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THE NATIONAL SCIENCE FOUNDATION
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GREATER PHILADELPHIA REGION
LOUIS STOKES ALLIANCE
FOR MINORITY PARTICIPATION



VOLUME I, 2009

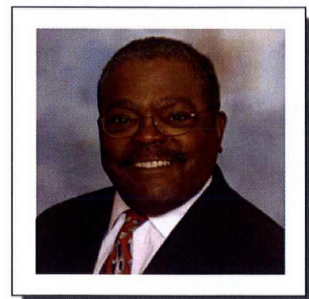


12TH ANNUAL RESEARCH SYMPOSIUM
AND MENTORING CONFERENCE

SATURDAY, OCTOBER 17, 2009
9:00AM - 3:00PM
SHERATON PHILADELPHIA
CITY CENTER HOTEL
17TH AND RACE ST.
PHILADELPHIA, PA



A HISTORICAL PERSPECTIVE



A MESSAGE FROM STEPHEN R. COX PROJECT DIRECTOR OF PHILADELPHIA AMP

Seventeen years ago, a consortium of dedicated educators and scientific stakeholders came together to discuss the dire state of affairs which existed in the region and the nation regarding the participation of minority students in science, engineering, mathematics and technology curricula and professions. A blueprint was developed with input from all the participating stakeholders, shaping a comprehensive pipeline from K through 16 that would mitigate the diminished scientific capacity of the region. This became the operational plan for the next 10 years. This consortium was developed through a National Science Foundation grant entitled, "The Comprehensive Regional Center for Minorities" (CRCM).

The Greater Philadelphia Region Louis Stokes Alliance for Minority Participation (Philadelphia AMP) emerged from the focus and energy of the CRCM in the fall of 1994 to sustain at the undergraduate level the increased baccalaureate degree production across a nine university consortium with geographic influences in three adjoining states: New Jersey, Pennsylvania and Delaware. Through the support of the National Science Foundation and the dedication of the presidents, faculty, students and industries in the region, the Alliance has more than doubled its minority science, technology, engineering and mathematics (STEM) BS degree production from 201 to, on average, over 500 degrees annually, and produced more than 7,000 BS degrees over the last 15 years since its inception. In addition, the Philadelphia AMP has expanded the number of minority students entering graduate school, and increased its doctoral STEM degree production from 12 to 190 Ph.D.s. There are approximately 250 students matriculating in MS/Ph.D. programs locally and across the United States.

As the Project Director, I have the pleasure of sharing these wonderful achievements with you. However, many committed individuals brought the promise of improving minority students success in the STEM disciplines to a quantifiable reality. The Philadelphia AMP is one of forty-one Alliances nationally who now contribute over 25,000 minority BS degrees to the scientific enterprise annually and have increased the minority enrollment in STEM disciplines from 35,670 in 1991 to more than 200,000+ students in 2009. The national program, named in honor of retired Congressman Louis Stokes, now covers 41 states, the District of Columbia and Puerto Rico.



ANY OPINIONS, FINDINGS, AND CONCLUSIONS OR RECOMMENDATIONS EXPRESSED IN THIS MATERIAL ARE THOSE OF THE AUTHOR(S) AND DO NOT NECESSARILY REFLECT THE VIEWS OF THE NATIONAL SCIENCE FOUNDATION.

INTRODUCTION TO PHILADELPHIA AMP



The Philadelphia AMP represents a very diverse partnership of public and private 2- and 4-year, research and non-research, Historically Black Colleges and Universities (HBCU's) and majority institutions including:

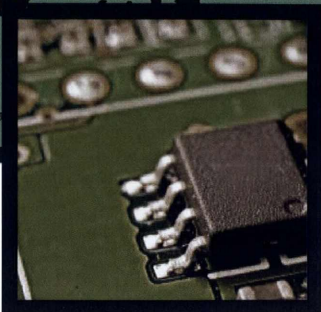
Cheyney University of Pennsylvania
Community College of Philadelphia
Delaware State University
Drexel University
Lincoln University of Pennsylvania
New Jersey Institute of Technology
Temple University
University of Delaware
University of Pennsylvania

Please contact our AMP site directors and find out how you can benefit or participate in keeping our country technically competitive.

The LSAMP initiative has demonstrated a critical buy in from campus leadership, and has been responsible for the strategic shift in engineering and science productivity of the institutions involved. It has taken what was a conversation of social inequity and made it an institutional challenge that has financial obligations, administrative commitment and professional implications.

- Increase the minority STEM B.S. degree production to, at minimum, 700+ degrees annually.
- Increase the number of students participating in undergraduate research from 50 to 100 students annually.
- Move at least 30% AMP graduates (210 students) into graduate STEM education.
- Directly serve at least 90% of minority undergraduate STEM population.
- Increase Alliance minority progression and retention rates in STEM.

EVENT AGENDA



12th Annual Philadelphia AMP Research Symposium and Mentoring Conference

Saturday, October 17, 2009, 9:00 a.m. to 3:00 p.m.
Sheraton Philadelphia City Center Hotel
17th and Race Street, Philadelphia, PA

