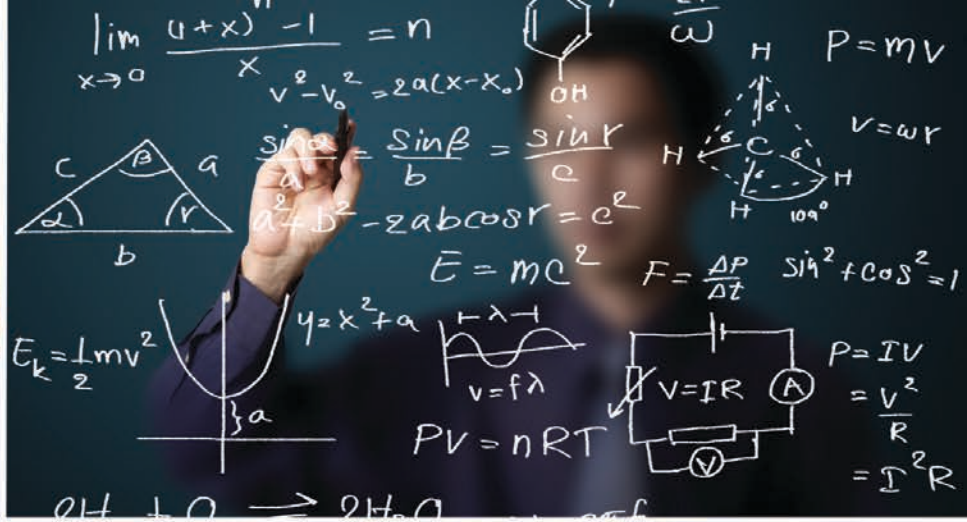
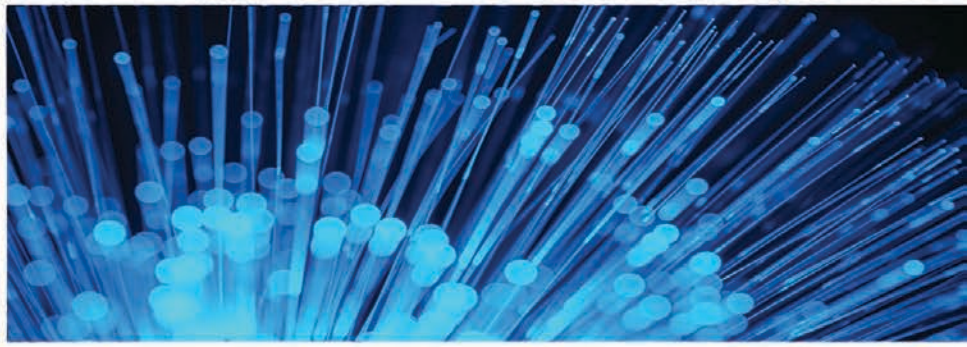
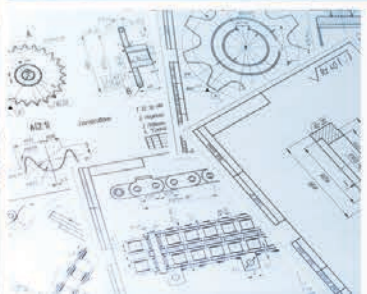




AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

Emerging Researchers National (ERN) Conference in STEM



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AAAS

2017 Emerging Researchers National (ERN) Conference in STEM

Program Book

Co-hosted by the
American Association for the Advancement of Science (AAAS)
Education and Human Resources Programs (EHR)

National Science Foundation (NSF)
Division of Human Resources Development (HRD)
Directorate of Education and Human Resources

NSF Directorate for Engineering (ENG)
Office of Emerging Frontiers in Research and Innovation (EFRI)

National Society of Black Physicists (NSBP)

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Contents

Overview of the Conference

Emerging Researchers National (ERN) Conference in STEM

The 2017 Emerging Researchers National (ERN) Conference in Science, Technology, Engineering and Mathematics (STEM) is hosted by the American Association for the Advancement of Science (AAAS), Education and Human Resources Programs (EHR) and the National Science Foundation (NSF) Division of Human Resource Development (HRD), within the Directorate for Education and Human Resources (EHR). The conference is aimed at college and university undergraduate and graduate students who participate in programs funded by the NSF HRD Unit, including underrepresented minorities and persons with disabilities.

In particular, the conference seeks to highlight the research of undergraduate and graduate students who participate in the NSF Research Experiences for Undergraduates (REUs) Program and the following NSF HRD-funded programs:

- Alliance for Graduate Education and the Professoriate (AGEP);
- Centers of Research Excellence in Science and Technology (CREST);
- Emerging Frontiers in Research and Innovation (EFRI-REM) Scholars;
- EntryPoint;
- Historically Black Colleges and Universities Undergraduate Program (HBCU-UP);
- Louis Stokes Alliances for Minority Participation (LSAMP) and LSAMP Bridges to the Doctorate;
- National Society of Black Physicists (NSBP) Scholars[1];
- Research in Disabilities Education (RDE); and
- Tribal Colleges and Universities Program (TCUP).

The objectives of the conference are to help undergraduate and graduate students to enhance their science communication skills and to better understand how to prepare for science careers in a global workforce. Towards this end, the general format for the 2-1/2 day conference includes:

- Student poster and oral presentations.

Other conference activities include workshops focused on:

- Strategies for applying for and succeeding in graduate programs and finding funding for graduate school;
- Career preparation for the STEM workforce, including employment searches and retention; and
- Understanding STEM careers in a global context and identifying international research and education opportunities for undergraduate and graduate students and faculty.

Exhibitors include representatives from academic, government, business, and the non-profit sector with information about graduate school admissions, fellowships, summer research opportunities, professional development activities, and employment opportunities.

For more information, visit the Web site at *http://www.emerging-researchers.org/*.

[1]The National Society of Black Physicists (NSBP) is working with AAAS to increase the number of African American and other underrepresented minority physics students who participate in the ERN conference.

The National Science Foundation (NSF) Division of Human Resource Development (HRD)

The Division of Human Resource Development (HRD) serves as a focal point for NSF's agency-wide commitment to enhancing the quality and excellence of STEM education and research through broadening participation by historically underrepresented groups - minorities, women, and persons with disabilities. Priority is placed on investments that promise innovation and transformative strategies and that focus on creating and testing models that ensure the full participation of and provide opportunities for the educators, researchers, and institutions dedicated to serving these populations. Programs within HRD have a strong focus on partnerships and collaborations in order to maximize the preparation of a well-trained scientific and instructional workforce for the new millennium.

HRD VISION:

HRD envisions a well-prepared and competitive U.S. workforce of scientists, technologists, engineers, mathematicians, and educators that reflects the diversity of the U.S. population.

HRD MISSION:

HRD's mission is to grow the innovative and competitive U.S. science, technology, engineering and mathematics (STEM) workforce that is vital for sustaining and advancing the Nation's prosperity by supporting the broader participation and success of individuals currently underrepresented in STEM and the institutions that serve them.

STRATEGIC GOAL 1:

The creation of new knowledge, innovations, and models for broadening participation in the STEM enterprise.

STRATEGIC GOAL 2:

The translation of knowledge, innovations, and models for broadening participation in STEM for use by stakeholders.[1]

STRATEGIC GOAL 3:

Expand Opportunities: The expansion of stakeholder capacity to support and engage diverse populations in high quality STEM education and research programs.

HRD THEORY OF CHANGE:

HRD's fundamental mission of broadening participation in STEM is embedded in the greater EHR and NSF goals. A basic premise of all HRD programs is that increasing the successful participation of individuals from historically underrepresented groups in STEM will result in a diverse, highly capable STEM workforce that can lead innovation and sustain U.S. competitiveness in the science and engineering enterprise.

Therefore, HRD has an overall goal to increase the successful participation of underrepresented minorities, women and girls, and persons with disabilities in STEM. This is done through the implementation and testing of evidence-based practices, critical review of program results to assess impact, data-driven continuous improvement, and broad dissemination of program findings for wide adoption or scale-up of effective strategies.

[1]Stakeholders include a wide range of organizations and individuals such as but not limited to: NSF and other Federal agencies, federally funded STEM labs and centers, institutions of higher education including minority-serving institutions, State and local governments, education researchers and practitioners, policy makers, STEM employers, professional STEM societies, STEM organizations, and private funders.

About

The National Science Foundation (NSF) Directorate for Engineering (ENG) Office of Emerging Frontiers in Research and Innovation (EFRI)

The Office of Emerging Frontiers in Research and Innovation (EFRI) has been established as a result of strategic planning and reorganization of NSF Engineering Directorate (ENG). Motivated by the vision of ENG to be the global leader in advancing the frontiers of fundamental engineering research, EFRI serves a critical role in helping ENG focus on important emerging areas in a timely manner. Each year, EFRI will recommend, prioritize, and fund interdisciplinary initiatives at the emerging frontier of engineering research and education. These investments represent transformative opportunities, potentially leading to: new research areas for NSF, ENG, and other agencies; new industries or capabilities that result in a leadership position for the country; and/or significant progress on a recognized national need or grand challenge.

The EFRI process of selecting, announcing, and funding new frontier areas will function throughout the year, ensuring continual input and feedback from the engineering community on promising future research opportunities. This input comes from such diverse sources as workshops, advisory committees, technical meetings, professional societies, proposals and awards, and NSF committees of visitors.

From this comprehensive input, ENG identifies, evaluates, and prioritizes those frontier topics that best match the EFRI criteria (transformative, addressing a national need or grand challenge, multi- or inter-disciplinary, an area where the community is poised to respond, and clearly demonstrating ENG's leadership role).

The National Society of Black Physicists (NSBP)

Founded in 1977 at Morgan State University, the mission of the National Society of Black Physicists (NSBP) is to promote the professional well-being of African American physicists and physics students within the international scientific community and within society at large.

The organization seeks to develop and support efforts to increase opportunities for African Americans in physics and to increase their numbers and visibility of their scientific work. It also seeks to develop activities and programs that highlight and enhance the benefits of the scientific contributions that African American physicists provide for the international community. The society seeks to raise the general knowledge and appreciation of physics in the African American community.

More information about NSBP is located online at *http://nsbp.org/*.

The American Association for the Advancement of Science (AAAS)

The American Association for the Advancement of Science is an international non-profit organization dedicated to advancing science around the world by serving as an educator, leader, spokesperson and professional association. In addition to organizing membership activities, AAAS publishes the journal *Science,* http://www.sciencemag.org/, as well as many scientific newsletters, books and reports, and spearheads programs that raise the bar of understanding for science worldwide.

AAAS was founded in 1848, and includes some 261 affiliated societies and academies of science, serving 10 million individuals. *Science* has the largest paid circulation of any peer-reviewed general science journal in the world, with an estimated total readership of one million. The non-profit AAAS is open to all and fulfills its mission to "advance science and serve society" through initiatives in science policy; international programs; science education; and more. For the latest research news, log onto EurekAlert!, http://www.eurekalert.org/, the premier science-news website, a service of AAAS.

Membership and Programs

Open to all, AAAS membership includes a subscription to *Science.*

Four primary program areas fulfill the AAAS mission:

- Science and Policy
- International Activities
- Education and Human Resources
- Project 2061

AAAS Mission

AAAS seeks to "advance science, engineering, and innovation throughout the world for the benefit of all people." To fulfill this mission, the AAAS Board has set these broad goals:

- Enhance communication among scientists, engineers, and the public;
- Promote and defend the integrity of science and its use;
- Strengthen support for the science and technology enterprise;
- Provide a voice for science on societal issues;
- Promote the responsible use of science in public policy;
- Strengthen and diversify the science and technology workforce;
- Foster education in science and technology for everyone;
- Increase public engagement with science and technology; and
- Advance international cooperation in science.

Visit the AAAS website at http://www.aaas.org/.

Welcome

William J. Lewis

Sylvia M. James

NATIONAL SCIENCE FOUNDATION
4201 WILSON BOULEVARD
ARLINGTON, VIRGINIA 22230

March 2, 2017

Dear Conference Participants:

On behalf of the National Science Foundation (NSF), the Directorate for Education and Human Resources, and the Division of Human Resource Development, we welcome you to the 2017 *Emerging Researchers National Conference in Science, Technology, Engineering and Mathematics (STEM)*. This research conference for undergraduate and graduate students builds on and continues NSF's commitment to broaden participation in STEM fields as a means to foster the research and education capacity of the nation.

Student scholarship encompasses the creation of scientific knowledge, collaboration with other students, researchers, and faculty, and dissemination of research at conferences and in journals. We applaud your enthusiasm to embrace research experiences as part of your ongoing studies.

This conference is designed to provide you with information and resources to become successful with the next steps in your career. We hope that you find the research presentations, plenary session, panels, workshops, and exhibits informative. We trust that you will take advantage of all of the opportunities this conference has to offer. We wish you a productive and meaningful stay in the Nation's capital.

Sincerely,

William J. Lewis
Assistant Director (Acting)
Directorate for Education & Human Resources

Sylvia M. James
Deputy Assistant Director (Acting)
Directorate for Education & Human Resources

Shirley M. Malcom

Yolanda S. George

AAAS
ADVANCING SCIENCE, SERVING SOCIETY

Dear ERN Conference Participants:

Welcome to the 2017 *Emerging Researchers National (ERN) Conference in Science, Technology, Engineering and Mathematics (STEM)*. AAAS, the publisher of the *Science* family of journals, is pleased to join the National Science Foundation (NSF) in co-sponsoring the seventh ERN conference. We welcome this collaboration with NSF and applaud the Foundation's continuing commitment to support and promote activities that seek to strengthen STEM education for underserved communities, broaden their participation in the workforce, and add to the knowledge base about programs of inclusion.

This year, we have 950+ participants from over 250 institutions. About 70% of the conference participants are undergraduate and graduate student researchers who are supported by the NSF Human Resources Development (HRD) Programs; Research Experiences for Undergraduates (REU); the Directorate for Engineering (ENG), Office of Emerging Frontiers in Research and Innovation (EFRI) Research Experience and Mentoring (REM) Program; and other federal programs, including the National Institutes of Health, NASA, and USDA.

Margot Lee Shetterly, the author of *Hidden Figures: The Story of the African-American Women Who Helped Win the Space Race* and her father, Robert Benjamin Lee, and Christine Darden (both retirees of NASA Langley Research Center) join us to discuss the book and *The Human Computer Project*. Other plenary speakers include Howard Spivak, who will discuss the connections between science and technology research and the justice system; and Luis Campos, the author of *Radium and the Secrets of Life* and other publications, will discuss his research which focuses on the history and intersection of biology and society.

We are also celebrating the 40th Anniversary of the National Society of Black Physicists (NSBP) with K. Renee Horton, the President of NSBP, and others. Google, Inc. is back this year with a coaching workshop on coding. We will be announcing and previewing the two winning videos from the second ERN *Science in a Minute* student video competition. The EFRI-REM Networking dinner will feature Calvin Mackie, entrepreneur, activist, and mentor, an engineer who was a leader in the Katrina Recovery efforts and programs to positively impact the quality of life for black males and families in the state of Louisiana.

Our continuing workshops will include staff and members of the Association of American Medical Colleges (AAMC), Institute for Broadening Participation (IBP), NSF Division of Graduate Education, Intel, National Institute for Computational Sciences, and the Southeastern Universities Research Consortium (SURA). And for last minute confidence building, we are once again presenting workshops and coaching on presenting oral and poster presentations.

We appreciate the continued support and efforts of exhibitors at this Conference, many of whom are or have been grantees of the NSF Alliances for Graduate Education and the Professoriate (AGEP) or the Integrative Graduate Education Research Traineeship (IGERT) Programs. From our evaluations, we know that many ERN attendees have benefited from services and programs provided by the exhibitors.

We are most appreciative of the STEM professionals who serve as role models and mentors and help with the judging of student oral and poster presentations, including alumni of the David and Lucile Packard HBCU Graduate Scholars Program, L'Oréal USA For Women in Science (FWIS) post-doctoral fellowship program, the AAAS Science and Technology Policy Fellows, and the SACNAS Summer Leadership Institute.

This conference provides one of the few national venues for STEM undergraduate and graduate students to network, build their scientific communications skills, and showcase their research skills. *Helping scientists and engineers forge successful career paths is one way that AAAS "advances science and serves society."* Besides STEM conferences, AAAS also offers webinars, tools and tips, internships, fellowships, job market information, and a supportive online community via http://www.aaas.org/careers.

