ms. Mary Kicza spoke on the broader perspective on sciences and services that NOAA offers to the American people and society both at a national and international level, and also described various opportunities that are available at NOAA for all students who wish to build their career as a NOAA professional. Dr. Jingli Yang, CEO of Environmental Research Technologies ERT spoke on the industrial perspective. ERT is the latest industrial partner to join the NOAA-CREST consortium, and in that direction, Dr. Yang's talk emphasized the growing demand for environmental engineers in general and in particular discussed the growing opportunities in both active and passive remote sensing in industry and government. Dr. Franco Einaudi (Former NASA / NOAA scientist) gave an inspiring talk on the incredible progress made in remote sensing from the early days of TIROS and single VIS photography through present day hyper-spectral imagers.



Mary Kicza, speaking at the NOAA-CREST Day, April 21, 2010



NOAA Guests, CUNY Administrators and CREST members



### *CREST Multi-Frequency Snow Radiometer Installed in Caribou in February 2010*

In the face of expected extreme winter weather, two scientists at CREST—Drs. Tarendra Lakahankar and Amir Ezhar Eshraghi drove the Snow Radiometer to its site location in Caribou, Maine in February 2010. After calibration, the installed and fully operational instrument is generating important validation data on—Brightness temperature (37 GHz and 89 GHz); Snow Depth; Snow water equivalent (SWE). These datasets will be used to improve



NOAA-NWS snow algorithm to accurately estimate the snow characteristics using remote sensing satellite data.

Snowmelt floods which break out in spring often bring enormous social and economic loss. Seasonal snow cover

plays an important role in the hydrological processes. The radiometer will be used to measure microwaves emitted from snow and will provide scien-

tific comparisons in time and space with satellite measured data. The time series of microwave brightness temperature of snow-covered ground from an extensive in-situ dataset collected during the winter season will be used to develop new algorithms and validation of previously developed algorithm for snow cover and snow water equivalent estimation.

The real time data collected each season will be available through NWS website for the research community.

## *Summer 2010 Outreach Events at NOAA CREST began on June 2, 2010*



K-16 summer outreach is an important event at CREST and the summer 2010 geared up with the kick-off of the CREST-REU orientation and summer research on June 2, 2010 at the City College of the New York. This year's REU was of more significance than the past years since there were 5 REU students that joined from other university/colleges who were - Timothy Middleton, Alexis Solis and Thaddeus Brown from BSU/CREST; Sacha from Hostos Community College, CUNY; and Joshua from Oklahoma State University, as well as 2 REU students from MIRTH/NSF program. Hampton University's

Department of Atmospheric and Planetary Science' REU program began on June 1, 2010, with 9 NSF supported students' re-enrollment.

All REU students were grouped based on their research interests, and were mentored by CREST faculty; research scientists and graduate mentors. The Summer High School Internship Program [SHIP] program kicked off on June 29, 2010 and that continues for 6-weeks until August 9, 2010. Each SHIP High School student is grouped with an REU student on an assigned CREST research project being mentored by the CREST

researchers. The students were engaged in scientific research and received classroom training in techniques of research including methods of data analysis with applications to atmospheric; space; land, and coastal sciences studies.

In addition, weekly seminars were conducted on topics of interest in atmospheric science, climatology, astronomy, and space science along with brown bag sessions included discussions ranging from the FIFA cup to science and future careers. Trips to NWS/Long Island and American Museum of Natural History at NY and other social functions were also arranged for the students.

The HU/REU students presented their research activities on July 1 and submitted their final reports on July 23, while CUNY students concluded their internship on August 3 with seminars and poster sessions. More reports on the outreach events will be published in the subsequent issue of the CREST Digest.

## *CREST participates in the Pan American Institute Conference on Climate Change in Mexico*



Dr. William Lawrence, CREST Co-I at the Bowie State University, represented the CREST consortia as an invited speaker and session chair in the NSF-funded Pan American Advanced Studies Institute [PASI] on Water, Energy and Climate Change held at San Diego State University and the CICESE installation

in Ensenada, Baja California Norte, Mexico on 23 May - 03 June 2010. Several doctoral students; scientists and experts in the field of environmental, biological, engineering and

policy-making convened in one forum to brainstorm on issues related to climate change.

The conference also included field visits to geothermal and wind generation plants located near Ensenada. Dr. Lawrence's presentation, "What satellites can tell us about resource use and land use change" delved into descriptions of the various land resource and environmental satellites and the use of their data products. He also spoke about the new NOAA GEONET Cast- Americas Environmental Satellite Data Product system recently installed at BSU.

## *CREST Seminars and Research Publications*

During Jan-June 2010, CREST hosted 9 seminars under its monthly seminar series on various research topics pertinent to Earth and Environmental Remote Sensing Science. Some of the prominent speakers were Dr. Juan Valdes, University of Arizona; David Kitzmiller, NWS/NOAA; Michael Keller, Boulder Colorado; and Xiwu Zhan, NESDIS/NOAA.



