Finishing the Job:
Graduate Education 
and the NASA Workforce

dedicated to the memory of Dr Harriet Jenkins
• 2007: US prosperity threatened by loss of STEM preeminence

• 2011: increasing participation critical to enhance innovation & meet technology needs
# of physics PhDs earned by African-American and Hispanic students, 1996-2017

- African-Americans
- Hispanic-Americans

~2%
Final Report of the
2018 AAS Task Force on Diversity and Inclusion in Astronomy
Graduate Education

Task Force Members:
Marcel Agüeros, Columbia Univ. (AAS Board liaison)
Gibor Basri, UC Berkeley (co-Chair)
Ed Bertschinger, MIT
Kim Coble, San Francisco State Univ. (CSMA representative)
Megan Donahue, Michigan State Univ., ex-officio (President, AAS)
Jackie Monkiewicz, Arizona State Univ. (WGAD representative)
Alex Rudolph, Cal Poly Pomona (co-Chair)
Angela Speck, Univ. of Missouri (CSWA representative)
Keivan Stassun, Vanderbilt Univ. (SGMA representative)

Advisors to the Task Force:
Rachel Ivie, AIP
Christine Pfund, Univ. of Wisconsin-Madison
Julie Posselt, Univ. of Southern California (Senior advisor)

AAS Staff Liaison to the Task Force:
Michelle Farmer, AAS
#1 recommendation, admissions & recruitment

partner with and recruit from programs that produce large numbers of graduates from underrepresented groups
The underrepresentation of African Americans in physics is a systemic problem that cannot be solved through the work of individual faculty, departments, or professional societies. It requires coordinated efforts acting at all of these levels. In addition, standard approaches of strategic planning are unlikely to succeed because the underlying norms, values, and culture of the profession need to be addressed before lasting changes can occur. Fortunately, there is a growing body of literature on successful culture change in higher education to inform this work.
### Leadership and Structures

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<th>6a: Departmental Learning and Change</th>
<th>6b: Faculty preparation and training</th>
<th>6c: Ongoing data collection, assessment, and accountability</th>
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<td>The department has little capacity to review national reports. Guidance for change comes internally from the Dean.</td>
<td>Some new faculty members attend the national physics and astronomy New Faculty Workshop. Their enthusiasm for innovation in education wanes when they learn that achieving tenure requires a single-minded focus on research.</td>
<td>The departmental HR representative collects basic demographic data required by the institution for every enrolled student, postdoc, and employee: binary gender, race/ethnicity, and citizenship/visa status.</td>
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<td>The department aspires to learn from reports of the physics and astronomy professional societies. Speakers are occasionally invited to present on these efforts but faculty generally see no reason to change.</td>
<td>The department encourages faculty of all ranks to propose new directions in education and diversity efforts, and supports faculty travel for professional development.</td>
<td>The department invites members to provide additional optional data on multiple social identities including gender identity, first generation college status, and anything else the member feels is important to their identity. The academic progress of majors through the curriculum is tracked and is used only by advisers for mentoring purposes.</td>
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<td>Faculty are strongly committed to improving educational outcomes for underrepresented students. A Departmental Action Team includes faculty, staff, and students dedicated to assessing the culture and preparing a theory of change. The team has the support of the department chair and all members have attended a national workshop on leading change in physics departments.</td>
<td>To support its newly formed equity and inclusion committee, the department has joined a national network organized by the professional societies. Coaches and facilitators work with committee members to help them create a culture of caring that can spread in the department.</td>
<td>The department performs annual self-audits on equity, inclusion, and accessibility as well as education, recruitment, and other processes, using self-assessment rubrics similar to this one. Policies and procedures are periodically reviewed for efficacy and equity across social identities and updated as needed. Every year the department prepares a summary of quantitative, qualitative, and descriptive data on diversity, equity, and inclusion for sharing with the Dean and visiting committees.</td>
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| Stage 1: Emerging | Stage 2: Developing | Stage 3: Transforming |
Jennifer Ross-Nazzal: What was your understanding of what you would be doing at NASA at that point [1972]?