It is our hope that you all benefit from the new people, knowledge, resources and networking opportunities that you discover at this Conference and via our Web site.

Sincerely,

Shirley M Malcom Yolanda S. George

Shirley M. Malcom, Director, AAAS Education and Human Resources (EHR) Programs &
Yolanda S. George, Deputy Director and Program Director, AAAS EHR

Conference Staff

NSF and AAAS Staff

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Victor Santiago, *CREST and HBCU-UP*
Marilyn J. Suiter, *EASE*

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Kerstin Mukerji, *Program Manager*
Ashley Huderson, *AAAS Science and Technology Policy Fellow*

AAAS Education and Human Resources (EHR)

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Yolanda S. George, *Deputy Director*

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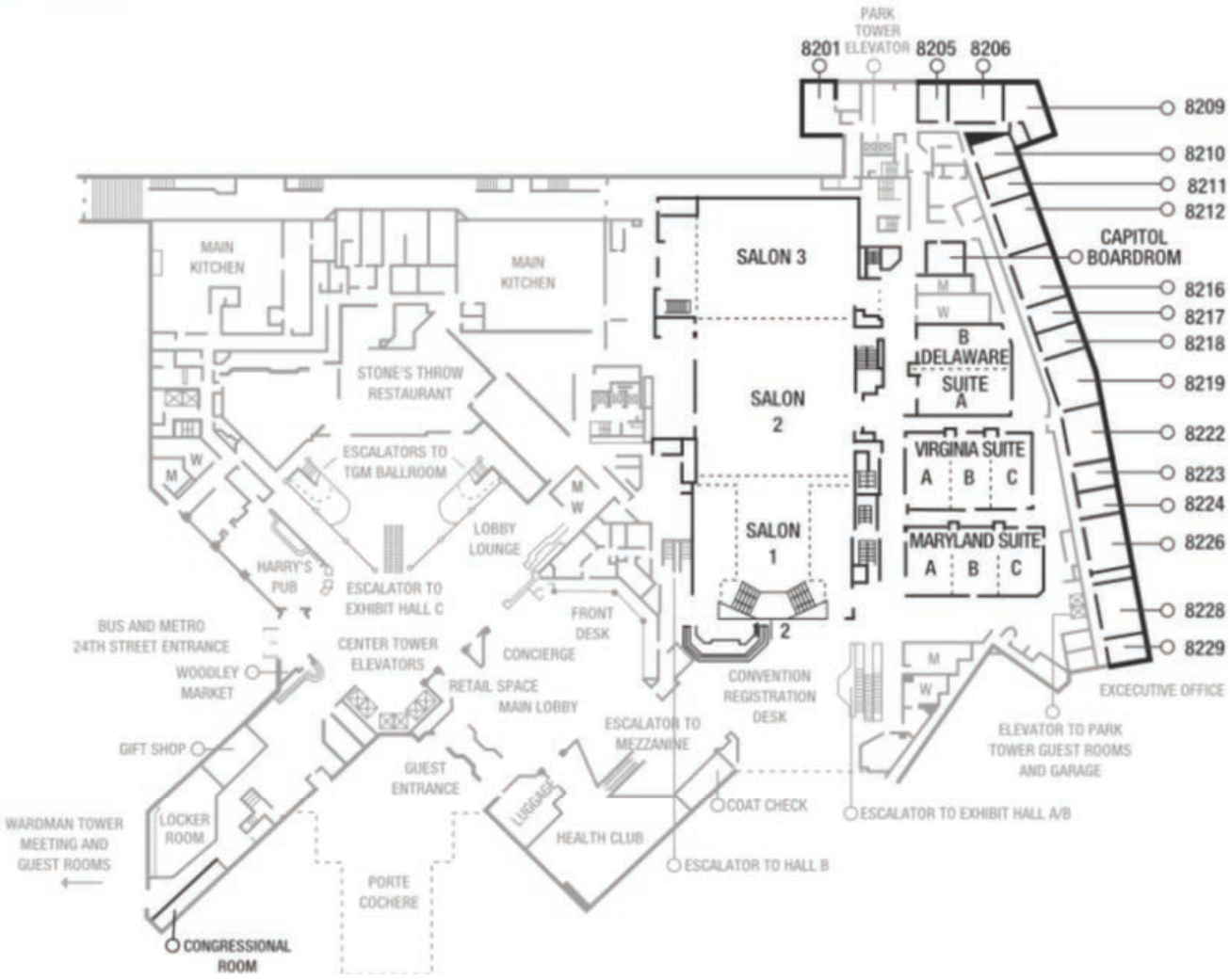
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CONCIERGE
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GUEST ENTRANCE
LUGGAGE
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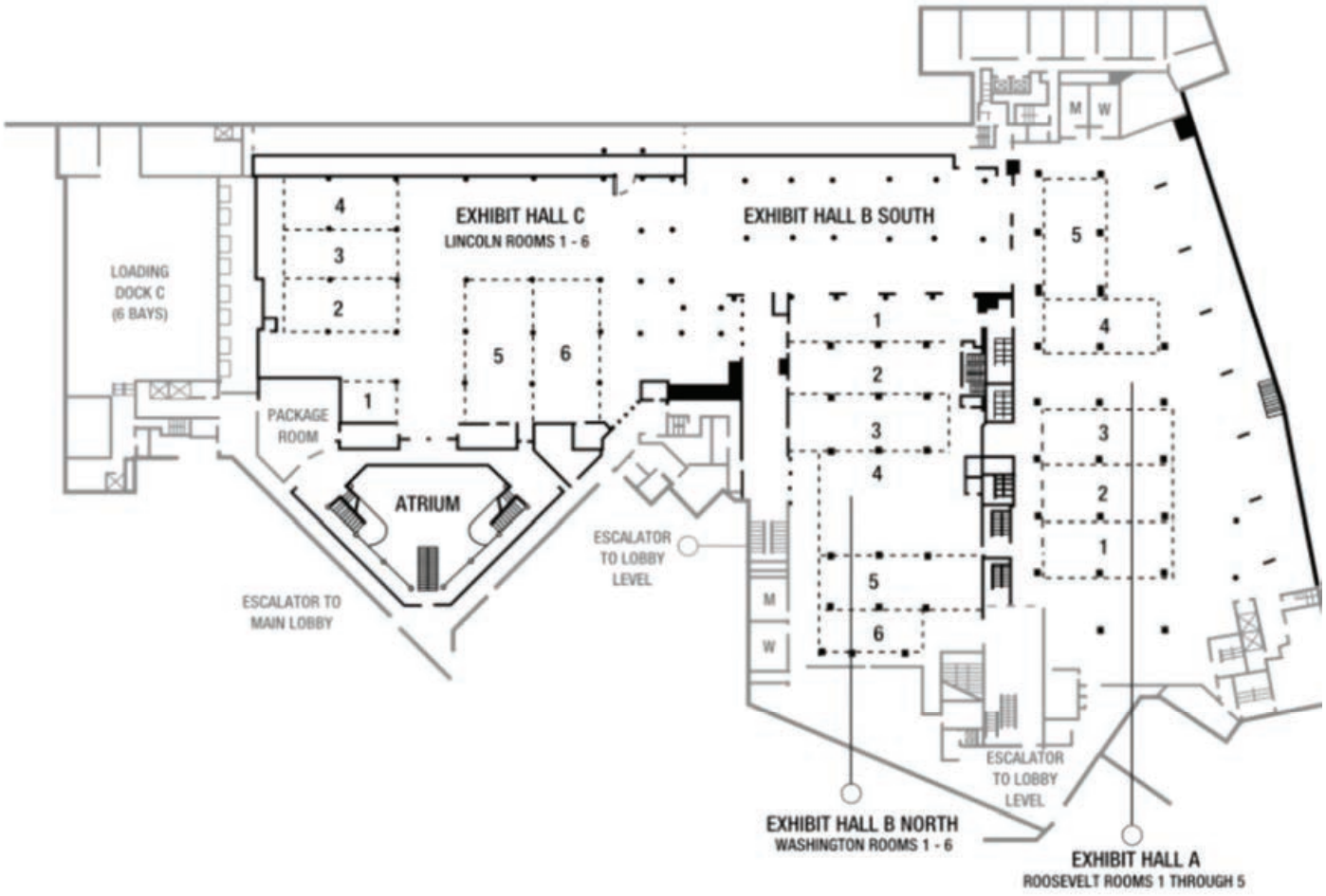
CONVENTION REGISTRATION DESK
COAT CHECK
ESCALATOR TO HALL B
ESCALATOR TO EXHIBIT HALL A/B
HEALTH CLUB
LOCKER ROOM
WARDMAN TOWER MEETING AND GUEST ROOMS
PORTE COCHERE
CONGRESSIONAL ROOM
DELAWARE SUITE A B
VIRGINIA SUITE A B C
MARYLAND SUITE A B C
EXCECUTIVE OFFICE
ELEVATOR TO PARK TOWER GUEST ROOMS AND GARAGE

Hotel Floor Plans

EXHIBITION LEVEL



Thursday, March 2, 2017

11:00am - 3:00pm **Pre-Conference Packard Scholar Meeting *(Invitation Only)***
Madison

3:00pm - 9:00pm **Conference Registration Opens**
Convention Registration and Lobby

1:00pm - 7:00pm **Exhibitor Setup**
Exhibit Hall A

4:00pm - 5:00pm **Exhibitor Orientation**
Exhibit Hall A

5:00pm - 6:00pm **ADA Resource Room Opens**
Maryland A&B

5:00pm - 6:00pm **Judge's Orientation**
Maryland A&B

6:00pm - 8:00pm **Opening Plenary Session 1 and Dinner**
Marriott Salon 2&3

Welcome Remarks:
Rush D. Holt, *AAAS CEO and Executive Publisher, Science Magazine*

W. James Lewis, *Assistant Director (Acting), EHR, NSF*

Sohi Rastegar, *Director, Emerging Frontiers in Research and Innovation (EFRI), NSF*

Speaker and Q&A:
National Society of Black Physicists (NBSP) 40th Anniversay

K. Renee Horton, *President, NSBP and Lead Metallics and Weld Engineer for NASA's Space Launch System at the Michoud Assembly Facility*

Review of ERN Agenda:
Yolanda S. George, *Deputy Director, Education and Human Resources Programs (EHR), AAAS*

Announcements

8:00pm - 10:00pm **Exhibit Hall Opens - Session 1**
Exhibit Hall A

Friday, March 3, 2017

7:00am - 3:30pm **Registration**
Convention Registration and Lobby

7:00am - 7:45am **Oral Presentations Session 1 (Set-Up)**
(See handout for room assignments.)

Poster Presentations Session 1 (Set-Up)
Exhibit Hall A

7:00am - 6:30pm **Judge's Room Opens**
Maryland A&B

7:00am - 6:30pm **ADA Resource Room Opens**
Maryland A&B

7:30am - 9:45am **Networking Breakfast and Plenary Session 2**
Marriott Salon 2&3

Moderator and NSF Welcome:
Claudia Rankins, *Program Director, NSF, EHR*

Welcome:
Celeste Rohlfing, *Chief Operating Officer (COO), AAAS*

Sylvia M. James, *Deputy Assistant Director (Acting), EHR, NSF*

Panel and Q&A

Hidden Figures: The American Dream and the Untold Story of the Black Women Mathematicians Who Helped Win the Space Race

Moderator:
Kelly Mack, *Vice President and Executive Director, Project Kaleidoscope, Office of Undergraduate Science Education (PKAL/STEM), AAC&U*

Panelists:
Margot Lee Shetterly, *Author, Hidden Figures: The American Dream and the Untold Story of the Black Women Mathematicians Who Helped Win the Space Race*

Christine Darden, *Retired, Senior Executive Service, NASA Langley Research Center*

Robert Benjamin Lee, *Retired, Research Scientists, NASA Langley Research Center*

Announcements

9:45am - 10:00am **Break**

10:00am - 12:15pm **Poster Presentations - Session 1**
Exhibit Hall A

Oral Presentations - Session 1
(*See handout for room assignments.)*

These include:
Biological Sciences (Graduate Students)
Virginia A

Chemistry and Chemical Sciences (Graduate Students)
Park Tower Suite 8228

Ecology, Environmental, and Earth Sciences (Undergraduate Students)
Park Tower Suite 8201

Technology and Engineering (Undergraduate Students)
Virginia B

Technology and Engineering (Graduate Students)
Virginia C

10:00am - 12:15pm **Concurrent Workshops - Session 1**

A. NSF Graduate Research Fellowship Program
Maryland C

Earnestine Psalmonds Easter, *Program Director, EHR, NSF*

Gisèle Muller-Parker, *Program Director, EHR, NSF*

B. Funding Your STEM Education *(For Undergraduate and Graduate Students)*
Marriott Salon 1

Liv Detrick, Deputy Director, *Institute for Broadening Participation (moderator and presenter)*

Bernard Batson, *Director, Diversity Programs, University of South Florida*

Sara Hernandez, *Associate Dean for Inclusion and Student Engagement, Cornell University*

Yolanda Trevino, *Assistant Vice President, Office of the Vice President for Diversity, Equity, and Multicultural Affairs, Indiana University*

Anthony Spatola, *Associate Director for Graduate Recruitment and Admissions, School of Engineering and Applied Science, George Washington University*

C. NSBP Session 1
Park Tower Suite 8206

D. Biomedical Graduate Education and Careers for Scientists (PhD) and Physician-Scientists (MD-PhD)
Park Tower Suite 8209

Randy Seay, *MA MPA MPH, Program Manager Medical Scientist Training Program, University of Alabama at Birmingham*

Nancy B. Schwartz, *PhD, Professor, Department of Pediatrics, Biochemistry and Molecular Biology Director, Joseph P. Kennedy Jr. Intellectual and Developmental Disabilities Research Center*

Naomi Rosenberg, *PhD, Dean, Sackler School of Graduate Biomedical Sciences, Vice Dean for Research, Professor of Molecular Biology and Microbiology, Tufts University*

E. Roadmap to Becoming a Doctor Association of American Medical Colleges (AAMC)
Park Tower Suite 8210

Rebecca Rice, *Director, Business Operations, Association of American Medical Colleges*

Julie Gilbert, *Senior Education Debt Management Specialist, Association of American Medical Colleges*

F. Tips and Coaching for Effective Oral and Poster Presentations
Congressional

Irene Hulede, *Manager, Student Programs, American Society for Microbiology (ASM)*

Beronda Montgomery, *Associate Professor, Biochemistry and Molecular Biology, Michigan State University*

12:15pm - 1:30pm **Plenary Session 3**
Marriott Salon 2&3

Moderator:
James Stith, *Vice President Emeritus, American Institute of Physics (AIP)*

Speaker:
Howard Spivak, *Acting Director, National Institute of Justice, Office of Justice Programs*

Announcements

1:30pm - 4:00pm **Exhibit Hall Opens - Session 2**
Exhibit Hall A

1:45pm - 4:00pm **Poster Presentations - Session 2 (Set-Up)**
Exhibit Hall A

Oral Presentations Session 2 (Set-up)
(*See handout for room assignments.)*

4:00pm - 6:30pm **Poster Presentation - Session 2**
Exhibit Hall A

Oral Presentations - Session 2
(*See handout for room assignments.)*

These include:
Biological Sciences (Graduate Students)
Virginia A

Chemistry and Chemical Sciences (Graduate Students)
Park Tower Suite 8228

Ecology, Environmental, and Earth Sciences (Undergraduate Students)
Park Tower Suite 8201

Technology and Engineering (Undergraduate Students)
Virginia B

Technology and Engineering (Graduate Students)
Virginia C

4:00pm - 6:30pm **Concurrent Workshops Session 2**

A. NSF Graduate Research Fellowship Program
Park Tower Suite 8209

Earnestine Psalmonds Easter,
Program Director, EHR, NSF

B. Funding Your STEM Education For Undergraduate and Graduate Students
Park Tower Suite 8210

Moderator and Presenter:
Liv Detrick*, Deputy Director, Institute for Broadening Participation*

Bernard Batson, *Director, Diversity Programs, University of South Florida*

Sara Hernandez, *Associate Dean for Inclusion and Student Engagement, Cornell University*