8:00 a.m. – 9:30 a.m.	REGISTRATION	(Liberty Ballroom D Foyer - Ballroom Level)
8:00 a.m. – 11:00 a.m.	CONTINENTAL BREAKFAST	(Liberty Ballroom D Foyer - Ballroom Level)
9:00 a.m. – 9:50 a.m.	WELCOME / PLENARY SESSION <i>Moderator:</i> Dr. Stephen R. Cox Co-PI, Project Director, Philadelphia AMP Welcome and Overview of Philadelphia AMP Programs <i>Keynote:</i> Ms. Jamie Bracey Assistant Director of Training, The Intergenerational Center Temple University "A 3-D Perspective on STEM Diversity in the 21st Century"	(Liberty Ballroom D - Ballroom Level)
9:50 a.m. – 10:00 a.m.	BREAK	
10:00 a.m. – 11:15 a.m.	CONCURRENT SESSIONS (PART A) Graduate Oral Competition: Preparing for the Future <i>Moderator:</i> Dr. Teck-Kah Lim, Associate Vice Provost for Graduate Studies, and Professor, Physics, Drexel University <i>Presenters:</i> LSAMP Bridge to the Doctorate (BTD) Fellows Undergraduate Poster Competition (Part A – Presenters and Judges Only): Workshop: Building the Mindset for a Successful Academic Experience <i>Moderator:</i> Mr. Darrell Wilson, CEO, Strategic Governance, LLC <i>Presenter:</i> Mr. Michael Vaughan, Senior Assistant Dean, Academic Affairs, College of Engineering University of Delaware	(Philadelphia Ballroom South - Mezzanine Level) (Independence Ballroom - Mezzanine) (Liberty Ballroom D – Ballroom Level)
11:30 a.m. – 1:00 p.m.	CONCURRENT SESSIONS (PART B) Graduate Oral Competition: Preparing for the Future (40 minute session / 11:30 am – 12:10 pm) <i>Moderator:</i> Dr. Teck-Kah Lim, Associate Vice Provost for Graduate Studies, and Professor, Physics Drexel University <i>Presenters:</i> LSAMP Bridge to the Doctorate (BTD) Fellows Workshop: General Procedures for Data Collection and Analysis (40 minute session / 11:30 am – 12:10 pm) <i>Moderator:</i> Dr. Maurice Baynard, Adjunct Professor, Department of Biomedical Science and Health Systems, and Liaison, HBCU Graduate Fellows, Drexel University <i>Presenter:</i> Ms. Faith M. Sproul, Ph.D. Candidate, Psychological Studies in Education, Temple University	(Philadelphia Ballroom South – Mezzanine Level) (Philadelphia Ballroom North - Mezzanine Level)

Undergraduate Poster Competition

(Part B – Public Viewing):
(11:30 am – 1:00 pm)

(Independence Ballroom A & B, Mezzanine Level)

GRADUATE SCHOOL FAIR

(11:30 am – 1:00 pm)

(Independence Ballroom A & B, Mezzanine Level)

Workshop: Men of Honor / Women of Distinction

(45 minute session / 12:15 pm – 1:00 pm)

Moderator: Dr. Stephen R. Cox, Co-PI, Project Director,
Philadelphia AMP

Panelists:

- Ms. Alma Blassengale, Ph.D. Candidate, Materials Engineering, Drexel University
- Ms. Shivon Boodhoo, Undergraduate Advisor and Curriculum Coordinator, Electrical and Computer Engineering Department, New Jersey Institute of Technology
- Ms. Allison Bruton, Senior Mechanical Engineer, Northrop Grumman Electronics Systems
- Mr. Rafael Mulero, Ph.D. Candidate, Mechanical Engineering, Drexel University
- Ms. Yolanda Williams-Bey, Ph.D. Candidate, Biological Sciences, Drexel University

(Liberty D, Ballroom Level)

1:00 p.m. – 2:00 p.m.

BUFFET LUNCHEON

(Horizons Rooftop Ballroom)

2:00 p.m. – 3:00 p.m.

AWARDS CEREMONY

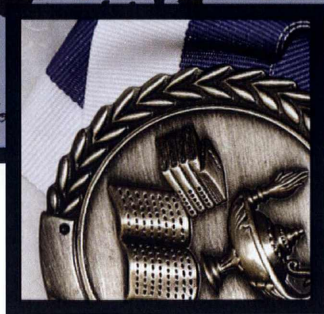
Moderator: Ms. Veniece Keene, Project Coordinator,
Philadelphia AMP

Speaker: Dr. Maurice Baynard, Adjunct Professor,
Department of Biomedical Science and Health Systems,
and Liaison, HBCU Graduate Fellows, Drexel University

(Horizons Rooftop Ballroom)

3:00 p.m. – 4:00 p.m.

NETWORKING AND POSTER SESSION BREAKDOWN



PRESIDENT CONSTANTINE PAPADAKIS



A TRIBUTE
PRESIDENT CONSTANTINE PAPADAKIS
(1946 - 2009)

As you know, Drexel University and the Greater Philadelphia Region Louis Stokes Alliance for Minority Participation has lost one of its champions and influential supporters in the person of Dr. Constantine Papadakis, President, Drexel University and Chairman, Philadelphia AMP Governing Board of Presidents.

Dr. Papadakis led Drexel University through unprecedented growth in Enrollment, Research Capacity, Physical Expansion and National Presence as a private institution with a vision to provide the best technical and full service education for its students. The University has added a Medical School, a Law School and increased its Sponsored Research from \$13 million annually to \$120 million. Annually 13,000 applications arrive at the university for 2,500 slots. His lists of firsts and accomplishments are phenomenal and will forever brand the institution with his vision and personal charisma.

Dr. Papadakis and I discussed the mission of the Philadelphia AMP in 1996, when he was appointed president, and the challenge posed by the National Science Foundation to provide a national pool of engineers and scientists to support the technical enterprise of the region and the United States. As the president of Drexel, he committed to be the Chairman of the Governing Board of Presidents and to support the growth of underrepresented students in science, technology, engineering and mathematics (STEM).

On a personal note, Taki, as he insisted on being called, was an extraordinary administrator with determination, vision and understanding. He made himself readily available to me. His commitment was unquestioned, and he consistently engaged the presidents of the partner institutions to shape the best mechanism to increase diversity in the region. He was the president, a colleague, a visionary and a great friend. He will be missed by many and especially by each of our partner institutions, presidents, administrators, faculty and students. He has touched the lives of many and will be remembered by us all.

Stephen R. Cox,
Regional Director, Philadelphia AMP

EVENT KICK-OFF



DR. STEPHEN COX AWARDS DR. PAPADAKIS' WIFE, ELAINA, WITH A PHILADELPHIA AMP APPRECIATION AWARD FOR HER HUSBAND'S LIFELONG COMMITMENT TO THE LSAMP INITIATIVE.