Dr Harriet Jenkins: Helping the agency to achieve the legal requirements of a federal agency, to abide by the law, to be able to achieve all of the aeronautical and space objectives that NASA was accomplishing with an integrated staff. In my mind I would have explained that meant not just having all underrepresented groups of people there, but at all levels, in all kinds of occupations doing the job in an outstanding manner. In other words an integrated staff carrying out the work and the charter that NASA had. I thought that was very important. I knew a little bit about the reputation of NASA. I felt it was one of the best managed federal agencies. It certainly had an exciting mission and vision.
2020 SACNAS DISTINGUISHED MENTOR AWARD

Lorenza Levy, PhD

Associate Professor, San Diego City College

Lorenza Levy is Associate Professor of Physics and Astronomy at San Diego City College, where she has been since 2007. She was born in Mexico and was raised bicultural and biletiterate between Mexico City and San Diego. This bicultural upbringing planted the seeds of what would blossom into her drive for social justice and equity in the STEM professions. She obtained a BS in Physics and Astronomy at Northern Arizona University, and during her time there, was a NASA undergraduate student observer at Lowell Observatory. During her years at Lowell Observatory, she studied comet evolution and she discovered two asteroids: lorenzalevy (10938) and urquiza (11711). She continued her academic journey and obtained a PhD in Astrophysics from the University of North Carolina at Chapel Hill, though her research interests shifted into galactic cluster evolution. She continued as a NASA Fellow, though this time as a Harriet G. Jenkins Predoctoral Fellow. While she was a graduate student, she started a family, and learned how to juggle the demands of school and motherhood. After defending her thesis, she moved to San Diego and began teaching at San Diego City College. She has dedicated her years at San Diego City College to growing their SACNAS Chapter, and creating equitable paths for all her students, while modeling balance between work and family duties.
Cranos Williams  
Professor

Research Interests: I am currently the director of the EnBiSys Research Laboratory. The EnBiSys Lab is a highly collaborative, multidisciplinary research laboratory, focused on the development of targeted computational and analytical solutions for modeling and controlling biological systems. The solutions we develop are used to build and strengthen the transition from large-scale high-throughput -omics data to highly connected kinetic models in the post-genomic era, models that can be used to attain the depth, understanding, and comprehension needed to manipulate and control biological systems for a defined purpose.

Jessica Marquez  
Researcher at NASA Ames
Sunnyvale, California · 496 connections

About

I work at NASA Ames Research Center in the H Division. My research interests include human-computer interaction, crew autonomy, and space. I am currently the Discipline Scientist of the NASA Risk of Inadequate Design of Human and Autonomy Systems (RIO) project.

Danena Gaines, Ph.D.  
Principal and Atlanta Office Director at Cambridge Systematics, Inc.
Greater Atlanta Area · 500+ connections

About NIBIB

About NIBIB > Staff Directory > Tiffany Bailey Lash

Tiffany Bailey Lash  
Tiffany Lash, Ph.D.  
Division of Health Informatics Technologies (Informatics)  
Point of Care Technologies - Diagnostics  
Point of Care Technologies - Diagnostics

About

Over 20 years’ experience in industry and higher education. Increasing diversity and inclusion in computing. Latino/a. Led partnerships with the Hispanic Association on Women and Computing (HAWC), the Hispanic Engineer National Association (MENA), and the National Hispanic Media Coalition (NHMC).

ALBERTO CRUZ-MARTIN

Current Research

The neocortex is import for motor control, sensory processing and the generation of conscious thought. A hallmark of the neocortex is its organization into circuit modules that consist of precise and organized patterns of connections between populations of neurons. The arrangement of these highly conserved circuits allow populations of neurons to coordinate a wide range of sensory and motor functions that underpin complex cognitive behavior. The mission of our lab is to understand the cellular and molecular mechanisms that guide the development of synaptic connections in the neocortex. Our lab also focuses on identifying the neural

Omar Mireles  
Research Engineer at NASA Marshall Space Flight Center
Huntsville, Alabama Area · 318 connections

About

As Assistant Professor of Biology at the University of California, Los Angeles, I am dedicated to understanding the cellular and molecular mechanisms that guide the development of synaptic connections in the neocortex. Our lab also focuses on identifying the neural
- Last decade has not seen the progress we need to address underrepresentation in STEM
- Current efforts focus on examining and changing institutional culture, and require commitments from all partners
- Finishing the job means doubling down on long-term, targeted investments in workforce development