Yolanda Trevino*, Assistant Vice President, Office of the Vice President for Diversity, Equity, and Multicultural Affairs, Indiana University*

Agenda

Anthony Spatola, *Associate Director for Graduate Recruitment and Admissions, School of Engineering and Applied Science, George Washington University*

C. NSBP Session 2
Park Tower Suite 8206

4:00pm - 6:45pm **D. EFRI-REM Networking Sessions for Research Participants Only** *(Invitation Only)*
Maryland C

4:00pm - 4:15pm **Introduction:**
Sohi Rastegar, *Director, EFRI, NSF*

4:15pm - 5:00pm **The ART of Networking**

Moderator:
Jack Bob, *Chief Communications Officer, Intrexon Corporation*

5:00pm - 5:45pm **Career Panel**

Moderator:
Ashley C. Huderson, *NSF, AAAS Science and Technology Policy Fellow*

Panelists:
Brandy Huderson, Joseph Bonivel, Tabari Baker, Erin Leach, Garie Fordyce, Ophelia Barizo

5:45pm - 6:15pm **Leadership Seminar**

Speaker:
Chalmers Brothers, *Author*

4:15pm - 6:15pm **E. EFRI-REM Networking Session 2**
(Invitation Only)
Marriott Salon 1

Mentoring Session (PIs/Mentors)

Moderators:
Christine Grant and Andrew Greenberg

4:00pm - 6:30pm **F. Tips and Coaching for Effective Oral and Poster Presentations**
Congressional

Irene Hulede, *Manager Student Programs, American Society for Microbiology (ASM)*

Beronda Montgomery, *Associate Professor, Biochemistry and Molecular Biology, Michigan State University*

4:00pm - 5:30pm **G. Coding Coaching with Google**
Marriott Salon 2

Caitlin Merrell, *Google*
Melissa Arguinzoni, *Google*

6:30pm **Dinner on Your Own**

6:30pm - 8:30pm **Invitation-Only Meetings**

EFRI-REM Dinner Networking Session
Marriott Salon 1

Moderator:
Sohi Rastegar, *Director, EFRI, NSF*

Speaker:
Calvin Mackie, *Managing Partner, Channel ZerO Group, LLC & Partner, Golden Leaf Energy, and Former Associate Professor of Mechanical Engineering, Tulane University*

Graduate Student Career Networking Session and Networking Session for Students with Disabilities
Virginia

NSBP Networking Session
Marriott Salon 2&3

Saturday, March 4, 2017

7:00 am **Breakfast on Your Own**

7:00am - 2:00pm **Registration**
Marriott Foyer

7:30am - 5:30pm **Judge's Room Opens**
Maryland A&B

7:30am - 8:00am **Poster Presentations - Sessions 3 and 4 (Set-Up)**
Exhibit Hall A

Oral Presentations - Sessions 3 and 4 (Set-up)
(See handout for room assignments.)

8:00am - 12:30pm **ADA Resource Room Opens**
Maryland A&B

8:00am - 10:30am **Poster Presentations - Session 3**
Exhibit Hall A

Oral Presentations - Session 3
(*See handout for room assignments.)*

These include:
Biological Sciences (Undergraduate Students)
Delaware A

Biological Sciences (Graduate Students)
Virginia A

Chemistry and Chemical Sciences (Undergraduate Students)
Park Tower Suite 8228

Computer Sciences and Information Management (Undergraduate Students)
Marriott Salon 1

Ecology, Environmental, and Earth Sciences (Graduate Students)
Park Tower Suite 8201

Mathematics and Statistics (Undergraduate and Graduate Students)
Park Tower Suite 8218

Nanoscience (Graduate Students)
Park Tower Suite 8212

Physics (Undergraduate Students)
Maryland C

Physics (Graduate Students)
Delaware B

Social, Behavioral, and Economic Sciences (Graduate Students)
Park Tower Suite 8205

Technology and Engineering (Undergraduate Students)
Virginia B

Technology and Engineering (Graduate Students)
Virginia C

8:00am - 10:30am **Concurrent Workshop - Session 3**

A. NSBP Session 3
Park Tower Suite 8206

B. Tips and Coaching for Effective Oral and Poster Presentations
Park Tower Suite 8211

Irene Hulede, *Manager Student Programs, American Society for Microbiology (ASM)*

Beronda Montgomery, *Associate Professor, Biochemistry and Molecular Biology, Michigan State University*

9:00am - 12:30pm **Exhibit Hall Opens - Session 3**
Exhibit Hall A

11:00am - 12:30pm **Poster Presentations - Session 4**
Exhibit Hall A

Oral Presentations - Session 4
(*See handout for room assignments.)*

These include:
Biological Sciences (Undergraduate Students)
Delaware A

Chemistry and Chemical Sciences (Undergraduate Students)
Park Tower Suite 8228

Computer Sciences and Information Management (Undergraduate Students)
Marriott Salon 1

Computer Sciences and Information Management (Graduate Students)
Virginia B

Ecology, Environmental, and Earth Sciences (Graduate Students)
Park Tower Suite 8201

Mathematics and Statistics (Undergraduate and Graduate Students)
Park Tower Suite 8218

Nanoscience (Undergraduate Students)
Delaware B

Nanoscience (Graduate Students)
Park Tower Suite 8212

Agenda

Science and Mathematics Education (Graduate Students)
Viriginia A

Social, Behavioral, and Economic Sciences (Undergaduate Students)
Park Tower Suite 8205

11:00am - 12:30pm **Concurrent Workshop - Session 4**

A. NSBP Session 4
Park Tower Suite 8206

B. Biomedical Scientist (PhD) and Physician-Scientist (MD-PhD) Programs: How to Prepare and Apply Association of American Medical Colleges
Park Tower Suite 8211

Mary-Claire Roghmann, *MD, MS, Director, Medical Scientist Training Program (MSTP), Associate Dean for Trans-Disciplinary Research, Associate Dean for Physician-Scientist Training, Professor in the Departments of Epidemiology and Public Health and Medicine University of Maryland School of Medicine*

Nancy Street, *PhD, Associate Dean, UT Southwestern Graduate School, Assistant Professor, Microbiology, University of Texas Southwestern Medical Center in Dallas*

C. Computational, Visualization and Data Science: Solutions for World Changing Science
Park Tower Suite 8223

Linda Akli, *Southeastern Universities Research Association (SURA)*

Dwayne John, *National Institute for Computational Sciences*

Michael Smith, *Intel*

D. Science Advancing Justice: Opportunities at the National Institute of Justice
Maryland C

Moderator:
Howard Spivak, *PhD, Acting Deputy Director of the National Institute of Justice*

Speakers:
George (Chris) Tillery, *PhD, Director of the Office of Science and Technology*

Maureen McGough, *Esq., Senior Policy Advisor, Office of the Director*

Gregory Dutton, *PhD, Physical Scientist, Office of Investigative and Forensic Sciences*

Eric Martin, *Science Policy Analyst, Office of Research and Evaluation*
Steven Hafner, Research Assistant, Office of Research and Evaluation

E. EFRI-REM SWOT/Session for Mentors and Research Participants
(Invitation Only)
Virginia C

Sohi Rastegar and Kerstin Mukerji

12:30pm **Exhibits Close**
Exhibit Hall A

12:30pm **Lunch On Your Own**

12:30pm - 3:30pm **Judges Meeting and Lunch (Determining Awardees)**
Maryland A&B

12:45pm - 2:00pm **EFRI-REM Lunch/Poster Session**
(Invitation Only)
Virginia

Moderator:
Ashley C. Huderson

Judge:
Garie Fordyce

2:00pm - 6:00pm **Free Time for Tours or Special Meetings**

6:00pm - 9:00pm **Plenary Session 4 and Awards Banquet**
Marriott Salon 2&3

(Doors open at 5:45pm)

Moderator:
Shirley M. Malcom, *Director, EHR, AAAS*

Speaker:
Luis Campos, *Baruch S. Blumberg NASA Chair of Astrobiology, Library of Congress, Secretary of the History of Science Society, and Associate Chair of the History Department, University of New Mexico*

Conference Evaluation and Break

Recognition of David and Lucile Packard HBCU Scholars

James Stith, *Vice President Emeritus, American Institute of Physics (AIP)*

Recognition of the AAAS Policy Fellows, SACNAS Leadership Institute Alumni, and the L'Oreal USA for Women in Science (FWIS) Fellows

Shirley M. Malcom, *Director, EHR, AAAS*

Presentation of EFRI-REM Poster Awards:

Sohi Rastegar, *Director of EFRI, NSF*

Presentation of the 2016 ERN Video Competition Awards:

Tarrick Clayton, *AAAS*

Presentation of Oral and Poster Awards:

Jonathan Lambright, *Full Professor, Dean of College of Sciences and Technology, Savannah State University*

Shirley M. Malcom, *Director, EHR, AAAS*

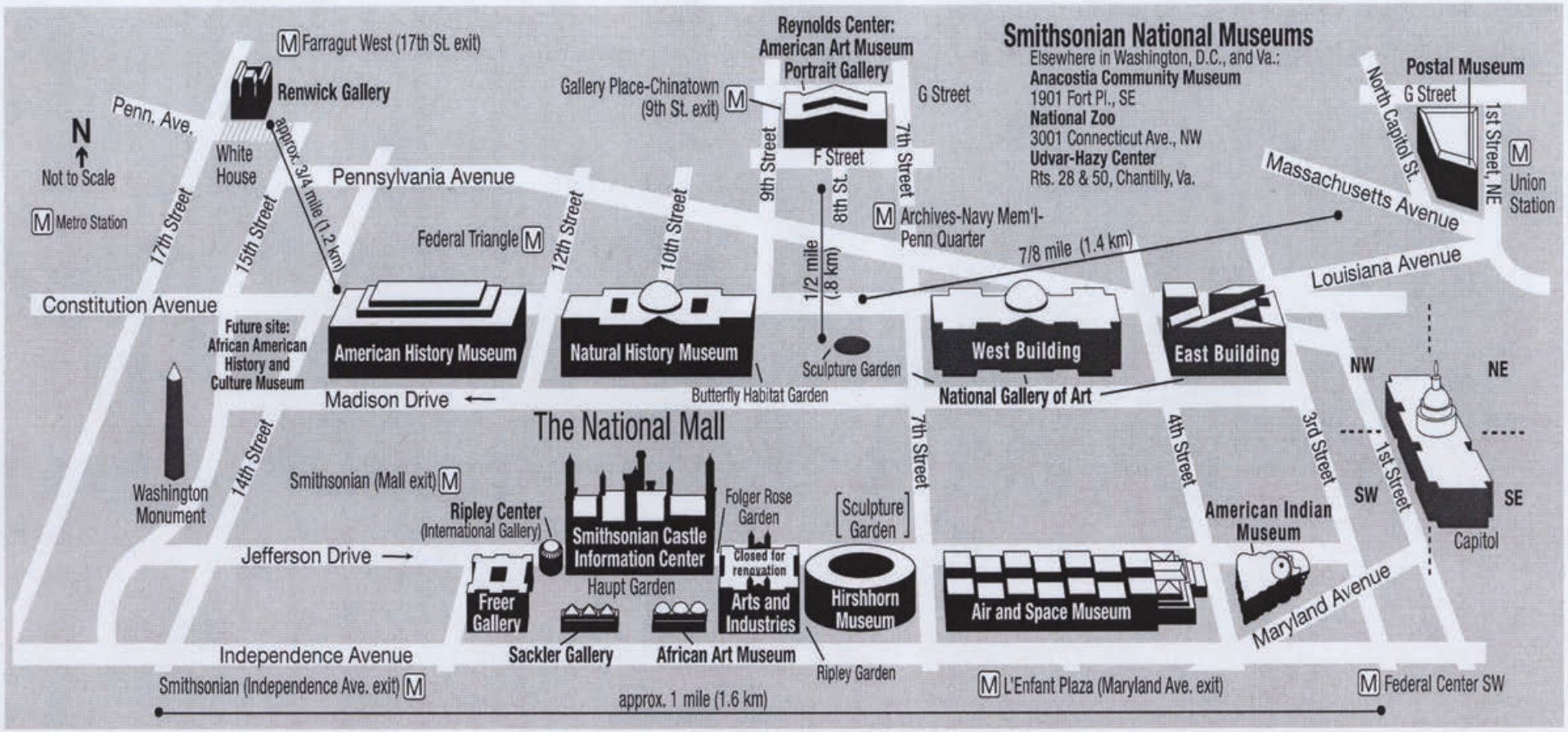
Claudia Rankins, *Program Director, HRD, NSF*

Presentation of Conference Incentives:

AAAS ERN Conference Staff

9:30pm - 12:00am **Networking and Karaoke**
Marriott Salon 2&3

Smithsonian



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1000 Jefferson Drive, SW, Washington, DC
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Note: Information subject to change without notice.

Rev. 4/2012

Luis Campos, *Baruch S. Blumberg NASA Chair of Astrobiology, Library of Congress, Secretary of the History of Science Society, and Associate Chair of the History Department, University of New Mexico*

Luis Campos is the Baruch S. Blumberg NASA Chair of Astrobiology at the Library of Congress, Secretary of the History of Science Society, and Associate Chair of the History Department of the University of New Mexico, where he is also a Senior Fellow in the Robert Wood Johnson Foundation Center for Health Policy. Trained both in biology and in the history and philosophy of science, Campos' scholarship brings together archival discoveries with contemporary work at the intersection of biology and society. He has written widely on the history of genetics as well as synthetic biology, and is the author of *Radium and the Secret of Life (University of Chicago Press, 2015),* and of *Making Mutations: Objects, Practices, Contexts (Berlin, Max-Planck-Institut für Wissenschaftsgeschichte, 2010),* among numerous other articles and essays.

Campos was recently elected Secretary of the Executive Committee of the History of Science Society, the oldest and largest scholarly society devoted to a historical understanding of science in the world. He has also been appointed as the distinguished Astrobiology Chair at the John W. Kluge Center of the Library of Congress. Funded by NASA, and executed by the Library in consultation with the NASA Astrobiology Institute, the chairholder conducts research at the intersection of the science of astrobiology and its humanistic and societal implications, and convenes related programs on astrobiology's role in culture and society, in addition to consulting with members of Congress on topics of mutual interest. Drawing on his longstanding research agenda, Campos is currently exploring the intersection of astrobiology with contemporary efforts at engineering life in his project, *"Life as It Could Be: Astrobiology, Synthetic Biology, and the Future of Life."*

Campos serves on various national review panels and boards, including the editorial board of the *Journal of the History of Biology,* and has received grants and fellowships from the National Science Foundation, the American Philosophical Society (a major repository for the history of genetics), the National Humanities Center, and the Max Planck Institute for the History of Science. He regularly presents at national and international conferences, addressing both academic colleagues and government policymakers. To his student's delight, he has also appeared in specials on the Travel Channel, the Discovery Channel, and PBS. He received his A.B. in biology from Harvard University, his M.Phil. in the history and philosophy of science from Cambridge University, and his PhD in the history of science from Harvard University.

Jody Chase, *Division Director (Acting) HRD, NSF*

Jody Chase is currently serving as the acting division director for the Division of Human Resource Development (HRD) at the National Science Foundation (NSF). Since 2002, Jody has managed the Tribal Colleges and Universities Program (TCUP), and enthusiastically partners with other program directors in the Foundation whose passions include TCUs and indigenous research and scholarship. She is devoted to the programs and people of HRD, and to the rest of NSF. She encourages collaborations between HRD and other programs as a means to extend the disciplinary expertise available to minority-serving institutions.

Christine Mann Darden, *Retired, Senior Executive Service, NASA Langley Research Center*

Christine Mann Darden, the youngest of five children and the daughter of an insurance agent and a teacher, is a native of Monroe, NC and a graduate of Allen High School, a United Methodist boarding school in Asheville, NC. She has a BS Degree in Mathematics Education from Hampton Institute (now University) in Hampton, VA, the MS Degree in Applied Mathematics from Virginia State College (now University) in Petersburg, VA, and the D.Sc. Degree in Mechanical Engineering from George Washington University in Washington, DC. Darden also holds a Certificate of Advanced Study in Management from Simmons College Graduate School of Management in Boston, MA. On December 15, 2012, Darden was awarded an Honorary Doctorate Degree from Old Dominion University in Norfolk, VA where she also delivered commence address to graduates from the Schools of Engineering, Education and Science.