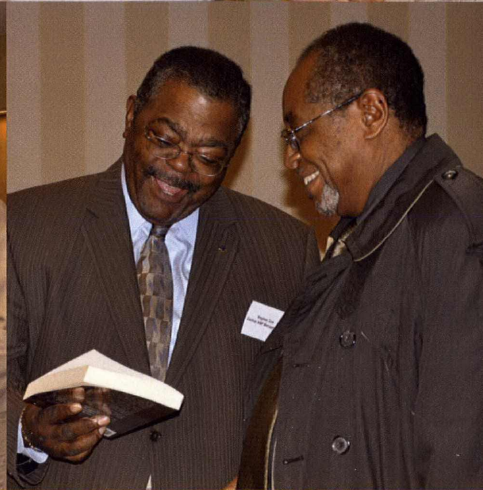
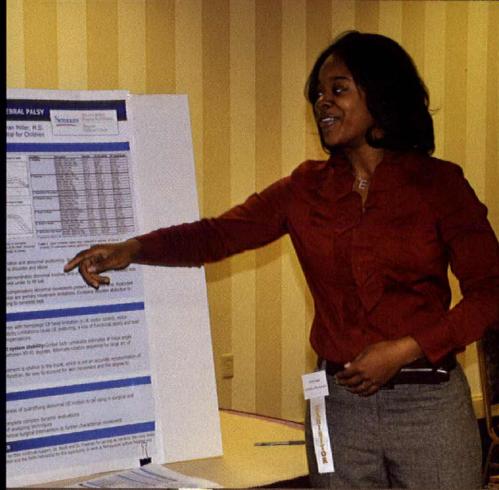
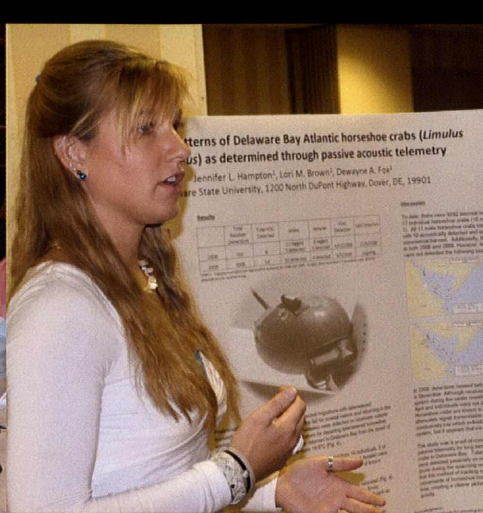


REPRESENTATIVES OF EACH ALLIANCE INSTITUTION SIGN A RESOLUTION OF CONTINUED COMMITMENT TO THE PHILADELPHIA AMP INITIATIVE.

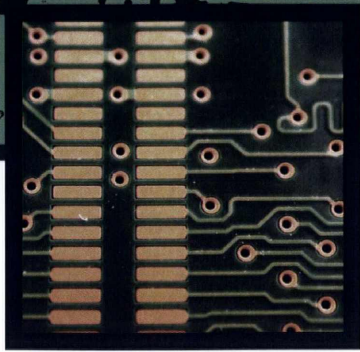


DR. IVAN BANKS, PROVOST AND VICE PRESIDENT OF ACADEMIC AFFAIRS AT CHEYNEY UNIVERSITY, SIGNING THE PHILADELPHIA AMP INITIATIVE RESOLUTION.





THIS YEAR'S HONORED GUESTS

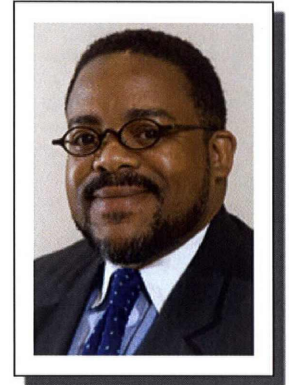


KEYNOTE SPEAKER: JAMIE BRACEY
"A 3-D PERSPECTIVE ON STEM
DIVERSITY IN THE 21ST CENTURY"
ASSISTANT DIRECTOR OF TEACHING
THE INTERGENERATIONAL CENTER
TEMPLE UNIVERSITY

Ms. Jamie M. Bracey is a doctoral candidate in Educational and Cognitive Psychology at Temple University. She serves as the Assistant Director of Training for the Intergenerational Center at Temple University.

Ms. Bracey currently manages national training that builds the capacity of nonprofits in the United States to recruit and retain people across generations to solve serious community problems. Her areas of expertise include cultural competence, organization development, social marketing and relationship management. Prior to joining the Center, she served for ten years as an award winning consultant to state and federal public health agencies, providing training on strategic planning, operational excellence and coalition building to fight the global AIDS pandemic. Ms. Bracey's corporate expertise also includes a successful stint in the corporate sector as a marketing executive with Xerox Corporation, and a position as one of the youngest CEOs in Urban League history.

Ms. Bracey is married to Nathaniel Bracey and together they are the parents of Na'im, Nadif, Nuri and Nymaat. They are members of a strong network of extended family and friends. Ms. Bracey received her post-secondary education at Oberlin College and the Rochester Institute of Technology.



PRESENTER: MICHAEL VAUGHAN
"BUILDING THE MINDSET FOR A
SUCCESSFUL ACADEMIC EXPERIENCE"
SENIOR ASSISTANT DEAN
ACADEMIC AFFAIRS, COLLEGE OF ENGINEERING
UNIVERSITY OF DELAWARE

Michael L. Vaughan is Senior Assistant Dean of the University of Delaware, College of Engineering. Dean Vaughan manages the College of Engineering academic and educational support processes by developing and implementing policies, programs and interconnections to enhance the College ability to foster successful outcomes.

For many years, he has served as the Campus Principal Investigator of the Greater Philadelphia Region Louis Stokes Alliances for Minority Participation (LSAMP) Program and the NSF/AMP Bridge to the Doctorate Program. In addition, Dean Vaughan is the Program Director /PI of the EAA/UD Graduate Preparatory Summer Residential Program funded by the Educational Advancement Alliance (EAA).