Fifteen papers were published in peer reviewed journals by CREST researchers including students; and thirty papers were presented during Jan-June 2010 at various conferences including AMS, IEEE, SPIE.

On the right:  
EPP-CSC Directors meet with NOAA Administrator Dr. Jane Lubchenco



From Left to Right: Louisa Koch, Director, NOAA Education; Dr. Solomon Bililign, (ISETCSC); Dr. Vernon Morris, (NCAS); Dr. Jane Lubchenco, NOAA Administrator; Dr. Paulinus Chigbu, (LMRCSC); Dr. Reza Khanbilvardi (CREST); Jacqueline Rousseau, Director, EPP.



Dr. Khanbilvardi was nominated and awarded the STAR award on May 12, 2010 by the CCNY President Dr. Robert Paaswell for his excellent achievements and dedication to the College—in both Academia and Research community

Above: Dr. Reza Khanbilvardi felicitated with STAR award by CCNY



## *Brian visited American University DubaiSat Team, April 2010*

In April the DubaiSat team invited Brian Vant-Hull to teach a week long session on the use of IDL for satellite applications at the American University in Dubai. After an introduction to IDL and satellite imagery, the material centered on creating interactive control panels for manipulating satellite imagery.

The plan is to eventually adopt these techniques to web page design so the public can easily manipulate and view DubaiSat imagery.

## *Spring Babies of CREST!!*



Brianna born to Dr. Yajaira Mejia, Post Doctoral Researcher



Aviv born to Heather Glickman, CREST Graduate student



Lucas born to Vanessa Clarke, CREST undergraduate Alumna

## *CREST Scientists & CCNY Administrators visit Naval Academy, Argentina, June 21-23, 2010*



A team of CREST Scientists and CCNY Administrators visited Argentina on the invitation of the Ministry of Education during the Week of June 21th, 2010. The CUNY team included—Dean Joe Barba, Dean Juan Mercado. Dr. Reza Khanbilvardi (CREST Director), and Dr. Jorge Gonzalez (NOAA-CREST

Professor) A General meeting was held at the Ministry of Education on June 21th. In addition to the high ranking officials from the Ministry of Education, faculty and administrators from 11 institutions in Argentina participated in this meeting. The morning of June 22nd, began with a site visit to the Naval Academy, to review the ongoing activities in environmental remote sensing, followed by another post-lunch site visit to “The National University of Science and Technology”.

In both meetings, areas of mutual interests and ways of collaborations, including joint participation in the upcoming national conference in Argentina in November 2010 were discussed. On the third day, a meeting with the head of International division of Ministry of Science and Technology was organized. During this meeting the structure of joint collaborations and development of Argentina- CREST were discussed and future plans were drawn.



To:

---

---

---

---

The City College of  
The City University of New York  
Convent Avenue @ 140th Street  
New York, NY 10031

Phone: 212-650-8379  
Email: [smerchant@ccny.cuny.edu](mailto:smerchant@ccny.cuny.edu)  
Web: [www.crest.ccny.cuny.edu](http://www.crest.ccny.cuny.edu)

# NOAA • CREST

CREST, a multi-institutional center funded by National Oceanic and Atmospheric Administration (NOAA) is led by The City University of New York (CUNY), including The City College (the headquarter), Lehman College, the CUNY Graduate Center, Bronx Community College and New York City College of Technology, in collaboration with four partner institutions.



Dr. Reza Khanbilvardi  
Center Director  
The City College of  
The City of New York  
Steinman Hall, T-107  
140th St. @ Convent Ave.  
New York, NY 10031  
212-650-8009  
[khanbilvardi@ccny.cuny.edu](mailto:khanbilvardi@ccny.cuny.edu)



Dr. Pat McCormick  
Hampton University  
130 East Tyler St. Hampton,  
Virginia, VA 23668  
757-728-6867 [pat.mccormick@hamptonu.edu](mailto:pat.mccormick@hamptonu.edu)



Dr. Raymond Hoff  
University of Maryland, Baltimore County  
1000 Hiltop Circle,  
Baltimore, MD 21250  
410-455-1610 [hoff@umbc.edu](mailto:hoff@umbc.edu)



Dr. Ramon Vasquez  
University of Puerto Rico, Mayaguez  
Office of Dean of Engineering  
Mayaguez, PR 00681  
787-832-4040 x 3822 [reve@ece.uprm.edu](mailto:reve@ece.uprm.edu)



Dr. William Lawrence  
Department of Natural Sciences  
Bowie State University  
Bowie MD 20715  
301-860-3338 [wlawrence@bowiestate.edu](mailto:wlawrence@bowiestate.edu)

Please send news items;  
comments; suggestions to:  
Dr. Shakila Merchant  
[smerchant@ccny.cuny.edu](mailto:smerchant@ccny.cuny.edu)