After nearly 40 years of service, Darden retired as a member of The Senior Executive Service in March 2007 from NASA Langley Research Center, where she was hired in 1967 as a Computer/Data Analyst in the Re-Entry Physics Branch. Her final assignment at Langley was as Director of the Office of Strategic Communications and Education (OSCE). In that position she was responsible for the Center's external and internal communications, community outreach, governmental relations and educational outreach. Prior to the OSCE position, which Darden assumed in October 2004, Darden served as the Langley Assistant Director for Planning, responsible for the Langley strategic planning process, and oversight of the Center's delivery on commitments. Darden also previously served as Director of the Aero Performing Center Program Management Office (APCPMO) where her office had oversight of NASA Langley's work in Rotorcraft, Efficient Engine Technology, Computational Fluid Dynam-

ics, and Air Traffic Management. She also served as a Senior Program Manager in NASA's High Speed Research (HSR) Program Office, and for nearly 30 years as an internationally known researcher in high-speed aerodynamics and sonic boom research. Prior to her NASA career, Darden served as a Mathematics Instructor at Virginia State College and taught high school mathematics.

Darden is a current or former member of several professional or honorary societies, including: Past National Secretary of the National Technical Association, Associate Fellow of the American Institute of Aeronautics and Astronautics (AIAA), Past Secretary of the AIAA Technical Committee on Aero-Acoustics, Beta Kappa Chi National Scientific Honor Society, Kappa Mu Epsilon Honorary Mathematics Society, Alpha Kappa Mu Honor Society, Sigma Pi Sigma Physics Society, and Kappa Delta Pi Educational Honor Society.

During her NASA career, Darden authored over 57 technical papers and articles, primarily in the areas of sonic boom prediction, sonic boom minimization, and supersonic wing design. She is recognized as a international expert in these areas---having given technical presentations in Germany, England, France, Greece and Japan. Darden has been recognized with dozens of awards and honors—including two NASA Medals, one for her work and leadership of the Sonic Boom Program, and the other for her active involvement in working with and encouraging students to pursue careers in Math and Science. In addition, she received the Black Engineer of the Year Outstanding Achievement in Government Award and the Women in Science & Engineering Lifetime Achievement Award.

Darden was recently included in the book, *"Hidden Figures,"* by author Margot Shetterly as one who stood on the shoulders of Katherine Johnson, Dorothy Vaughn, and Mary Jackson, NASA "Human" Computers, who as members of the segregated West Computers contributed to the NASA Space Program in the early 1960s and who are currently being featured in the Twentieth Century movie of the same name. Darden and her husband of 53 years, Walter, are the parents of 3 adult daughters, 5 grandchildren and 3 great-grandchildren.

Garie Fordyce, *Retired, Program Manager, EFRI, NSF*

Garie Fordyce is a NSF retiree who recently served as Program Manager in the Directorate for Engineering (ENG), at the National Science Foundation (NSF). Throughout his 26-years career at NSF, Fordyce worked in several divisions within ENG, multiple directorates, and on several NSF-wide and interagency projects and activities. For the last 6-years of his NSF tenure, he managed the Directorate's Emerging Frontiers in Research and Innovation (EFRI) program.

Before joining NSF, Fordyce served for 8-years (active duty) as a Civil Engineer with the United States Air Force. After joining NSF he continued his military service as a 'weekend warrior' in the Maryland Air National Guard for an additional 15 years. As a part of his military service, Fordyce completed a variety of assignments to include engineering projects in Europe, Asia, Africa, and other parts of the globe. In 2003, he became the first Program Director for Diversity and Outreach in the Directorate for Engineering. His responsibilities included the coordination of the directorate's diversity programs and activities as well as the development of new initiatives to foster increased participation of women, minorities, and other underrepresented groups in engineering.

In 2006, Fordyce accepted a 2-year assignment as Program Director of the Americas program in the NSF Office of International Science and Engineering (OISE). His countries and regions of responsibility were Panama, Guatemala, Costa Rica, Belize, Venezuela, and the English speaking Caribbean. During this assignment, he visited many academic institutions in South/Central America and the Caribbean to discuss and promote international collaborative opportunities between US researchers and their foreign counterparts and he presented materials and facilitated workshops that promoted NSF programs and activities. While conducting one site visit at the Smithsonian Tropical Research Institute in Panama, He was asked to organize and facilitate a series of proposal writing workshops to train Panamanian researchers who submitted proposals to SENACYT, Panama's equivalent to NSF. Fordyce received an M.S. degree in Information Systems Management from the University of Maryland.

Yolanda S. George, *Deputy Director, Education and Human Resources, AAAS*

Yolanda Scott George is Deputy Director and Program Director, Education and Human Resources Programs, American Association for the Advancement of Science (AAAS). She has served as Director of Development, Association of Science-Technology Centers (ASTC), Washington, DC; Director, Professional Development Program, University of California, Berkeley, CA; and as a research biologist at Lawrence Livermore Laboratory, Livermore, California involved in cancer research and cell cycle studies using flow cytometer and cell sorters.

George conducts evaluations, workshops and reviews for the National Institutes of Health and National Science Foundation, as well as for private foundation and public agencies, including the European Commission. She works with UNIFEM, UNESCO,

L'Oreal USA and Paris and non-governmental organizations on gender, science, and technology initiatives related to college and university recruitment and retention and women leadership in STEM.

She serves or has served as principal investigator (PI) or co-PI on several National Science Foundation (NSF) grants, including Vision and Change in Undergraduate Biology Education; National Science Education Digital Library (NSDL) Biological Sciences Pathways; Historically Black Colleges and Universities-Undergraduate Programs (HBCU-UP); Robert Noyce Teacher Scholarship Program; Transforming Undergraduate Education in STEM (TUES) and Virtual Faculty Workshop; and Women's International Research Collaborations at Minority Serving Institutions. In addition, George is the lead AAAS staff person for the L'Oreal USA Fellowships for Women in Science Program (postdoctoral fellowships) and the David and Lucile Packard Foundation HBCU Graduate Scholars Program (graduate school fellowships).

George serves or has served on a number of boards or committees, including: PBS News Hour Science Advisory Committee; Burroughs Wellcome Fund, Science Enrichment Program Grants, Advisory Board; The HistoryMakers, ScienceMakers, Advisory Board; and the National Advisory Board of The American Physical Society Physics Bridge Program.

George has authored or co-authored over 50 papers, pamphlets, and hands-on science manuals. She received her BS and MS from Xavier University of Louisiana and Atlanta University in Georgia, respectively.

Rush D. Holt, *AAAS CEO and Executive Publisher, Science Magazine*

Rush D. Holt, PhD, became chief executive officer of the American Association for the Advancement of Science (AAAS) and executive publisher of the Science family of journals in February 2015. In this role, Holt leads the world's largest multi-disciplinary scientific and engineering membership society. Holt has held positions as a teacher, scientist, administrator, and policymaker. He also served as an arms control expert at the U.S. State Department, where he monitored the nuclear programs of countries such as Iraq, Iran, North Korea, and the former Soviet Union.

Before coming to AAAS, Holt served for 16 years as a member of the U.S. House of Representatives, representing New Jersey's 12th Congressional District. From December 2014 to February 2015, Holt was appointed a Director's Visiting Scholar at the Institute for Advanced Study in Princeton, New Jersey.

Holt is a Phi Beta Kappa graduate of Carleton College in Northfield, Minnesota, and earned MA and PhD degrees in physics from New York University. He is an elected fellow of AAAS and the American Physical Society, and is a member of Sigma Xi, and he holds honorary degrees from Monmouth University, Rider University, Thomas Edison State College, and the University of Toledo.

K. Renee Horton, *President, NSBP and Lead Metallics and Weld Engineer for NASA's Space Launch System at the Michoud Assembly Facility*

K. Renee Horton is the Lead Metallics and Weld Engineer for NASA's Space Launch System at the Michoud Assembly Facility working on NASA's Journey to Mars. Horton has a major role in building the rocket that will take astronauts to Mars. Having worked with NASA as a student, she began her career with them in 2012 and has since been awarded six group achievement awards. In 2011, she became the first African American to earn a PhD in Materials Science at the University of Alabama. She earned her BS in Electrical Engineering with a minor in Mathematics in 2002 from Louisiana State University.

In 2016, Horton was elected President of the National Society of Black Physicists (NSBP). She is the second woman to hold the office, since Shirley Jackson who was the President of NSBP in 1983, 33 years ago. That same year, she was invited to speak for the First International Women and Girls Day at the United Nations in February. She also serves the physics community abroad as a member of the International Union of Pure and Applied Physics (IUPAP) Women in Physics Working Group, which organized the Women in Physics (WIP) conferences in Canada, South Africa, Brazil, Korea, and France. She has served as Chair of the Forum on Graduate Student Affairs for the American Physical Society. She is a proud member of the Slidell Alumnae Chapter of Delta Sigma Theta Sorority, Inc., as well as the proud mother of three. She is the author of *Sanctum of my Soul*, a book of poetry. She is also currently working on two new books, *Dr. H Explores the Universe* and *Dr. H and her Friends*. In her spare time, she enjoys reading and photography.

Sylvia M. James, *Deputy Assistant Director (Acting), EHR, NSF*

Sylvia M. James is the Acting Deputy Assistant Director of the National Science Foundation's (NSF) Directorate for Education and Human Resources (EHR). During her 15 year tenure at NSF, she has served as the Division Director of HRD, Acting Director and Acting Deputy Division Director of the

Division of Research on Learning in Formal and Informal Settings, and the Lifelong Learning Cluster Coordinator. She has served as a program officer for the ISE, ITEST, Faculty Early Career (CAREER), and the Advanced Technological Education (ATE) programs. She also worked with the Innovation through Institutional Integration (I^3) and Academies for Young Scientists (AYS) programs. James previously served as the Lead Program Officer for ITEST, and its predecessor, the After School Centers for Exploration and New Discovery (ASCEND). She currently serves as the Co-Chair of the Federal Coordination in STEM (FC-STEM) Broadening Participation Interagency Working Group, the NSF liaison to the Liaison to President's Board of Advisors (PBA) on HBCUs, and has been a member of the Burroughs Wellcome Fund, Student Science Enrichment Program (SSEP) Advisory Committee since 2012. She is a member of the interagency working group for the White House Initiative on Educational Excellence for Hispanics (WHIEEH). She previously served on the Interagency Working Group for Youth Programs (2012-2014) and the 21st Century Community Learning Centers, Interagency Technical Working Group (2011-2014). Prior to coming to NSF, she was the Director of Education at the National Aquarium in Baltimore. She holds a Bachelor of Science degree in Biology from Loyola University, a Master of Science degree from the Johns Hopkins University, and a Doctorate in Science Education from Morgan State University, all located in Baltimore, Maryland.

Jonathan Lambright, *Dean, College of Sciences and Technology, Professor, Department of Engineering Technology, Savannah State University*

Jonathan Lambright is the Dean of the College of Sciences and Technology and Professor in the department of Engineering Technology at Savannah State University. In this role he leads over 75 faculty, and staff in a college of over 1,500 students majoring in 9 undergraduate and graduate degree programs. He has served Savannah State University as the interim Assistant Vice President for Academic Affairs and the Chair of the Engineering Technology and Mathematics department.

Lambright obtained a BS in Mechanical Engineering from North Carolina A&T State University in 1985. After working for 3 years as a Mechanical Engineer at the Department of Defense, he returned to graduate school at North Carolina A&T and received his MS in Mechanical Engineering in 1990 with a focus in Computer Aided Design and Manufacturing. He then attended the Georgia Institute of Technology's George W. Woodruff School of Mechanical Engineering and obtained his PhD in Mechanical Engineering in 1996. While at Georgia Tech Jonathan focused his studies and research on design methodology and manufacturing automation.

During the period between 1992 and 1996 Jonathan worked for the Lockheed Martin Aeronautical Systems Co. in Marietta GA. At Lockheed he worked on various research and development projects within the Advanced Design department. Between 1996 and 2002, he consulted with fortune 500 and other companies in areas of Enterprise Applications including Manufacturing Execution Systems and Customer Relation Management Systems.

During the 2010-2011 academic year, Lambright participated in and became a graduate of the University System of Georgia's Executive Leadership Institute. In the summer of 2008 he was selected as a NASA ESMD Summer Faculty Fellow at the NASA Stennis Space Center. In 2006, he received the Savannah State University NROTC teacher of the year award. He has taught courses for the Georgia Tech Regional Engineering Program at Savannah State and has been involved in engineering education research targeted at increasing the numbers of minority students majoring in and graduating from engineering disciplines.

Robert Benjamin Lee, III, *Retired, Research Scientists, NASA Langley Research Center*

Robert Benjamin Lee, III, graduated with a BS in Physics from Norfolk State University (NSU), Norfolk, VA; a MS in Engineering Physics from the University of Virginia, Charlottesville, VA; and a PhD in Physics from Hampton University (HU), Hampton, VA.

Lee retired from the National Aeronautics and Space Administration (NASA) Langley Research Center (LaRC), Hampton, VA, with over 40 years of experience as a research scientist in the use and development of weather and climate aircraft-borne, ground-based, in-situ, and spacecraft sensors, as well as using atmospheric density drag techniques. He is an internationally known scientist in the area of absolute spacecraft radiometry.

Lee is the author/co-author of approximately 240 technical papers, articles, and other significant presentations. He was one of only two African-American investigators of major spacecraft experiments. He served as a co-investigator on several spacecraft missions/science teams, such as the NASA Earth-Radiation Budget Experiment (ERBE), the Clouds and the Earth's Radiant Energy System (CERES), and the Belgium SOLCON (Solar Constant) Experiment on the Space Shuttle Hitchhiker missions. He served as the Head of the NASA LaRC Equal Opportunity Office, and as the Assistant Chief of the LaRC Radiation Sciences Branch, Atmospheric Sciences Division.

Lee served on the NASA selection panel for experiments on the first engineering flights of the NASA Space Shuttle. 1981, he participated in the first Space Shuttle flight, coordinating aircraft

experiments to define the environmental impacts of the Space Shuttle rocket launch exhaust effluents. Later, at Hampton University, as a student and as a post-doctoral fellow, he conducted atmospheric measurements to assess the feasibilities of defining metrological tropospheric temperature and water vapor profiles using the HU ground-based elastic/Raman lidar.

He held technical memberships in the National Society of Black Physicists, the American Geophysical Union (AGU), the National Technical Association (NTA), and the American Meteorological Society (AMS). Lee was recognized for his technical and community contributions with induction into the National Black College Alumni Hall of Fame in Science, the National Association for Equal Opportunity in Higher Education (NAFEO) Research Achievement Award, the NTA A. T. Weathers Technical Achievement Award, the NASA Exceptional Achievement Medal, the NAFEO Distinguished Alumnus Award, the Omega Psi Phi Fraternity, Inc. National Omega Man of the Year Award, and the Mid-Eastern Athletic Conference (MEAC) Distinguished Alumni Honoree -NSU recognition.

Lee was born in Norfolk, VA, and resides in Hampton, Virginia. He is married to Margaret Reed Giles Lee. They are members of First Baptist Church of Hampton, VA. They have four adult children: Margot Rebecca Lee Shetterly, Robert Benjamin Lee IV, Lauren Elizabeth Lee Colley, and Jocelyn Anne Lee.

W. James "Jim" Lewis, *Assistant Director (Acting), EHR, NSF*

W. James "Jim" Lewis is the Acting Assistant Director for the Education and Human Resources Directorate at the National Science Foundation. Lewis is on leave from the University of Nebraska-Lincoln (UNL), where he is the Aaron Douglas professor of mathematics and Director of the Center for Science, Mathematics, and Computer Education. While at NSF, Lewis has served as co-chair of the P-12 Education Interagency Working Group, tasked with coordinating efforts to improve P-12 STEM instruction through efforts across federal agencies.