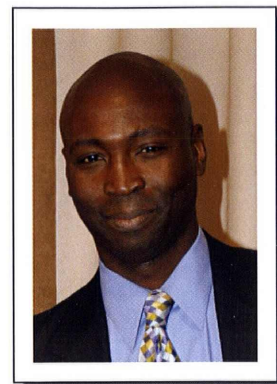
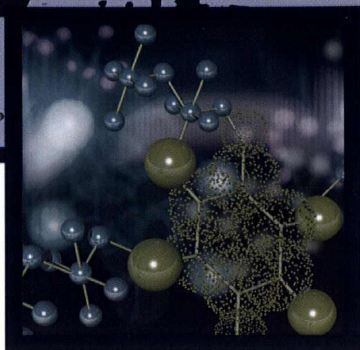
Dean Vaughan joined the University of Delaware in 1992 after prior experience as Assistant to the Dean of Engineering/ Adjunct Assistant Professor of Electrical Engineering at North Carolina A&T State University and Senior-level Electronics Engineer at the Naval Underseas Warfare Center in Newport, RI where he also served as the Coordinator of the TIMES2, Inc. program at Rogers High School in Newport. Off-campus, he is a member of various professional associations and sits on numerous boards and committees that focus on engineering education and issues that positively impact the lives of young people.



PRESENTER: FAITH M. SPROUL
"GENERAL PROCEDURES FOR DATA COLLECTION AND ANALYSIS"
PH.D. CANDIDATE
PSYCHOLOGICAL STUDIES IN EDUCATION
TEMPLE UNIVERSITY

Faith Sproul, M.S.Ed. is a doctoral candidate in School Psychology at Temple University. She has over 10 years of experience working in applied research primarily in education settings. Ms. Sproul specializes in the psychometric properties of tests and the measurement and the validation of instruments used for research and clinical applications. She is an adjunct professor at various area universities including Temple University and the University of Pennsylvania. She teaches course in Statistics, Research Methods and various psychology-related subjects. She also engages in independent consulting for methodology and data analysis for research studies from various fields. Ms. Sproul is a trained clinician and has worked as a school psychologist in the Philadelphia Public School system and as a psychotherapist in a private mental health setting. She specializes in the diagnosis and treatment of children with special needs including those on the autistic spectrum. Ms. Sproul's current research interests focus on the validation of instruments for use in low-income populations and the effects of family-related factors on children's educational performance.

THIS YEAR'S HONORED GUESTS



SPEAKER: DR. MAURICE BAYNARD
AWARDS CEREMONY SPEECH
ADJUNCT PROFESSOR
DEPARTMENT OF BIOMEDICAL SCIENCE AND HEALTH SYSTEMS
LIASON, HBCU GRADUATE FELLOWS
DREXEL UNIVERSITY

Dr. Maurice Baynard has enjoyed a career in biomedical research for the last 15 years. Having wide-ranging scientific and technical interests, his work has included fields as varied as infectious disease, biophysics, molecular biology, neuroscience and behavioral psychology. In addition, Dr. Baynard has worked as a policy consultant for the Hospital Association of Pennsylvania, served as an analyst providing research design, protocol management, and data analysis to Philadelphia area companies and enterprises and held positions as a teaching assistant and adjunct professor at Drexel University, Community College of Philadelphia, University of Pennsylvania, and Penn State University.

Dr. Baynard holds a Masters degree in Cell and Molecular Biology from MCP/Hahnemann School of Medicine and completed his doctoral research in sleep and chronobiology at the Unit for Experimental Psychiatry at the University of Pennsylvania. He has published more than thirty peer-reviewed articles, abstracts and book chapters.

BRIDGE TO THE DOCTORATE PANEL



ALMA BLASSENGALE
BS, Chemistry
Temple University
MS, Chemistry
Delaware State University
Ph.D. Candidate, Materials Engineering
Drexel University

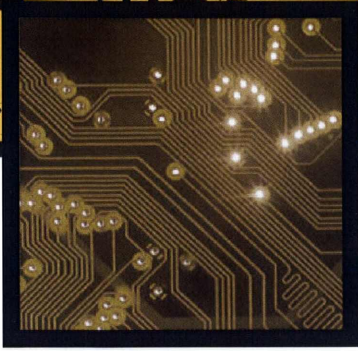


ALLISON BRUTON
BS, Mechanical Engineering
University of Delaware
MS, Mechanical Engineering
University of Delaware
Senior Mechanical Engineer
Northrop Grumman Electronics Systems



SHIVON SAMANTHA BOODHOO
BS, Industrial Engineering
New Jersey Institute of Technology
MS, Engineering Management
New Jersey Institute of Technology
Ph.D. Candidate, Industrial Engineering
Undergraduate Advisor & Curriculum Coordinator,
Electrical and Computer Engineering Department
New Jersey Institute of Technology