Lewis began his current position in January 2015. At UNL, he served as chair of the Department of Mathematics (1988-2003). During which time the department won the University-wide Department Teaching Award and an NSF Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring. He also was the Principal Investigator for three major NSF grants, the Math in the Middle Institute Partnership (2004-2011), NebraskaMATH (2009-2014) and NebraskaNOYCE (2010-2014). Lewis has received many teaching awards including his university's Outstanding Teaching and Instructional Creativity Award and the Carnegie Foundation's 2010 Nebraska Professor of the Year Award. He is also the recipient of the UNL Chancellor's Commission on the Status of Women Award for his support of opportunities for women in the mathematical sciences and UNL's Louise Pound-George Howard Distinguished Career Award. In 2015, Lewis was recognized by the Mathematical Association of America's Gung and Hu Award for Distinguished Service and the American Mathematical Society's Award for Impact on the Teaching and Learning of Mathematics. He received his PhD in mathematics from Louisiana State University in 1971.

Kelly Mack, *Vice President and Executive Director, Project Kaleidoscope, Office of Undergraduate Science Education (PKAL/STEM), AAC&U*

Kelly Mack is the Vice President for Undergraduate STEM Education and Executive Director of Project Kaleidoscope, a non-profit organization focusing on undergraduate STEM education reform, at the Association of American Colleges and Universities (AAC&U). Prior to joining AAC&U, Mack was the Senior Program Director for the National Science Foundation (NSF) ADVANCE Program while on loan from the University of Maryland Eastern Shore (UMES) where, as a Professor of Biology, she taught courses in Physiology and Endocrinology for 17 years. During her tenure at NSF, Mack managed an annual budget of approximately $17 million, facilitated the inclusion of issues targeting women of color into the national discourse on gender equity in the STEM disciplines and significantly increased the participation of predominantly undergraduate institutions, community colleges and minority serving institutions in the ADVANCE portfolio. At UMES, Mack served in many capacities including Biology Program Director where she was responsible for providing leadership and strategic vision for the intellectual, educational, and professional development of biology majors and for the coordination of faculty in providing quality instruction, research, and development activities. She also served as Principal Investigator, Director or Co-Director for externally funded projects that totaled over $12 million dollars, including the UMES ADVANCE Program, which focused on issues related to African American women faculty in the STEM disciplines and led to the initiation of several institution-wide practices to promote the professional development of all faculty.

Mack earned the BS degree in Biology from UMES and, later, the PhD degree from Howard University in Physiology. She has had extensive training and experience in the area of cancer research with her research efforts focusing primarily on the use of novel antitumor agents in breast tumor cells. Most recently, her research focus has involved the use of bioflavonoids in the regulation of estrogen receptor positive (ER+) and estrogen receptor negative (ER-) breast tumor cell proliferation.

Biographies

Mack has served as a member of the Board of Governors for the National Council on Undergraduate Research and is a current member of the National Institutes of Health Review Subcommittee for Training, Workforce Development and Diversity. She also recently completed a brief stint as Executive Secretary for the NSF Committee on Equal Opportunities in Science and Engineering, which is the Congressionally mandated advisory body that focuses on efforts to broaden the participation of underrepresented groups in the STEM disciplines.

Calvin Mackie, *Managing Partner, Channel ZerO Group, LLC and Partner, Golden Leaf Energy*

A lifelong resident of New Orleans, Calvin Mackie graduated from high school barely able to read and with SAT scores requiring him to undertake special remedial classes before he was admitted to Morehouse College. He completed his degree in Mathematics, graduating Magna Cum Laude and as a member of the prestigious Phi Beta Kappa National Honor Society. He was simultaneously awarded a Bachelors degree in Mechanical Engineering from Georgia Tech, where he later earned his PhD. Following graduation he joined the faculty at Tulane University, where he pursued research related to heat transfer, fluid dynamics, energy efficiency, and renewable energy. In 2002, he was promoted to Associate Professor with tenure. Mackie's eleven year academic career ended in June 2007, when Tulane University disbanded the engineering school in response to financial hardship induced by Hurricane Katrina.

Following the catastrophic Hurricanes Katrina and Rita in 2005, former Louisiana Governor Kathleen Blanco appointed Mackie to the thirty-three member board of the Louisiana Recovery Authority (LRA), the guiding agency to lead the state's rebuilding efforts. Possessing instant social, political, cultural, and technical credibility, Mackie was featured prominently in Spike Lee's HBO Katrina documentary, *When The Levees Broke: A Requiem in Four Parts* (HBO 2006) and it's successor *If God Is Willing and Da Creek Don't Rise* (HBO 2010). Mackie continues in his role as Managing Partner of Channel ZerO Group LLC, an educational and motivational consulting company he co-founded in 1992. He has presented to numerous civic and educational institutions, government entities, professional association, and businesses of every size and industrial focus. Through his travels and online mentoring presence, Mackie reaches millions of students and professionals annually.

Mackie's inspirational memoir *A View from the Roof: Lessons for Life and Business* has been adopted as educational course material by numerous secondary and college teachers throughout the country. He is also the author of *Grandma's Hands: Cherished Moments of Faith and Wisdom* (a book that draws inspiration form the women in his family) was published in 2011.

Shirley M. Malcom, *Director of Education and Human Resources (EHR) Programs at AAAS*

Shirley M. Malcom, Director of Education and Human Resources (EHR) Programs at AAAS, has served as a program officer in the NSF Science Education Directorate; an assistant professor of biology, University of North Carolina, Wilmington; and a high school science teacher. Malcom received her PhD in Ecology from the Pennsylvania State University; Master's in Zoology from the University of California, Los Angeles; and Bachelor's with distinction in Zoology from the University of Washington. In addition, she holds 16 honorary degrees.

Malcom serves on several boards, including the Heinz Endowments, Public Agenda, Digital Promise, and the National Mathematics and Science Initiative. She serves as a trustee of Caltech and as a Regent of Morgan State University. In 2003, Malcom received the Public Welfare Medal of the National Academy of Sciences, the highest award given by the Academy. She was a member of the National Science Board, the policymaking body of NSF, from 1994 to 1998, and of the President's Committee of Advisors on Science and Technology from 1994 to 2001.

Claudia Rankins, *Program Director, HRD, NSF*

Claudia Rankins is a Program Officer in the Directorate for Education and Human Resources at the National Science Foundation, where she manages the Historically Black Colleges and Universities Undergraduate Program and the Centers for Research Excellence in Science and Technology. Prior to this post, Rankins served at Hampton University for 22 years in a number of capacities, including chair of the department of physics, assistant dean for research, and dean of the School of Science. Rankins holds a PhD in Physics from Hampton University. She is the co-founder of the Society of STEM Women of Color, Inc.

Sohi Rastegar, *Senior Advisor and Director, Office of Emerging Frontiers and Multidisciplinary Activies (EFMA), NSF, Directorate for Engineering*

Rastegar is the Senior Advisor and the Director of Office of Emerging Frontiers in Research and Innovation (EFRI) at the US National Science Foundation (NSF), Directorate for Engineering. He joined NSF in November 2003 following fifteen years of academic and administrative service at Texas A&M University, Virginia Commonwealth University, and the Johns Hopkins University. He has been an Invited Professor at the Swiss Institute of Technology in Lausanne (EPFL), Switzerland. He earned his BS(Highest Honors) and MS in Aerospace Engineering, and his PhD in Biomedical Engineering at the University of Texas at Austin. Rastegar has over 150 scientific publications and presentations and has trained 8 PhD and 14 MS students. He is a co-founder of BioTex, Inc., a medical device company in Houston, Texas.
He is a Fellow of the American Institute for Medical and Biological Engineering (AIMBE), a Fellow of the American Society for Lasers in Medicine and Surgery (ASLMS), has served as the Chair of Bioengineering Division of ASME, Associate Editor of Annals of Biomedical Engineering, a member of the Editorial Boards of the Journals of Biomedical Optics and Journal of Diabetes Science and Technology. Rastegar is the recipient of numerous scientific and administrative awards and honors including the Select Young Faculty Award from the Texas Engineering Experiment Station, and the Director's Superior Accomplishment Award from the National Science Foundation.

Celeste Rohlfing, *Chief Operating Officer, American Association for the Advancement of Science (AAAS)*

Before joining AAAS in 2015, Rohlfing served as the Deputy Assistant Director for the Directorate of Mathematical and Physical Sciences (MPS) at the National Science Foundation (NSF). She was the senior career official managing the MPS Directorate with a budget of $1.4B and over 170 staff. Rohlfing joined NSF in 1997 as a Program Director in the Chemistry Division, and later served as Head of the Office of Multidisciplinary Activities, acting Division Director for the Division of Chemistry, and for the Division of Materials Research. In 2010-11, she also served as Assistant Director of Physical Sciences at the White House Office of Science and Technology Policy. From 1986 to 1997, Rohlfing was a Principal Member of Technical Staff at Sandia National Laboratories in California with over 70 scientific publications. Prior to joining Sandia, she was a Director's-Funded Postdoctoral Fellow at Los Alamos National Laboratory. Her bachelor's and doctoral degrees in chemistry are from Duke University (summa cum laude and Phi Beta Kappa) and Princeton University, respectively. Rohlfing is a Fellow of AAAS, and the recipient of multiple NSF awards in management excellence, equal opportunity achievement, and collaborative integration. With respect to diversity, inclusion, and broadening participation, Rohlfing has initiated numerous efforts over her career at AAAS, NSF, and Sandia National Laboratories. Most recently, she organized a AAAS-hosted Forum on Implicit Bias in Peer Review, with 80 participants from scholarly publishing and federal funding agencies to discuss approaches to mitigating implicit bias effects.

Margot Lee Shetterly, *Author, Hidden Figures: The American Dream and the Untold Story of the Black Women Mathematicians Who Helped Win the Space Race*

Writer, researcher, and entrepreneur Margot Lee Shetterly is the author of *Hidden Figures: The American Dream and the Untold Story of the Black Women Mathematicians Who Helped Win the Space Race* (William Morrow/HarperCollins). A 2014 Alfred P. Sloan Foundation Fellow and Virginia Foundation for the Humanities grantee, Shetterly is the founder of *The Human Computer Project,* an endeavor that is recovering the names and accomplishments of all of the women who worked as computers, mathematicians, scientists and engineers at the NACA and NASA from the 1930s through the 1980s. She is a native of Hampton, Virginia, where she knew many of the women behind the history in *Hidden Figures*. She lived for many years in New York and Mexico before moving to Charlottesville, Virginia, where she lives with her husband, writer Aran Shetterly. She is a graduate of the University of Virginia.

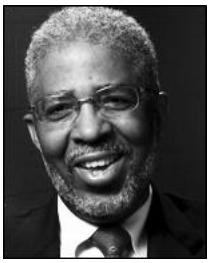
Howard Spivak, *Acting Director, National Institute of Justice*

Howard Spivak is the Acting Director of the National Institute of Justice (NIJ). Prior to assuming this role he was NIJ's Principal Deputy Director. Before joining NIJ, he was Director of the Division of Violence Prevention at the National Center for Injury Prevention and Control, Centers for Disease Control.

Spivak began his career as Director of Adolescent Services for the City of Boston, during which he cofounded the first community-based public health youth violence prevention program in the nation. He moved on to become the Deputy Commissioner of the Massachusetts Department of Public Health, where he was in charge of all prevention and community oriented programs in the department, and among other

activities developed the first office for violence prevention at the state level and advanced the funding of the first school-based health centers in MA.

Spivak has held a number of senior academic appointments including Professor of Pediatrics and Community Health at Tufts University, directed pediatric and adolescent primary care programs at several academic medical centers, published numerous academic and general public articles on youth violence, spoken around the country and internationally on violence related issues, and worked with many community programs both in Boston and nationally addressing youth violence prevention as well as other violence-related concerns. He has co-authored 2 books on youth violence: *Murder Is No Accident* and *Sugar and Spice and No Longer Nice*.



James Stith, *Vice President Emeritus, American Institute of Physics*

James Stith is Vice President Emeritus for the American Institute of Physics (AIP). While an officer of the Institute, he had oversight responsibilities for AIP's Magazine Division, the Media and Government Relations Division, the Education Division, the Center for the History of Physics, the Statistical Research Division and the Careers Division. His doctorate in physics was earned from The Pennsylvania State University, and his masters and bachelors in physics were received from Virginia State University. A physics education researcher, his primary interests are in program evaluation, and teacher Preparation and enhancement.

Stith was formerly a Professor of Physics at The Ohio State University and Professor of Physics at the United States Military Academy. He has also been a Visiting Associate Professor at the United Air Force Academy, a Visiting Scientist at the Lawrence Livermore National Laboratory, a Visiting Scientist at the University of Washington, and an Associate Engineer at the Radio Cooperation of America.

He is a past president of the American Association of Physics Teachers, past president of the National Society of Black Physicists, a Fellow of the American Association for the Advancement of Science, a Fellow of the American Physical Society, a Chartered Fellow of the National Society of Black Physicists, and a member of the Ohio Academy of Science. He was named a Distinguished Alumni of Penn State, the Alumni Association's highest award, an Honorary Member of Sigma Pi Sigma (its highest award) the physics honor society, a National Academies Education Mentor in the Life Sciences and a Science-Maker (by HistoryMakers). Additionally, he serves on a number of national and international advisory boards and has been awarded a Doctor of Humane Letters by his alma mater, Virginia State University. He is married and has three adult daughters and two grandchildren.

Judges

Akbar Aghajanian, *Fayetteville State University*

Monika Akbar, *University of Texas at El Paso*

Daniel Akins, *The City College of New York*

Linda Akli, *SURA*

Hashim Ali, *Arkansas State University*

Jaquelina Alvarez, *University of Puerto Rico-Mayaguez*

Sharan Asundi, *Tuskegee University*

David Beam, *Connecticut Pre-Engineering Program*

Stephen David Beck, *Louisiana State* University

Rachel Beecham, *Mississippi Valley State University*

Mary Benjamin, *University of Arkansas at Pine Bluff*

Angela Birkes-Grier, *University of Georgia*

Sandra Blumenrath, *Howard Hughes Medical Institute*

Greg Bogin, *Colorado School of Mines*

Hacene Boukari, *Delaware State University*

Kenneth Boutte, *Xavier University of Louisiana*

Tanina Bradley, *North Carolina Central University*

Antonio Brathwaite, *University of the Virgin Islands*

Charles Brown, *Yale University*

Stephan Brown, *Edward Via College of Osteopathic Medicine*

Anissa Buckner, *University of Arkansas at Pine Bluff*

Reeshemah Burrell, *NA*

Eugene Butler, III, *Myo Bio, LLC*

Goncalo Cardoso, *LBNL*

Alvin Collins, *American Chemical Society*

Ted Conway, *Florida Institute of Technology*

Oscar Criner, *Texas Southern University*

Tomeka Cross, *J.F. Drake State Community and Technical College*

Carol Davis, *Tribal Nations Research Group*

Agnes Day, *Howard University*

Alison DeLong, *Brown University*

Seema Dhir, *Fort Valley State University*

Stacey Duhon, *Grambling State University*

Cyntrica Eaton, *Norfolk State University*

Melanie Eddins-Spencer, *Prairie State College*

Nicola Edwards, *Delaware State University*

Omnia El-Hakim, *Colorado State University*

Lisa Elliot, *Rochester Institute of Technology*

James Fakunle, Livingstone College

Yayin Fang, *Howard University*

Phyllis Freeman, Fisk University

William Friesen, *Garden City Community College*

Gigi Galiana, *Yale University*

Matthew George Jr., *Howard University*

Tonya Gerald-Goins, *North Carolina Central University*

Patrice Gregory, *Sandia National Laboratories*

Michelle Guinn, *Belmont University*

Fenghai Guo, *Winston Salem State University*

Sasan Haghani, *University of the District of Columbia*

Mary Harris, *BioTechnical Communications, Inc.*

D. Ahmasi Harris, *BAE Systems*

Kelley Harris Johnson, *Univ. of Wisconsin Madison*

David Heise, *Lincoln University*

Karl W. Henry, *Bishop State Community College*

Caesar Jackson, *North Carolina Central University*

Frank James, *Philander Smith College*

Kayenda Johnson, *United States Digital Service at the Centers for Medicare and Medicaid Services*