BRIDGE TO THE DOCTORATE PANEL

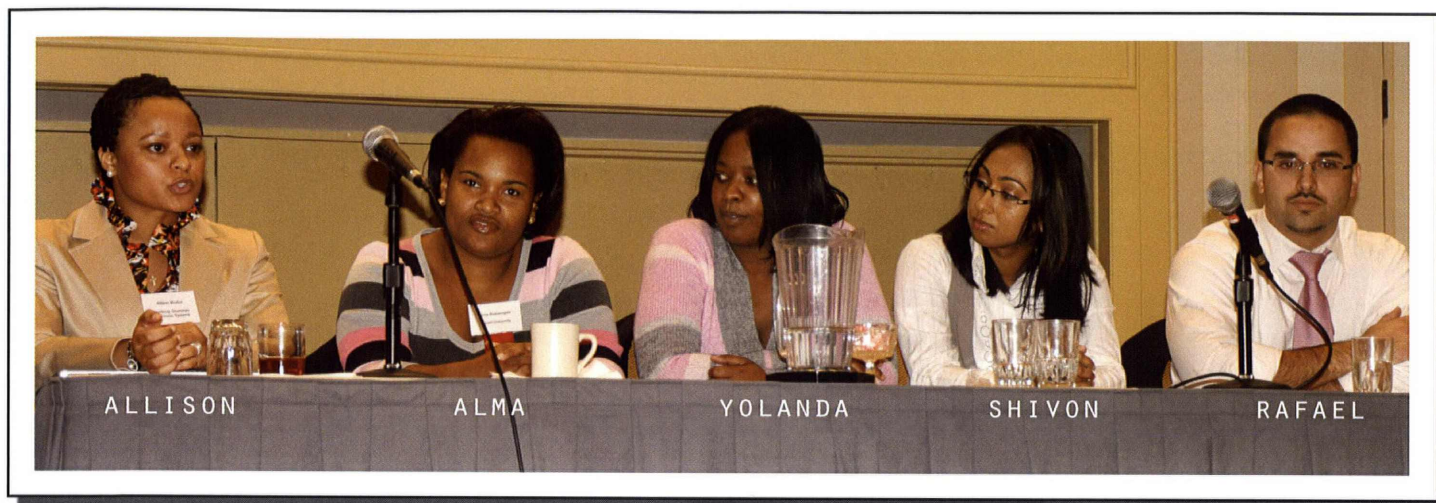


YOLANDA WILLIAMS-BEY
BA, Biology
Cheyney University of Pennsylvania
Ph.D. Candidate, Biological Sciences
Drexel University



RAFAEL MULERO
BS, Mechanical Engineering
Drexel University
Ph.D. Candidate, Mechanical Engineering
Drexel University

BRIDGE TO THE DOCTORATE PANEL DISCUSSION



QUESTION OF THE DAY

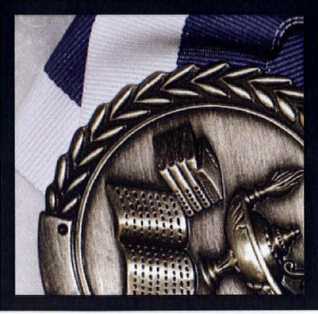
How do you maintain a work/life balance as a graduate student. How do you say “no.” How do you say “yes?”

ALMA'S RESPONSE

So far I've been working in the industry for three years and the answer to that, very simply, is how far are you willing to go? If you want to create a large impression, you're going to be working day and night. You're going to volunteer yourself for some things [even though] you're already overloaded with working way more than 40 hours. So it depends on how far you'll take it. And then to flip it, when I was in graduate school, it was even worse, because your professors don't see vacation. They don't see anything; they only see research. At the graduate level, it's very extreme. There were no boundaries. As a matter of fact, I would say that when I was in graduate school, I was probably working 75 to 80 hours [and] always in school on Saturdays and Sundays. There was no line between going home and going to school and going home. It was just us going home to go to sleep and coming back to school. The only difference being in industry is that you can demand your own time because you have vacation and you have those set holidays, but if you want to network, meet other people, [and] advance as far as you can, it's almost the same. You're going to have to put in the hours, you're going to have to volunteer again doing things you may not necessarily want to do, but know that it's going to help further who you know. The line is very fuzzy. If you're driven, particularly in academia and you're doing research and you've got to get the answer, the time flies. It's kind of one of those things [that is] personally dependent on you and how much you want to put into it.

SHIVON'S RESPONSE

For me, it was learning to prioritize. This is what you need to do, and you need to power through. What I learned the hard way was [that] when my company was bought and there was a lot of downsizing, a lot of people who loved the company and gave up their family and their friends, gave everything up for the company, [they] got a nice little package that said, “See you later.” There's a need to prioritize because a lot of times, and especially as minorities, we feel we need to go the extra mile; we need to do a little extra in order to have that success that may not necessarily be given to us, but at the same time, we are worthy of being given the same amount of respect, and so we need to learn to stand up for ourselves so very respectfully, talk to our advisor and say, “This is my time this weekend, I can't do anything. I understand that this is the deadline, but I'm telling you two weeks in advance, this is my personal time, and I'm going to take it.” If your advisor can't respect you at all, say after you worked 80 hours a week for three weeks, [and says that] you can't have this weekend, you need to discuss that relationship. If you can't have mutual respect, that's not a healthy relationship.



ORAL COMPETITION ABSTRACTS

BRIDGE TO THE DOCTORATE ORAL COMPETITION PRESENTERS

Marissa Brady, M.S. Candidate, Environmental Science, Delaware State University

Research Area: Environmental Science

Research Mentor: Dr. Dewayne Fox

Project Title: Combining Telemetry and Mark-Recapture Methods to Study the Population Dynamics of American Eels in Delaware

Abstract: In light of perceived declines in American eel populations, the ASMFC cited a need for tagging programs to address survival, mortality, and habitat use. Beginning in the spring of 2009 a combined mark-recapture and biotelemetry study was initiated in the St. Jones River, Delaware. Monthly mark recapture sampling events were initiated using previously selected locations (N = 40) in the St. Jones River, DE. The river was then broken into strata's based on commercial fishing practices (sites 1-14 (intense harvest), 15-25 (occasional harvest) and 26-40 (no harvest)). Beginning in June, American eels (N = 36) were implanted with an acoustic transmitter (V9-2L) and released at site of capture. To reduce biases we assigned one tag per sampling location. A combination of active and passive tracking was conducted; an array of seven passive receivers (VEMCO Ltd., VR2) were deployed in to maximize the probability of detecting American eels moving between strata's and migrating out of the system. Utilizing these methodologies we are assessing home range, habitat use and seasonal migration patterns in telemetered American eel. Through July 2009, we have collected a total of 33,734 detections of telemetered American eels and have successfully relocated the vast majority (33/36) of our telemetered individuals. Overall, we recorded more detections of tagged American eels in the middle/upper portions of the St. Jones river which correspond to regions that experience little, if any, harvest pressure. Additionally, we have documented acoustically tagged American eels moving between strata; although there is a strong tendency for individuals to home back to the site of initial tagging. The results from this project will aid managers in considering the design of future American eel management regimes including special management zones as they struggle to sustain this ecologically and economically important resources.