Delayne Johnson, *Delaware State University*

Charlie Johnson, *Univ. of Pennsylvania*

Emmitt Jolly, *Case Western Reserve University*

Marcus Jones, *Regeneron*

Selena Judon-Monk, *Saint Augustine's University*

Judges

Fatemeh Khalili-Araghi, *University of Illinois at Chicago*

Bob King, *King Education Consultants*

Tina King, *King Education Consultants*

Zuleikha Kurji, *California Institute of Technology*

Jonathan Lambright, *Savannah State University*

Torina Lewis, *Clark Atlanta University*

Wei Li, *Texas Southern University*

Michelle Linster, *Bennett College*

Sharifa Love-Rutledge, *Michigan State University*

Nicholas Luke, *North Carolina A&T State University*

Jonalyn Lyles, *DHHS*

Arlene Maclin, *Howard University*

Marisa Madison, *Miami Dade College*

Glenroy Martin, *Fisk University*

Lee Anne Martínez, *Colorado State University-Pueblo*

Larry Mattix, *Norfolk State University*

Melissa McCartney, *Florida International University*

Aliecia McClain, *Norfolk State University*

James McGee, *Lone Star College*

Tanisha McGlothen, *Spelman College*

Camille McKayle, *University of the Virgin Islands*

Sydika McKissic, *Vanderbilt University*

Mark Melton, *Saint Augustine's University*

Beronda Montgomery, *Michigan State University*

Augustus Morris, *Central State University*

Debra Murray, *Baylor College of Medicine*

Arvind K.N. Nandedkar, *Howard University College of Medicine*

Tagbo Niepa, *University of Pennsylvania*

Suman Niranjan, *Savannah State University*

Shantisa Norman, *Sandia National Laboratories*

Joseph Nunez, *Schoolcraft College*

Elijah Nyairo, *Alabama State University*

Chi Onyewu, *Regeneron Pharmaceuticals*

Esther Ososanya, *University of the District of Columbia*

Alvitta Ottley, *Washington University in St. Louis*

Michael Page, *Cal Poly Pomona University*

Lance Pérez, *University of Nebraska-Lincoln*

Sabrina Phillips, *Mississippi Valley State University*

Percy Pierre, *Michigan State University*

Manu Platt, *Georgia Institute of Technology*

Cindy Quezada, *The Midan Group*

Arunasalam Rahunanthan, *Central State University*

Govindarajan Ramesh, *Norfolk State University*

Dione Rossiter, *Carnegie Institution for Science*

Marius Schamschula, *Alabama A&M University*

Andriy Semychayevskyy, *Lincoln University (PA)*

Carmen Sidbury, *The Sidbury Group, LLC*

Dwayne Simmons, *Baylor University*

Bernard Singleton, *Dillard University*

Aubrey Smith, Montgomery College

Michael Smith, *Intel Corporation*

Xueqing Song, *University of the District of Columbia*

James H. Stith, *American Institute of Physics*

Andrea Stith, *University of Colorado Boulder*

Robert Stolz, *University of the Virgin Islands*

Alexei Stortchevoi, *Harvard University/ MGH*

Bo Sun, *Lincoln University*

Anderson Sunda-Meya, *Xavier University of Louisiana*

Fedora Sutton, *Science Visions Inc.*

Guoqing Tang, *North Carolina A&T State University*

Alade Tokuta, *North Carolina Central University*

Gregory Triplett, *Virginia Common-wealth University*

Michael Twa, *University of Alabama at Birmingham*

Delia Valles-Rosales, *New Mexico State University*

Matthew Walker III, *Vanderbilt University*

Kedra Wallace, *University of Mississippi Medical Center*

Edward Walton, *California State Polytechnic University, Pomona*

Matthew Ware, *Grambling State University*

Luisa Whittaker-Brooks, *University of Utah*

Quintin Williams, *University of Illinois at Chicago*

Joycelyn Wilson, *Spelman College*

Danyelle Winchester, *Johns Hopkins*

Victor Wyatt-Prater, *USDA*

Washington, D.C. Subway System Map

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Exhibitor Descriptions

Table 2
AAAS Science and Technology Policy Fellowships
American Association for the Advancement of Science
1200 New York Ave., NW
Washington, DC 20005

Contact: Barry Williams, bwilliam@aaas.org

Apply your knowledge and skills to federal policy via the AAAS Science and Technology Policy Fellowships. A year-long professional development opportunity for doctoral level scientists to serve in the federal government in Washington, D.C. STPF fosters a career-enhancing network of science leaders who understand policymaking and contribute to society. Collaborate and brainstorm with high ranking policy leaders. And do it in the company of 200+ talented global scientists and engineers. Learn why so many alumni fellows say the fellowships accelerated their career path!

Table 33
Albert Einstein College of Medicine-Graduate Division of Biomedical Sciences
1300 Morris Park Avenue
Belfer 203
Bronx, NY 10461
www.einstein.yu.edu/phd

Contact: Kim Ohaegbulam, kim.ohaegbulam@med.einstein.yu.edu

'Research knows no Boundaries' in the Graduate Division of Biomedical Sciences at the Albert Einstein College of Medicine (Bronx, NY). Established in 1957, Einstein has long provided an exciting intellectual environment in which students acquire the knowledge and skills necessary to attain the PhD and MD/PhD degrees in the biomedical sciences.

At Einstein you will find PhD, MD/PhD, and Summer Undergraduate Research programs. Graduate students work with faculty at the cutting-edge of disease-relevant research in areas such as: BIOCHEMISTRY, BIOINFORMATICS, BIOPHYSICS, CANCER, CELL and MOLECULAR BIOLOGY, GENETICS, IMMUNOLOGY INFECTIOUS DISEASES, NEUROSCIENCES, STEM CELL BIOLOGY, SYSTEMS BIOLOGY, EPIDEMIOLOGY, VIROLOGY and more! A PhD track in CLINICAL INVESTIGATION is also offered.

All PhD and MD/PhD students receive:

- Full tuition remission
- Annual stipend (currently $33,000)
- Health Insurance
- Subsidized housing

Table 46
Carnegie Mellon University
5000 Forbes Ave
533 Warner Hall
Pittsburgh, PA 15213-3890

Contact: Suzanne Laurich-McIntyre, slaurichmcintyre@cmu.edu

Carnegie Mellon University is a private, global research university with a proud heritage of outstanding graduate and undergraduate education. Our programs are ranked among the top in the country. All of our seven colleges and schools offer Master's and Doctoral degrees and several offer programs at locations around the world. A foundation of our graduate education has been research with a focus on advancing knowledge and finding meaningful solutions to significant problems of society. This real-world, hands-on approach has made Carnegie Mellon home to excellent faculty and students in engineering, computer science, the natural sciences, humanities and social sciences, business administration, public policy and management, and the fine arts. With unique interdisciplinary graduate degrees and over 100 research centers, students learn to combine expertise in diverse fields to create the most exceptional solutions to challenges and to explore evolving areas. Carnegie Mellon University's main campus is located in Pittsburgh, PA, rated one of the most livable cities in the USA. Additionally there are some graduate programs at the campus in Silicon Valley, CA, and degree granting programs in New York City, Washington D.C. and Los Angeles, CA, and international partnerships in Portugal, China, Rwanda and Australia to name a few.

Carnegie Mellon University: *www.cmu.edu*
Guide to Graduate Degrees and Programs: *www.cmu.edu/graduate/*

Table 50
Columbia University School of Engineering and Applied Science
500 West 120 Street, 254 ET
MC 4708
New York, NY 10027

Contact: Tiffany Simon, tms26@columbia.edu

Columbia University's Fu Foundation School of Engineering and Applied Science offers graduate degrees in applied physics, applied mathematics, biomedical engineering, chemical engineering, civil engineering, construction engineering management, data science, engineering mechanics, computer engineering, computer science, Earth and environmental engineering, electrical engineering, financial engineering, industrial engineering, operations research, management science and engineering, materials science engineering, medical physics, mechanical engineering, metallurgical engineering, mining engineering, and solid-state science engineering.

Distance education and MS/MBA programs are also available. A joint master's degree program in Computer Science and Journalism is also available. For more information, please visit: *www.engineering.columbia.edu.*

Table 41
Cornell College Engineering
146 Olin Hall
DPE, Cornell Engineering
Ithaca, NY 14853

Contact: Jami Joyner, Jami.Joyner@cornell.edu

Cornell's College of Engineering is one of the world's leading engineering and technical institutions, set within a deliberately broad-based and diverse university. We have a longstanding focus on teaching excellence and groundbreaking research, supported by exceptional laboratories and libraries. Our dynamic culture of innovation and our particular strength in cross-disciplinary collaboration are enhanced by the open, engaging interactions among the members of our community - faculty and students alike.

CONSIDER - Apply to our Ph.D., M.S., or M.Eng degree programs to be exceptionally well positioned for a rewarding career in research, academia, or industry.

EXPLORE - Over 15 engineering graduate fields in which we cultivate our unusually strong culture of innovation across disciplines.

ACCESS - Connect to the worldwide alumni network and services as well as to the numerous Cornell organizations focused on specific fields of interest.

ADVANCE - Share the next phase of your journey with us here at Cornell Engineering.

Table 27
Embry-Riddle Aeronautical University
600 S. Clyde Morris Blvd.
Daytona Beach, FL 32114

Contact: Caroline Day, caroline.day@erau.edu

Our residential campuses located in Daytona Beach, Florida and Prescott, Arizona offer you the choice of a spectacular beach setting or an amazing mountain community. Embry-Riddle Online and our Worldwide Campus operate a globally recognized learning system that leverages online and face-to-face instruction and a network of education facilities designed to support student advancement in the U.S. and abroad. Whether you're interested in applied science, aviation, business, computers and technology, engineering, security, intelligence, and safety, or space, Embry-Riddle has a major for you. We respond to the changing world around us and our trailblazing degrees let you lead the way. Embry-Riddle graduates get where they want to be, landing jobs quickly and becoming leaders of industry. Your degree will get you in the door at some of the world's top employers, and the people you meet on campus will be there to help you along the way. At Embry-Riddle, you'll get hands-on experience from the time you get to campus. Explore the skies. Develop a rocket launch system. Run conflict scenarios in a situation room. Design airlines, networks and fleets to maximize profitability.

Table 19
FASEB MARC Program
9650 Rockville Pike
Bethesda, MD 20814

Contact: Jacquelyn Roberts, cadams@faseb.org
Eduardo Rosa-Molinar, erm@ku.edu

Making dreams come true, while promoting diversity in the biomedical and behavioral sciences, that's what the FASEB Maximizing Access to Research Careers (MARC) Program has done for more than 30 years. The FASEB MARC Program helps strengthen the research training and leadership opportunities for students, postdoctoral fellows and academic/research faculty members from groups underrepresented in the biomedical and behavioral sciences. The FASEB MARC Program provides encouragement, preparation and support to underrepresented students in the pursuit of postgraduate education leading to the PhD, MD-PhD, or other combined professional degree-PhD in the biomedical and behavioral sciences. We offer travel awards that enable attendance at events including: FASEB societies scientific meetings and science research conferences, FASEB Leadership Development and Grantsmanship Training Seminars, and non-FASEB meetings including ABRCMS, SACNAS and Compact for Faculty Diversity's Institute on Teaching and Mentoring.

Table 5
George Washington University
800 22nd St NW
Suite 2885
Washington, DC 20052

Contact: Anthony Spatola, aspatola@gwu.edu

Located in the nation's capital, SEAS strives to promote a multi cultural technological community and maintain and develop special integrated programs with industry and government. SEAS' programs and degrees prepare professionals to be confident in their understanding of science and technology, capable of exercising constructive leadership, creative in the face of new environmental and societal challenges, and agile in the application of critical analytical skills during a life long learning that will open new career horizons. In all of its

activities, the School strives to create a vibrant atmosphere, providing for interaction and joint ventures among faculty, students, and the abundant resources of scientists and facilities available in the Washington Metropolitan Area.

Table 39
Harvard SEAS
29 Oxford Street
Pierce Hall, Room 110
Cambridge, MA 02138

Contact(s): Christina Zaldana, czaldana@seas.harvard.edu
Kathryn Hollar, hollar@seas.harvard.edu

The Harvard John A. Paulson School of Engineering and Applied Sciences' doctoral and master's degree programs lie at the interfaces of engineering, the applied sciences, and technology. SEAS brings the full resources of the University to bear to enable new discoveries and innovations. In keeping with the interdisciplinary nature of modern research, we do not have traditional academic departments and do not award degrees by specific research area.

Degree Areas:
- Applied Mathematics Ph.D.
- Applied Physics, including a Materials Science Track Ph.D.
- Computational Science and Engineering S.M., M.E., Secondary Field
- Computer Science Ph.D.
- Engineering Sciences
- Bioengineering Ph.D.
- Electrical Engineering S.M., M.E., Ph.D.
- Environmental Science & Engineering Ph.D.
- Materials Science and Mechanical Engineering Ph.D.

To learn more about the graduate programs please visit: http://www.seas.harvard.edu/academics/graduate

Summer undergraduate research opportunities are available through the REU program: https://www.seas.harvard.edu/k-12-community-programs/reu

Table 7
Indiana University
1320 E. 10th St., Room E546
Bloomington, IN 47403

Contact: Bianca Evans, biaevans@iu.edu

The University Graduate School is a recognized leader in developing new concepts and best practices for graduate education, which makes Indiana University Bloomington a premier location to earn your graduate degree.

The University Graduate School administers degree programs on seven campuses of Indiana University: Bloomington, Fort Wayne, Kokomo, Indianapolis, Northwest at Gary, South Bend, and Southeast at New Albany. At Bloomington there are master's programs in the College of Arts and Sciences and Ph.D. programs and/or Ph.D. minors in the College of Arts and Sciences, the Jacobs School of Music, the Kelley School of Business, the School of Education, the School of Informatics, the Mauer School of Law, the School of Library and Information Science, the School of Optometry, and the School of Public and Environmental Affairs.

Visit: *http://graduate.indiana.edu/admissions/apply.shtml for additional information on applying to Indiana University.*

Visit: *http://graduate.indiana.edu/admissions/programs.shtml to browse our master's, doctoral and professional degrees, or graduate certificates.*

Table 30
Lawrence Berkeley National Laboratory
One Cyclotron Road
M/S 50A1148
Berkeley, CA 94720

Contact: Joseph Crippen, jrcrippen@lbl.gov

Lawrence Berkeley National Laboratory (Berkeley Lab) addresses the world's most urgent scientific challenges by advancing sustainable energy, protecting human health, creating new materials, and revealing the origin and fate of the universe. Founded in 1931, Berkeley Lab's scientific expertise has been recognized with 13 Nobel prizes. The University of California manages Berkeley Lab for the U.S. Department of Energy's Office of Science.

Table 36
Michigan State University Graduate School
466 W. Circle Drive
Second Floor, Room 230
East Lansing, MI 48824

Contact: Steven Thomas, deshawn@msu.edu

We are accepting application for graduate school and summer internship from students interested in the Science, Technology, Engineering and Mathematics fields as well as the Social Behavioral Sciences (Sociology, Psychology, Linguistics, Criminal Justice, Communication, Economics, Anthropology, etc). Post-doctoral and Post-baccalaureate opportunities are also available in various departments. Application fee waivers are available by request.

Table 28
Morehouse School of Medicine
720 Westview Drive, S.W., HG 209
Atlanta, GA 30310

Contact(s): Brandon Walton, bwalton@msm.edu
Jamillah McDaniel, jmcdaniel@msm.edu
Kirlin Ward, wkirlin@msm.edu

Morehouse School of Medicine (MSM), located in Atlanta, Ga., was founded in 1975 as the Medical Education Program at Morehouse College. In 1981, MSM became an independently chartered institution. MSM is among the nation's leading educators of primary care physicians and was recently recognized as the top institution among U.S. medical schools for our social mission. Our faculty and alumni are noted in their fields for excellence in teaching, research and public policy. MSM awards Doctor of Medicine, Doctor of Philosophy in Biomedical Sciences (Ph.D.), Master of Public Health (M.P.H.), Master of Science in Medical Sciences (MSMS), Master of Science in Biomedical Research (MSBR), Master of Science in Clinical Research (MSCR), Master of Science in Biomedical Technology (MSBT), and Master of Science in Neuroscience (MSNS) degrees.

Table 13
National Research Mentoring Network

Contact: Paige Cooper, Paige.Cooper@unthsc.edu

Join the National Research Mentoring Network to gain access to a body of students and scientists in biomedical research, enhanced networking, professional development opportunities, research resources and mentorship experiences.

Participation is free!

NRMN offers:

- Guided virtual mentorship platform
- MyNRMN mentorship networking platform
- Evidence-based mentorship training workshops
- Intensive coaching programs to develop competitive grant proposals
- Opportunity to be a grantsmanship coach or scientific and methodology advisor
- Mentorship certifications
- Training workshops for facilitating your own mentor training
- Webinars, Videos and News
- Other professional development and grant-funding opportunities

Ready to get plugged in: Visit *NRMNet.net* and create your profile today!

Table 38
Northwestern University, The Graduate School
633 Clark Street
1-502
Evanston, IL 60208

Contact(s): Noelle Wakefield,
noelle.wakefield@northwestern.edu
Michelle Paulsen, m-paulsen@northwestern.edu

The mission of The Graduate School (TGS) of Northwestern University is to be a trusted, responsive, visionary leader and partner in order to maintain and promote the highest quality master's and doctoral education. TGS collaborates with a number of schools to guide and sustain an institutional culture that facilitates excellence in teaching, innovation and rigor in research, and the personal and intellectual growth of its diverse student population. The Graduate School (TGS) offers advanced degree programs, including Dual Degree Programs, in more than 70 disciplines. Please visit *www.tgs.northwestern.edu* for more information.

Table 1
NYU Tandon School of Engineering
6 MetroTech Center
Brooklyn, NY 11201

Contact: Jamie Kanki, jamie.kanki@nyu.edu

Founded in 1854, the NYU Tandon School of Engineering is the second oldest private school in the United States dedicated to the study of science, engineering, and technology. Faculty and alumni from NYU Tandon include Nobel Prize winners, NASA astronauts, chief executives of Fortune 100 companies, and leaders of some of the world's most prestigious research organizations. NYU Tandon enrolls more than 2,800 graduate students at its Brooklyn, New York campus and online, and offers a Global Fellowship program for engineering PhD students to conduct research at the Abu Dhabi campus of New York University.

Table 49
Pennsylvania State University
111D Kern Graduate Building
University Park, PA 16801

Contact: Stephanie Danette Preston, sdp163@psu.edu

Penn State's Graduate School is one of the largest in the nation with more than 10,000 graduate students enrolled at the University Park campus, Penn State Erie, The Behrend College; Penn State Great Valley; Penn State Harrisburg; and the Penn State College of Medicine. Certain professional degree programs (M.Eng., M.Agr., M.Ed., etc.) are also offered at other locations and through the Penn State World Campus. We take pride in

being one of the largest graduate schools in the nation and in our exemplary faculty and high-quality degree programs, many of which are nationally ranked. The Graduate School is committed to ensuring that all individuals regardless of ethnicity, gender, or other personal characteristics are afforded the opportunity to achieve their full potential as scholars and professionals. Our international enrollment has increased to an all-time high with more than 2,600 students from China, India, South Korea, Taiwan, Canada, Mexico, Brazil and a host of other countries. Furthermore, we are particularly proud of our efforts directed toward increasing the enrollment of underrepresented graduate students.

Table 14
Philadelphia College of Osteopathic Medicine
4170 City Avenue
Philadelphia, PA 19131

Contact: Kari Shotwell, admissions@pcom.edu

For more than a century, Philadelphia College of Osteopathic Medicine has trained highly competent, caring physicians, health practitioners and behavioral scientists that practice a 'whole person' approach, treating people, not just symptoms. PCOM is dedicated to providing high-quality, comprehensive programs distinguished by leading-edge curricula and expert faculty. PCOM offers the doctor of osteopathic medicine degree and graduate programs in biomedical sciences, psychology, physician assistant studies, forensic medicine, organizational leadership, aging and long term care, and public health management. Georgia Campus - PCOM offers a school of pharmacy as well as the doctor of osteopathic medicine degree and master's programs in biomedical sciences and physician assistant studies.

Table 16
Princeton University, The Graduate School
284 Frick Laboratory
Princeton University
Princeton, NJ 08544

Contact: Susan VanderKam, skillian@princeton.edu

Princeton University offers advanced degrees spanning the humanities, social sciences, natural sciences, and engineering. The Graduate School focuses on, and sustains excellence in, doctoral education across all these disciplines and emphasizes original and independent scholarship. We also offer a limited number of highly selective master's degree programs in the fields of architecture, engineering, finance, public affairs, and public policy, in order to prepare candidates for careers in public life and professional practice. Our graduate programs in STEM fields include Applied and Computational Math, Architecture, Astrophysical Sciences, Atmospheric and Oceanic Sciences, Chemical and Biological Engineering, Chemistry, Civil and Environmental Engineering, Computational and Information Science, Computer Science, Ecology and Evolutionary Biology, Economics, Electrical Engineering, Environmental Studies, Finance, Geosciences, Materials Science, Mathematics, Mechanical and Aerospace Engineering, Molecular Biology, Neuroscience, Operations Research and Financial Engineering, Physics, Plasma Physics, Psychology, and Quantitative and Computational Biology.

Table 26
Rensselaer Polytechnic Institute
Graduate Admissions
110 8th Street
Troy, NY 12309

Contact: Jarron Decker, deckej3@rpi.edu

Rensselaer Polytechnic Institute is the nation's oldest technological research university. Located in the Capital District of New York State, Rensselaer offers a broad range of graduate programs across six schools: Architecture, Engineering, Science, Lally School of Management, Humanities and Social Sciences, and Information Technology and Web Science. Unique programs include interdisciplinary degrees in information technology, the MFA and Ph.D. in Electronic Arts, and extensive opportunities in biotechnology, nanotechnology and energy and the environment.

Table 15
Rice University/NEWT
Allen Center B06
6100 Main Street
Houston, TX 77005

Contact: Theresa Chatman, tlc@rice.edu

NEWT is an interdisciplinary, multi-institution nanosystems-engineering research center (headquartered at Rice University) whose goal is to facilitate access to clean water almost anywhere in the world by developing efficient modular water treatment systems that are easy to deploy, and that can tap unconventional sources to provide humanitarian water or emergency response. NEWT also develops systems to treat and reuse challenging industrial wastewaters in remote locations, such as oil and gas fields to help energy production be more sustainable and more cost-efficient in regards to its water footprint.

Table 20
St. John's University
8000 Utopia Parkway
Queens, NY 11439

Contact: Sandra Altman, altmans@stjohns.edu

St. John's University, a Catholic university in the Vincentian tradition, offers world class academic programs, taught by internationally recognized faculty, in a high-tech environment. The University offers over 100 career focused graduate degree programs on three residential campuses in the New York City area, a campus in Oakdale NY, and a Graduate Center in Rome, Italy. Classes are offered in convenient locations with flexible delivery options and schedules to meet the needs of adults balancing work and family. Graduate programs are available in the following areas:

- St John's College of Liberal Arts and Sciences;
- College of Pharmacy and Health Sciences;
- College of Professional Studies;
- The Institute of Biotechnology;
- Rome Campus;
- MBA and Master of Arts in Government and Politics;
- Peter J. Tobin College of Business; amd
- School of Education.

We encourage you to visit our website: *www.stjohns.edu* to read about our individual programs and how they can advance your career.

Table 45
Stony Brook University
2401 Computer Science Building
Stony Brook University
Stony Brook, NY 11794-4422

Contact: Rosalia Davi, rosalia.davi@stonybrook.edu

Stony Brook University is one of America's most dynamic public universities, a center of academic excellence and an internationally recognized research institution that is changing the world. After less than 60 years of existence, it's ranked among the top 100 universities in the nation. Established in 2002, the Center for Inclusive Education (CIE) in the Graduate School at Stony Brook has been committed to advancing diversity in graduate education, academia, and the scientific workforce. The CIE works to recruit, retain, and graduate underrepresented minority and otherwise disadvantaged scholars, as well as those scholars who advance the mission of increasing diversity of their respective fields. To ensure the success of our scholars, we provide financial assistance, social support, and advocacy. We also promote academic and professional development and a strong sense of community through our signature core activities that include the Research Café series, Topic Based Lunches, Keeping It Real discussion groups, Speaker Series talks, and the Community of Student Mentors program. With over 500 alumni and 200 current scholars, the CIE remains dedicated to the mission of enhancing diversity and inclusion of the academic world.

Table 21
Tennessee State University
3500 John A. Merritt Blvd.
College of Engineering-Torrence Hall
Nashville, TN 37209

Contact: Frances Williams, frwilliams@tnstate.edu

Tennessee State University (TSU) is a comprehensive, urban, land-grant university, founded in 1912. The 450-acre campus is located in Nashville, the state capitol of Tennessee. The TSU College of Engineering offers BS degrees in Architectural, Civil, Electrical, and Mechanical Engineering, with several concentrations such as manufacturing, environmental, and computer engineering. The College also awards BS degrees in Computer Science and Aeronautical and Industrial Technology. On the graduate level, the College provides the Master of Engineering degree with concentrations in Civil, Electrical, Manufacturing and Mechanical Engineering, the MS degree in Computer Science, and MS and PhD degrees in Computer and Information Systems Engineering. Recognizing the need for developing graduates with an appreciation for global awareness, solid engineering fundamentals, and professionalism, the TSU College of Engineering develops and promotes an educational experience that produces the 'global engineer' through life or language learning, a FE-based (Fundamentals of Engineering) curriculum for outcome assessment, and critical skills in research, design, problem solving, and communication. The College provides pre-college engineering camps, summer undergraduate research experiences, as well as scholarships/ fellowships for eligible undergraduate and graduate students.

Table 44
Tuskegee Materials Science and Engineering
1200 West Montgomery Road
102 Chappie James Center
Tuskegee, AL 36088

Contact: Felicia Jenkins, fjenkins@mytu.tuskegee.edu

Tuskegee University is an independent and state-related institution of higher education. Its programs serve a student body that is coeducational as well as racially, ethnically and religiously diverse. It is the only college or university campus in the nation to be designated a National Historic Site by the U.S. Congress. Materials Science and Engineering Department has graduated the largest number of African-American PhD students in USA. The primary objective of this PhD program is to

significantly increase the number of African Americans holding Ph.D. degrees in Science and Engineering. Faculty and students of Materials Science and Engineering department carry out cutting edge research in processing, synthesizing, characterization and modeling of advanced materials that have applications ranging from Aerospace, defense, drug delivery, health care, marine, off-shore and pharmacy, among others. TU faculty lead multi-university, multi-year, multi-million dollar, NSF funded programs like Alabama Experimental Program to Stimulate Competitive Research (EPSCoR), Center of Research Excellence in Science and Technology (CREST), and Math and Science Partnership (MSP). It has also received HBCU-Research Infrastructure in Science and Engineering (HBCU-RISE) grants since 2004. In addition MSE faculties have received funds from Army Research Laboratories, Army Research Office, Office of Naval Research, NASA, and industry.

Table 3
U of NE Med Center
MD-PhD Scholars Program
University of Nebraska Medical Center
985520 Nebraska Medical Center
Omaha, NE 68198 -5520

Contact: Sonja Cox, sacox@unmc.edu

A vital enterprise in the nation's heartland, the University of Nebraska Medical Center (UNMC) has its eye on improving the future of health care in Nebraska and beyond. As Nebraska's only public academic health sciences center, UNMC is committed to the education of a 21st century health care work force, to finding cures and treatments for devastating diseases and to providing the best care for patients. UNMC has six colleges and two institutes, serving about 3,700 students in more than two dozen programs. UNMC is the professional and scientific home of determined, brilliant researchers who work at the forefront of fields such as transplant medicine, cancer, neurodevelopment and genomics. With collaboration from a highly engaged community of skilled professionals and access to world-class facilities, UNMC researchers identify and focus on critical questions that lead to new knowledge and, in the long term, life-changing therapies. Breakthroughs like stem cell transplantation to treat cancer have proven critical to Nebraska, the nation and the world. Included within UNMC is the MD/PhD Scholars Program which is designed to prepare a select group of outstanding students for careers in academic medicine and research. Applicants admitted into this highly competitive program pursue original research and participate in the medical school curriculum. The integrated training for both degrees allows compression of the total academic effort as some course work can be applied to both degrees. By continually reinforcing the interaction between biomedical research and clinical medicine, this integration prepares the student for a unique role as a physician-scientist.

Table 10
UC San Diego
9500 Gilman Dr. MC 0003
La Jolla, CA 92093-0003

Contact: Elisa Maldonado, emmaldonado@ucsd.edu

The Graduate Division is the central resource for all matters related to graduate education at UC San Diego. Our team is there at every step in a graduate student's career, helping students navigate their path from admission to graduation and beyond. Working behind-the-scenes and in collaboration with faculty, staff and students, the Graduate Division guides today's scholars on their upward trajectory to becoming tomorrow's leaders.

Table 18
UChicago Biosciences
924 E 57th St. Suite 104
Chicago, IL 60637

Contact: Nancy Schwartz, vbolf@uchicago.edu

University of Chicago Biosciences has a long history of research excellence and notable achievements among its alumni and faculty. As an international intellectual destination, the University of Chicago draws students, researchers, and faculty to exchange ideas freely, challenging the status quo and one another to push the boundaries of their fields, leading to world-changing discoveries and insights. The University's hallmark emphasis on interdisciplinary research and collaboration, coupled with access to the latest technology and to three major affiliated laboratories, offers a graduate experience in the biosciences unavailable anywhere else. The University of Chicago famously embraces inquiry and impact. Through graduate and postdoctoral education, we celebrate the transformative power of ideas and the opportunity to enrich human life here in Chicago and around the globe through basic, translational, and clinical research.

Table 4
UM School of Natural Resources and Environment
1520 Dana Building
440 Church Street
Ann Arbor, MI 48109

Contact: Jung Koral, jkoral@umich.edu

M.S. in Natural Resources and Environment The professional MS degree program prepares students for leadership positions in Environmental Sustainability. The program's hallmarks are field-based learning, applied professional training, the use of scientific knowledge in management decisions, and practical, effective approaches to changing behavior.

MS Fields of Study:
- Behavior, Education, and Communication
- Conservation Ecology
- Environmental Informatics: GIS and Modeling
- Environmental Justice
- Environmental Policy and Planning
- Sustainable Systems

Dual Degrees:
- Engineering
- Business
- Urban Planning
- Law
- Public Policy

Master of Landscape Architecture: In the Master of Landscape Architecture program, students learn the ecological principles of sustainable design and how to employ them in all settings. PhD in Natural Resources and Environment: This program develops the creative abilities of select exceptional students, training them for independent work that contributes to original research and scholarship at the forefront of their chosen fields.

Please visit: *http://snre.umich.edu/admissions*

Table 9
University of Alabama
712 Capstone Drive
Box 870268
Tuscaloosa, AL 35487

Contact: Roger Sidje, roger.b.sidje@ua.edu

The College of Arts and Sciences is the largest division and the academic heart of The University of Alabama, offering the foundation disciplines on which all others depend. There are approximately 8,500 undergraduate students and 1,000 graduate students in over 100 programs of study across 64 fields spanning the arts, sciences, and social sciences. The College offers 19 academic programs that aren't offered anywhere else in the state. Internationally recognized scientists, writers, artists, and scholars teach in Arts and Sciences classrooms and labs. Our students work closely with professors who are not merely experts in their disciplines, but also creators of new knowledge. Nearly a third of our undergraduates work on independent research and creative projects under the guidance of faculty mentors. The College is one of the oldest and largest liberal arts colleges in Alabama and among the finest in the region. It is recognized nationally for the number of undergraduate and graduate students who receive national awards and scholarships.

Table 11
University of Alabama at Birmingham
1825 University Blvd
SHEL 121
Birmingham, AL 35294-2182

Contact: Randy Seay, rseay@uab.edu

The University of Alabama at Birmingham (UAB) is an urban university and medical center that encompasses 109 city blocks and has a student enrollment of more than 17,000. UAB is home to a large graduate school, a world-renowned health care complex, and more than 100 different research centers focusing on such diverse issues as AIDS, business development, and biodefense and emerging infections. UAB includes the School of Medicine (MD, MD/PHD, MD/MPH, MD/MBA), School of Public Health (Dual Degree MPH Programs, MPH, MSPH, DrPH, PhD), School of Optometry (Vision Sciences PhD, OD) School of Ars and Sciences (MA, MS, PHD), and Graduate Biomedical Sciences (PHD). We invite you to join more than 4,400 graduate students who are enrolled in UAB's 40 doctoral programs and 51 master's programs. Many of these programs unite different disciplines and cross departmental and school lines, illustrating the strong interdisciplinary character of UAB's unique and select group of students training to become tomorrow's leaders in science and medicine. Visit us at www.uab.edu/graduate

Table 12
University of Arizona
1401 E University Blvd.
Tucson, AZ 85721-0066

Contact: Stephanie Adamson, adamsons@email.arizona.edu

The University of Arizona (UA) is the flagship institution in the State of Arizona and is widely recognized as one of the top twenty academic institutions in the country. It offers extensive opportunities to pursue graduate degrees in more than one hundred different fields. Located in the breathtaking Sonoran desert of southern Arizona and within an international border region, UA attracts first rate faculty members and the highest quality graduate students and is widely recognized for its contributions to cutting edge research in numerous fields.