Shileen Bynum, Ph.D. Candidate, Microbiology and Immunology, Temple University

Research Area: Life / Biological Sciences

Research Mentor: Dr. Roberto Caricchio

Project Title: Apoptotic Nuclear Debris as Autoantigens in an Inducible Model of Systemic Lupus Erythematosus (SLE)

Abstract: Apoptosis, or programmed cell death, has been proposed as the source of autoantigens in SLE by releasing fragmented chromatin into the cellular environment. The fragmented chromatin may also act as an endogenous adjuvant to activate TLR7/9, innate immune receptors on autoreactive B cells and dendritic cells. The autoreactive B cells then produce lupus antibodies and the dendritic cells begin to produce IFN-alpha, a cytokine that has been shown to upregulate genes important in regulating autoimmunity. However, there are still questions about the role of apoptosis in lupus. This study will focus on the question of apoptotic debris becoming autoantigens by being released during the nuclear fragmentation that occurs during apoptosis. An in-vivo model is used; inducing autoimmunity by a single intraperitoneal (i.p.) injection with pristane, a hydrocarbon oil, in a mouse lacking caspase activated Dnase (CAD), a key nuclease in apoptosis. This mouse displays an impaired ability to fragment chromatin and release of apoptotic debris is inhibited. Six to eight week old B6 wild type and B6.CAD-deficient mice were i.p. injected with pristane and after six months serum was collected to detect the presence of anti-nuclear antibodies (ANA) by fluorescent staining and microscopy. It was observed that there was less of a presence of ANAs in mice that lacked CAD than in wild type controls. This suggests that chromatin fragmentation plays a key role in generation of autoantigens in lupus by causing the fragmentation of the nucleus and release of the nuclear contents in-vivo to cause an autoimmune response.

Nejea Davis, Ph.D. Candidate, Chemistry, Temple University

Research Area: Chemistry

Research Mentor: Dr. Jonathan G. Shackman

Project Title: Single Capillary Gradient Elution Isotachopheresis Coupled to Capillary Zone Electrophoresis for Trace Amino Acid Analyses

Abstract: In recent years, capillary electrophoresis (CE) has been used extensively in research owing to its low volume requirements and rapid analyses time; however, one major drawback highlighted in CE is sensitivity. We present a multi-stage approach, gradient elution isotachopheresis combined with capillary zone electrophoresis (GEITP-CZE) in a single microcolumn to address analyte resolution difficulties in GEITP, as well as poor concentration sensitivity in CZE. GEITP employs rapid electrophoretic focusing at a discontinuous ionic interface within a sample well generated through combined electroosmotic and hydrodynamic flows. The interface and enriched analytes are then pulled into a capillary or microchannel as the counter-flow is reduced for on-column detection. To transform GEITP-focused samples to CZE-based separation, the sample solution is replaced with CZE buffer solution while maintaining hydrodynamic flow to ensure migration towards the detector. The single solution switch and lack of polarity inversion allows for reproducible separations (typically <6% relative standard deviation in peak heights and <0.5% in migration times). Low-pressure hydrodynamic flow during CZE allowed for flexible resolution adjustment, with a linear increase versus the square root of migration time, without altering the separation column, field strength, or electrolyte system. As a first demonstration of the applicability of GEITP-CZE, a series of amino acids to be assayed for in future Mars exploration missions as indicators of biological life were studied. Separation of six amino acids, with limits of detection as low as 200 fM, were achieved using a capillary format with a total analysis time of 11 minutes.

Virginia Kocieda, Ph.D. Candidate, Microbiology and Immunology, Temple University

Research Area: Life / Biological Sciences

Research Mentor: Dr. Doina Ganea

Project Title: Prostaglandins and Their Effects on the IL-12/IL-23 Balance in Mature Myeloid Dendritic Cells

Abstract: Following TLR signaling dendritic cells (DC) produce pro-inflammatory cytokines including IL-12 and IL-23. IL-12 promotes differentiation of the Th1 subset whereas IL-23 maintains the Th17 subset. PGE₂, a lipid mediator, is produced by DC during inflammation. This study is focused on the effects of PGE₂ on the regulation of IL-12/IL-23 production in murine DC. PGE₂ inhibits LPS-induced IL-12 production through downregulation of p35, and stimulates IL-23 through upregulation of p19 expression. Changes in p35/p19 expression reduce Th1 and promote Th17 differentiation. Similar PGE₂ effects on p19/p35 were observed in the presence of other TLR ligands, such as peptidoglycan (TLR2), poly I:C (TLR3) and CpG (TLR9). The effects of PGE₂ on p19/p35 were mediated through EP2 and EP4 receptors, and cAMP induction. The involvement of downstream signaling pathways such as PKA and EPAC-induced activation of PI3K and GSK3, as well as the role of specific transcription factors such as CREB, cRel, and IRF5 (for p19 expression) and IRF 1, 3, 7, and RelA (for p35 expression) are currently being investigated.

Research support: NIH2RO1AI052306 & NSF Pre-doctoral Fellowship (VK)

Andro-Marc Pierre-Louis, Ph.D. Candidate, Chemistry, Temple University

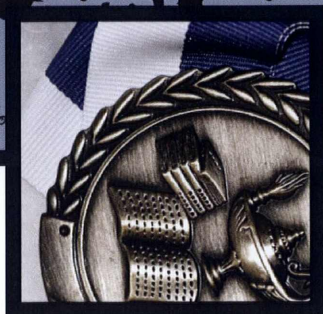
Research Area: Chemistry

Research Mentor: Dr. Daniel Strongin

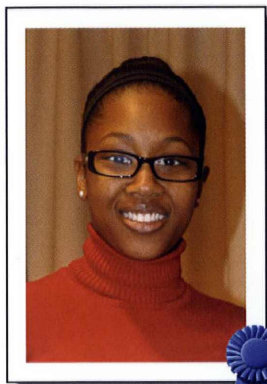
Project Title: Aluminum Doped Ferrihydrite Reactivity Toward Carbon Dioxide Adsorption