Table 40
University of Iowa
Room 205 Gilmore Hall
Iowa City, IA 52242

Contact: Joseph Henry, joseph-henry@uiowa.edu

In it's 2015 'America's Best Colleges', which examines the overall quality of schools across the country, U.S. News and World Report ranked the UI 34th among the nation's 629 public universities. The University of Iowa, is home to 11 colleges and

enrolled 32, 150 students on a full-time basis for the 2015-2016 academic year. For that year, the Graduate College enrolled about 5,140 students across 100 plus programs. Students from underrepresented racial/ethnic groups made up approximately 16.6 % of our enrollment.

For more information on our fellowships, tuition scholarships, fee waivers and other opportunities, please contact Joseph Henry at Joseph-henry@uiowa.edu or by phone at (319) 335-2138. And be sure to learn about a wealth of other programs and resources at our UI Graduate College website at www.grad.uiowa.edu.

Thank you for considering graduate education at IOWA!

Table 48
University of Maryland MSTP
20 Penn Street, Rm. 349
Health Sciences Facility II (HSF II)
Baltimore, MD 21201

Contact: Jane Bacon, jane.g.bacon@gmail.com

At the University of Maryland's MSTP, the goal of the combined dual degree MD/PhD program is to provide outstanding aspiring physician scientists with broad biomedical training. This experience consists of rigorous research training in the basic sciences, resulting in a PhD, complemented by inter-related clinical training that leads to the MD degree. The MD is combined with a PhD program offered by the Graduate Program in Life Sciences (GPILS) in the following areas: Biochemistry and Molecular Biology, Molecular Medicine, Molecular Microbiology and Immunology, Neuroscience, Epidemiology and Human Genetics, as well as Bioengineering.

Table 17
University of Michigan
1500 W. Medical Center Drive
2960 Taubman Health Sciences Library
Ann Arbor, MI 48109

Contact: Jim Musgrave, jdmusg@umich.edu

The Office of Graduate & Postdoctoral Studies at the University of Michigan Medical School is home to the graduate Program in Biomedical Sciences (PIBS), the Postbac Research Education Program (PREP), the Postbac Premedical Program (MEDPREP) for career-changers, several undergraduate summer research programs including the Cancer Research Summer Internship Program (CaRSIP), and the Office of Postdoctoral Studies. The Program in Biomedical Sciences (PIBS) invites you to explore your passion for science through our interdisciplinary gateway program, which coordinates admissions and first-year graduate studies for 14 doctoral programs with 500+ faculty laboratories. PIBS offers you the flexibility and convenience of applying to any of our programs through one application.

Table 6
University of Michigan College of Pharmacy
428 Church Street
College of Pharmacy
Ann Arbor, MI 48109

Contact: Cherie Dotson, crdotson@umich.edu

The University of Michigan - College of Pharmacy offers graduate (Ph.D.) degrees in Medicinal Chemistry and Pharmaceutical Sciences. Graduate students in Medicinal Chemistry are trained in research pertaining to drug discovery and drug design while those in Pharmaceutical Sciences are focused on the study of drug transport and drug delivery systems. Students with interests in obtaining clinical training with regard to the practice of pharmacy are encouraged to consider the Pharm.D. program. The University of Michigan - Pharm.D. program provides students with opportunities for patient contact and clinical experience throughout the four years of study. The educational training and exposure provided through the program prepares students for a broad range of career opportunities upon graduation.
Summer undergraduate research opportunities are available through the Interdisciplinary REU Program: *https:// pharmacy.umich.edu/reu*.
For further information, regarding these programs please visit: *https://pharmacy.umich.edu/.*

Table 23
University of Minnesota Medical School
420 Delaware St. SE
Minneapolis, MN 55455

Contact: Jon Gottesman, gotte001@umn.edu

The University of Minnesota is one of the largest public research universities in the U.S. We are ranked in the top ten such universities in research funding. At Minnesota you will access the resources of a large institution in graduate programs that give you individual attention from faculty of national and international distinction.

The Biomedical Sciences Graduate Programs at the University of Minnesota offer training in seven areas culminating in the PhD:

- Biochemistry, Molecular Biology & Biophysics
- Cellular and Integrative Physiology
- Pharmacology
- Microbiology, Immunology & Cancer Biology
- Molecular, Cellular, Developmental Biology & Genetics
- Neuroscience
- Rehabilitation Science

These interdisciplinary programs each provide a broad core curriculum designed to prepare students for careers in academia, industry, government and research. All students receive a full stipend, tuition waivers and health benefits.

Please visit us at *http://bgreat.umn.edu* or write *bgreat@umn.edu* for more information.
There are many summer research opportunities for undergraduates interested in paid internships. *http://z.umn.edu/summerres*

Table 25
University of Missouri Graduate Life Sciences
150c Bond Life Sciences Center
1201 Rollins Street
Columbia, MO 65201

Contact(s): Debbie Allen, allendebra@missouri.edu
NaTashua Davis, davisnat@missouri.edu

The joy of discovery has propelled the University of Missouri to one of the top-ranked Life Sciences research institutions in the 21st Century.

Our Ph.D. programs emphasize interdisciplinary collaboration and innovation. University of Missouri faculty from diverse disciplines come together to develop cures for human diseases, to improve our nation's food supply, to develop new sources of biofuels and to preserve and protect our environment.
We are a major research campus with shared resources from Medicine, Engineering, Agriculture, Veterinary Medicine, Health Professions, Natural Resources, Journalism, Business, and Law. Our Ph.D. students use cutting-edge technologies to solve problems. Our research core facilities include state-of-the-art DNA sequencing; cell and immunobiology; informatics; metabolomics; molecular cytology; proteomics, nanotechnology, electron microscopy; structural biology; and whole-animal imaging technologies.

We are committed to the success of our graduate students, with strong mentorship programs and career-directed resources. We offer a comprehensive support package including stipend, paid tuition, professional development resources, and travel funding. Columbia, Missouri is an excellent, diverse and affordable city with impressive amenities.

We also offer: Life Sciences Fellowship Program; NIH T32 and IMSD Training Grants; NIH PREP Scholars Post-Baccalaureate Program; Summer Undergraduate Research Internships

Learn More:
Office of Graduate Studies: *http://gradstudies.missouri.edu*
Office of Research: *https://research.missouri.edu*

Table 31
University of Notre Dame
The Graduate School
502 Main Building
Notre Dame, IN 46556

Contact: Jason Grant, jgrant3@nd.edu

The University of Notre Dame is renowned worldwide for academic excellence, and gifted students from around the globe join us to be part of our vibrant intellectual community. As a graduate student at Notre Dame, you will benefit from generous financial support that allows you to focus on your degree objectives and from exposure to and participation in innovative, collaborative, and interdisciplinary pursuits. We believe that our voice is best heard through the success of those we train at the highest level to become the academic and professional leaders of tomorrow. To that end, we work in concert with a world-class faculty across a variety of disciplines to mentor and develop our students by engaging them in meaningful research and other professional activities. Notre Dame is committed to fully funding all doctoral-degree seeking students and many masters-degree seeking students. If you would like more information, please feel free to contact the director of graduate studies in your prospective department of interest.

If you would like to browse our Web site or apply on-line, visit us at: *http://graduateschool.nd.edu*.

For up-to-the minute information on graduate student life at Notre Dame, visit our Facebook page: *http://www.facebook.com/notredamegraduateschool*.

Table 32
University of South Florida (USF)
4202 E. Fowler Avenue
ENB 118
Tampa, FL 33620

Contact: Bernard Batson, bbatson@usf.edu

The University of South Florida (USF) is a high-impact, global research university dedicated to student success. USF is classified by the Carnegie Foundation for the Advancement of Teaching in the top tier of research universities. Signature STEM research areas include: Brain and Spinal Cord, Cardiovascular Diseases, Data Science, Human Security, Water, and Research Translation. For over a decade, USF has been recognized as a national leader in minority education through the Alfred P. Sloan Foundation's University Center of Exemplary Mentoring (UCEM), the NSF Florida-Georgia Louis Stokes Alliance for Minority Participation (FGLSAMP) Bridge to Doctorate Activity, and the Florida Education Fund's McKnight Doctoral Fellowship Program. Our students and alumni have received competitive pre-doctoral, dissertation, and postdoctoral awards (NSF, NASA, Ford, UNCF Merck, Whitaker, Fulbright, NRC) and obtained

positions in academia, national labs, government and industry. Please visit our exhibit to learn about five-year graduate funding for PhD students and summer undergraduate research opportunities.

Table 43
University of Southern California
School of Pharmacy
1985 Zonal Avenue
PSC 714
Los Angeles, CA 90089

Contact: Rosie Soltero, rsoltero@usc.edu

The Pharmaceutical and Translational Sciences (PHTS) Program brings together - under one umbrella - the USC School of Pharmacy's three laboratory-based PhD programs, allowing a more cohesive interdisciplinary experience advancing education and innovative research. This doctoral training program prepares students for careers in academia and advanced scientific research in a broad range of settings. The training encompasses a unique scientific framework from drug discovery, delivery and development to application of genetics and genomics to experimental and clinical translational research. The umbrella structure allows students to attend courses and seminars together, and rotate through laboratories across programs during their first year. This fosters interdisciplinary crosstalk among students and faculty, helping students find the ideal laboratory and faculty mentor as well as the specialized track of study they want to pursue.

Upon successful completion of training, students will be conferred the degree of Doctor of Philosophy in one of the following areas of study:

- Molecular Pharmacology and Toxicology Track (MPTX)
- Pharmaceutical Sciences Track (PSCI)
- Clinical and Experimental Therapeutics Track (CXPT)

Table 42
University of Southern California - PIBBS
1975 Zonal Ave
KAM 409
Los Angeles, CA 90089

Contact: Joyce Perez, jpperez@med.usc.edu

The University of Southern California's Program in Biomedical and Biological Sciences (PIBBS) is the gateway program into interdisciplinary PhD programs at USC. Our Phd programs are interdepartmental and are focused on broad approaches to modern biomedical research. The PIBBS is an umbrella program with distinguished faculty focused on health-related research from the Keck School of Medicine, USC School of Pharmacy and Children's Hospital Los Angeles. The PIBBS program offers students breadth and flexibility to best pursue their interests across the wide range of biomedical Ph.D. programs.

Table 22
University of Texas
UT-GSBS, P.O. Box 20334
Houston, TX 77225-0334

Contact: Andrew Bean, a.bean@uth.tmc.edu

The University of Texas Graduate School of Biomedical Sciences at Houston (GSBS) is a unique partnership between the University of Texas MD Anderson Cancer Center and UTHealth, institutions that are leading the fight against cancer and other major diseases that impact human health and quality of life. Graduate studies under a GSBS faculty mentor will provide students with training in the most significant areas of the biomedical sciences, including research to improve understanding of disease mechanisms at molecular, genetic, cellular and systems levels, and approaches to develop novel targeted therapies for human disease. GSBS is located in the Texas Medical Center, one of the world's largest biomedical education and research facilities. Many of our research programs are ranked in the top quarter in their discipline by the National Research Council.

Table 8
University Texas Southwestern Medical Center
5323 Harry Hines Blvd
Dallas, TX 75390-9004

Contact: Nancy Street, nancy.street@utsouthwestern.edu

University of Texas Southwestern Medical Center at Dallas/ Division of Basic Science PhD Graduate Program/Medical Scientist Training Program

UT Southwestern provides world class opportunities to prepare for careers in the biomedical sciences through study and research leading to the Ph.D. degree through the Division of Basic Science and the M.D./Ph.D. degree through the Medical Scientist Training Program. Over 320 faculty offer training in genomics, cancer biology, computational biology, developmental biology, biomedical engineering, molecular genetics, structural biology, cell biology, chemical biology, systems biology, pharmacology, microbiology, neurosciences and immunology. Our NIH-sponsored MSTP contains a highly integrated curriculum, premiere teaching hospitals and renowned clinical faculty. The essence of education at UT Southwestern is an exciting research experience in an active, productive and critical scientific environment. We also have undergraduate research programs focused on providing world-class research experiences during the summer. Information about these programs is available at *www.utsouthwestern.edu/SURF* and *www.utsouthwestern.edu/qp-surf.*

Table 24
UW, Molecular and Cellular Biology
University of Washington
1959 NE Pacific Street
Box 357275
Seattle, WA 98195-7275

Contact: Maia Low, maialow@uw.edu

Recognizing the need for highly trained scientists conversant across disciplines, the University of Washington and the Fred Hutchinson Cancer Research Center created an interdisciplinary research program, the Molecular and Cellular Biology Graduate Program (MCB Seattle). For more than 20 years, MCB Seattle has combined the strengths of the Fred Hutch and the UW to foster an innovative and flexible graduate training program. Joined by the Institute for Systems Biology (ISB) and the Center for Infectious Disease Research (CIDR), MCB Seattle offers a broad range of opportunities for research in all areas of biomedical science.

Table 34
Western Michigan University (WMU) Homer Stryker M.D. School of Medicine
1000 Oakland Drive
Kalamazoo, MI 49008

Contact: Dan Kallenberger, dan.kallenberger@med.wmich.edu

Western Michigan University Homer Stryker M.D. School of Medicine (WMed) is a private medical school committed to excellence in medical education through community collaboration and innovation. WMed is focused on preparing exceptional clinicians, leaders, educators, advocates, and researchers of the future. This mission is bolstered by our campus in the heart of downtown Kalamazoo, a 330,000-square -foot, state-of-the-art facility that that includes, among other things, two 90-seat team-based-learning halls, 14 classrooms, a gross anatomy and multi-purpose lab, ample study space and a 25,000-square-foot Simulation Center that is one of the largest in the nation. Highlights of the curriculum include team-based, case-based, problem-based, interactive lectures, and simulated learning with early clinical experiences. Partnering with Western Michigan University, a nationally recognized research university, and two nationally recognized hospitals, Borgess Health and Bronson Healthcare, students will experience different clinical environments with access to a variety of specialties. As well as the M.D. and M.D./Ph.D. programs, WMed offers graduate programs in Medical Engineering, Biomedical Science (Bridge to MD), and Clinical Informatics. To learn more about WMed and the unique aspects of Wmed, please visit: *med.wmich.edu*.

Table 35
Worcester Polytechnic Institute
100 Institute Road
Worcester, MA 01609

Contact: Michael McGrade, grad@wpi.edu

A leader in science, engineering, and business, Worcester Polytechnic Institute anticipated some of the latest trends in higher education by nearly two generations. WPI's founding principle of balancing theory with practice underlies a project-based, experiential curriculum that prepares students to solve important problems through interdisciplinary study and applied research. The Institute's long-standing partnerships with biotechnology, IT, and manufacturing concerns have enabled it to answer recent national initiatives that call for new professional graduate programs in science and engineering. Through their collaborative work and creative approaches to problem-solving, faculty and students at WPI will continue to make breakthroughs that improve the quality of our lives.

Table 47
XSEDE
1201 New York Avenue, NW
Washington, DC 20005

Contact: Vetria Byrd, vbyrd@purdue.edu

An NSF-funded project, the Extreme Science and Engineering Discovery Environment (XSEDE) is the most advanced, powerful, and robust collection of integrated digital resources and services in the world. It is a single virtual computing system that scientists can use to interactively share resources, data and expertise. Scientists, engineers, social scientists, and humanities experts around the world - many of them at colleges and universities - use advanced digital resources and services every day. Supercomputers, collections of data, and new tools are critical to the success of those researchers, who use them to make our lives healthier, safer, and better. XSEDE integrates these resources and services, makes them easier to use, and helps more people use them. XSEDE offers advanced computing resources, training, curriculum development, and student opportunities.

http://www.emerging-researchers.org

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American Association for the Advancement of Science

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