Abstract: Surface adsorption of gaseous CO₂ on soil minerals is not well understood. Aluminum doped ferrihydrite reactivity with carbon dioxide gas was investigated with attenuated total reflection Fourier transform infrared spectroscopy (ATR-FTIR). Four types of ferrihydrite (FHYD) sample were synthesized: a 2-L FHYD normal preparation and CO₂-free preparation, a 10 % 2-L Al-doped FHYD normal preparation and a 10 % Al-doped FHYD CO₂-free sample. Results from attenuated total reflectance-FTIR experiment show that gaseous CO₂ reacts with ferrihydrite to form surface carbonates species. Carbonate species increased with when exposed to a CO₂ stream and atmospheric levels of CO₂ as well as water vapor as both inner-sphere and outer-sphere hydrogen-bonded complexes under dry and hydrate conditions on ferrihydrite. The presence of 10% Al content in the iron oxyhydroxide increases the surface area and shows an increase in the reactivity of ferrihydrite particles. This effect on reactivity is likely to also be applicable to other environmentally relevant contaminants, such as phosphate. Experiments suggest that carbonate species bind much more weakly at the ferrihydrite surface in the presence of absorbed PO₄. Also, the presence of hydrogen bound water on surface OH sites prevents the formation of metastable bicarbonate species.

AWARD RECIPIENTS



POSTER COMPETITION - ENGINEERING



1ST PLACE WINNER

Salmana Diallo, University of Pennsylvania

Study on Farnesol-Containing Sol-Gel Coatings & Bulk Xerogels

2ND PLACE

Elana Cooper, University of Pennsylvania

Upper Extremity Motion Analysis in Children with Cerebral Palsy

3RD PLACE

Sanga Mutah, New Jersey Institute of Technology

Controlled Release of Anionic Drugs Intercalated in Hydrotalcite Anionic Clays

HONORABLE MENTION

Jonathan Rego, New Jersey Institute of Technology

The Effects of API-polymer Interactions on Drug Delivery

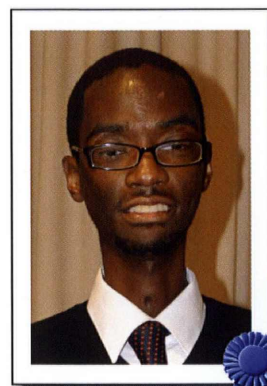
Gerardo Tolentino, New Jersey Institute of Technology

Thermostability Studies of a Laboratory Evolved Biocatalyst

Manuel Jimenez Diaz, University of Delaware

Expression of ncRNAs in E.coli and Their Role in Acid Tolerance

POSTER COMPETITION - PHYSICAL SCIENCE



1ST PLACE WINNER

Ngozi UKaegbu, Lincoln University

Investigation of Catalysis Driven Ammonia Borane Hydrolysis for H₂(g) Production

2ND PLACE

Adaire Heady, Delaware State University

Pressure Effects on the Structure of Calcium Cobaltite (Ca₃Co₄O₉), a Thermoelectric Material

3RD PLACE

Stephanie Nieves, Delaware State University

Stochastic Particle-Based Model of Cell Rearrangements

AWARD RECIPIENTS

POSTER COMPETITION - LIFE AND BIOLOGICAL SCIENCES



1ST PLACE WINNER

Jennifer Hampton, Delaware State University

Documenting Habitat Use and Residency of Adult Atlantic Horseshoe Crab (*Limulus polyphemus*) in Delaware Bay Through Passive Acoustic Telemetry

2ND PLACE

Gordon Taylor, Cheyney University of Pennsylvania

Determination of a Plant Protein Diet for a Marine Fish

3RD PLACE

Tolani Adebajo, Cheyney University of Pennsylvania

Lentiviral Gene Delivery to Fetal Mice Results in Broad Transduction of Tissues

HONORABLE MENTION

Ezekiel Crenshaw, Cheyney University of Pennsylvania

Optimizing Protein Expression by Agitation and Temperature

Brian Manson, Cheyney University of Pennsylvania

Augmentation of Vaccine-induced CD8⁺ T cell Responses to Influenza A virus Nucleoprotein in Young and Old Mice through Blockade of an Immunoinhibitory Pathway

Yaminah Watson, Cheyney University of Pennsylvania

Investigation of Inhibitory/Homing Receptors and Adhesion Molecules on Impaired B Cells in Aged Individuals as Compared to Young

BRIDGE TO THE DOCTORATE ORAL COMPETITION



1ST PLACE WINNER

Virginia Kocieda, Temple University

Prostaglandins and Their Effects on the IL-12/IL-23 Balance in Mature Myeloid Dendritic Cells

2ND PLACE

Marissa Brady, Delaware State University

Combining Telemetry and Mark-Recapture Methods to Study the Population Dynamics of American Eels in Delaware

3RD PLACE

Shileen Bynum, Temple University

Apoptotic Nuclear Debris as Autoantigens in an Inducible Model of Systemic Lupus Erythematosus (SLE)

HONORABLE MENTION

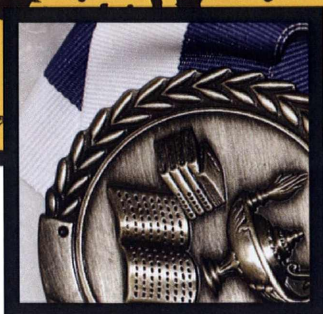
Andro-Marc Pierre-Louis, Temple University

Aluminum Doped Ferrihydrite Reactivity Toward Carbon Dioxide Adsorption

Nejea Davis, Temple University

Single Capillary Gradient Elution Isotachopheresis Coupled to Capillary Zone Electrophoresis for Trace Amino Acid Analyses

JUDGES AND PARTICIPANTS



RESEARCH SYMPOSIUM JUDGES



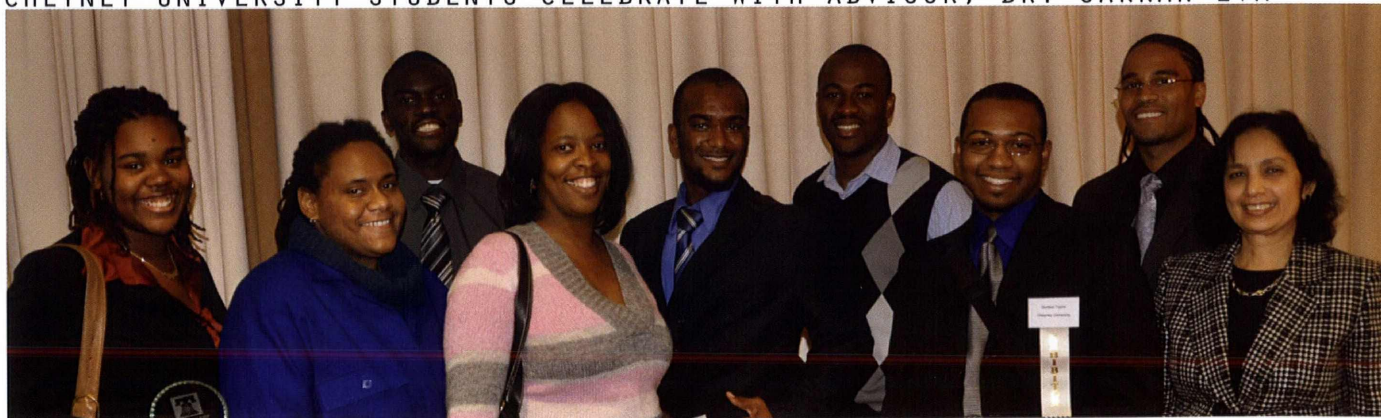
Pictured Above:

1. **Dr. Alex Gontar** Physics Assistant Professor, Community College of Philadelphia
2. **Dr. Mazen Shahin** Mathematics Professor, Delaware State University
3. **David Jamison** Biomedical Engineering Ph.D. Candidate, Drexel University
4. **Dr. Rayvon Sneed** Biology Assistant Professor, Community College of Philadelphia
5. **Dr. Edoe Mensah** Mechanical Engineering Adjunct Professor
6. **Dr. Ying Sun** Mathematical Engineering and Mechanics Assistant Professor, Drexel University
7. **Dr. Sakkar Eva** Physics Professor, Cheyney University
8. **Michael Coleman** Mathematics Adjunct Professor, Burlington County College
9. **Dr. Linda Powell** Biology Department Chair, Community College of Philadelphia

Not Pictured:

- Robert Epps** Physicist, Lockheed Martin
Manuel Figueroa Biomedical Engineering Ph.D. Candidate
Dr. Y. Grace Hsuan Material Sciences Professor, Drexel University
Dr. Bradley E. Layton Mechanical Engineering & Mechanics Associate Professor
Dr. Teck-Kah Lim Physics Professor, Drexel University
Non Yok Electrical Engineering Ph.D. Candidate, Drexel University

CHEYNEY UNIVERSITY STUDENTS CELEBRATE WITH ADVISOR, DR. SAKKAR EVA



DISTINGUISHED AWARDEES



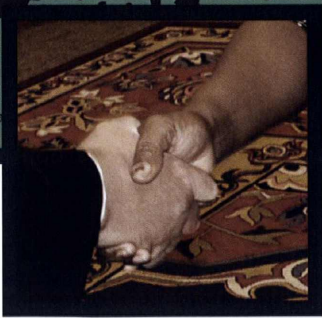
DR. STEPHEN COX, AMP PROJECT DIRECTOR, PRESENTS AN AWARD OF APPRECIATION TO KEYNOTE SPEAKER, MS. JAMIE BRACEY.



MS. VENIECE KEENE, AMP PROJECT COORDINATOR, PRESENTS AN APPRECIATION AWARD TO CLOSING SPEAKER, DR. MAURICE BAYNARD.

DR. TECK-KAH LIM, ASSOCIATE VICE PROVOST FOR GRADUATE STUDIES, DREXEL UNIVERSITY, IS A RECIPIENT OF THE PHILADLEPHIA AMP EXCELLENCE AWARD.





SPECIAL THANKS

SPECIAL THANKS TO:
THE NATIONAL SCIENCE FOUNDATION
AND
GREATER PHILADELPHIA REGION LOUIS STOKES ALLIANCE
FOR MINORITY PARTICIPATION (LSAMP)

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Mr. Michael Vaughan

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University of Delaware

Dr. Laurence Howell

Executive Director, Educational Opportunity Programs
New Jersey Institute of Technology

UNDERGRADUATE RESEARCH PRESENTERS

2009 RESEARCH SYMPOSIUM AND MENTORING CONFERENCE PARTICIPANTS

NAME	INSTITUTION	CATEGORY
Tolani Adebanjo	Cheyney University of Pennsylvania	Life / Biological Sciences
Ochieng Carolyne	Cheyney University of Pennsylvania	Life / Biological Sciences
Elana Cooper	University of Pennsylvania	Engineering
Ezekiel Crenshaw	Cheyney University of Pennsylvania	Life / Biological Sciences
Jefferson Cuadra	New Jersey Institute of Technology	Engineering
Salmana Diallo	University of Pennsylvania	Engineering
Ololade Fatunmbi	Lincoln University	Physical Sciences
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Jennifer Hampton	Delaware State University	Life / Biological Sciences
Adaire Heady	Delaware State University	Physical Sciences
Manuel Jimenez Diaz	University of Delaware	Engineering
Earnest Long	University of Pennsylvania	Engineering
Brian Manson	Cheyney University of Pennsylvania	Physical Sciences
Sanga Mutah	New Jersey Institute of Technology	Engineering
Stephanie Nieves	Delaware State University	Mathematics / Computational Sciences
Brandon Presley	Temple University	Physical Sciences
Jonathan Rego	New Jersey Institute of Technology	Engineering
Roger Saez	New Jersey Institute of Technology	Engineering
Gordon Taylor	Cheyney University of Pennsylvania	Life / Biological Sciences
Gerardo Tolentino	New Jersey Institute of Technology	Engineering
Ngozi UKaegbu	Lincoln University of Pennsylvania	Physical Sciences
Yaminah Watson	Cheyney University of Pennsylvania	Life / Biological Sciences

