

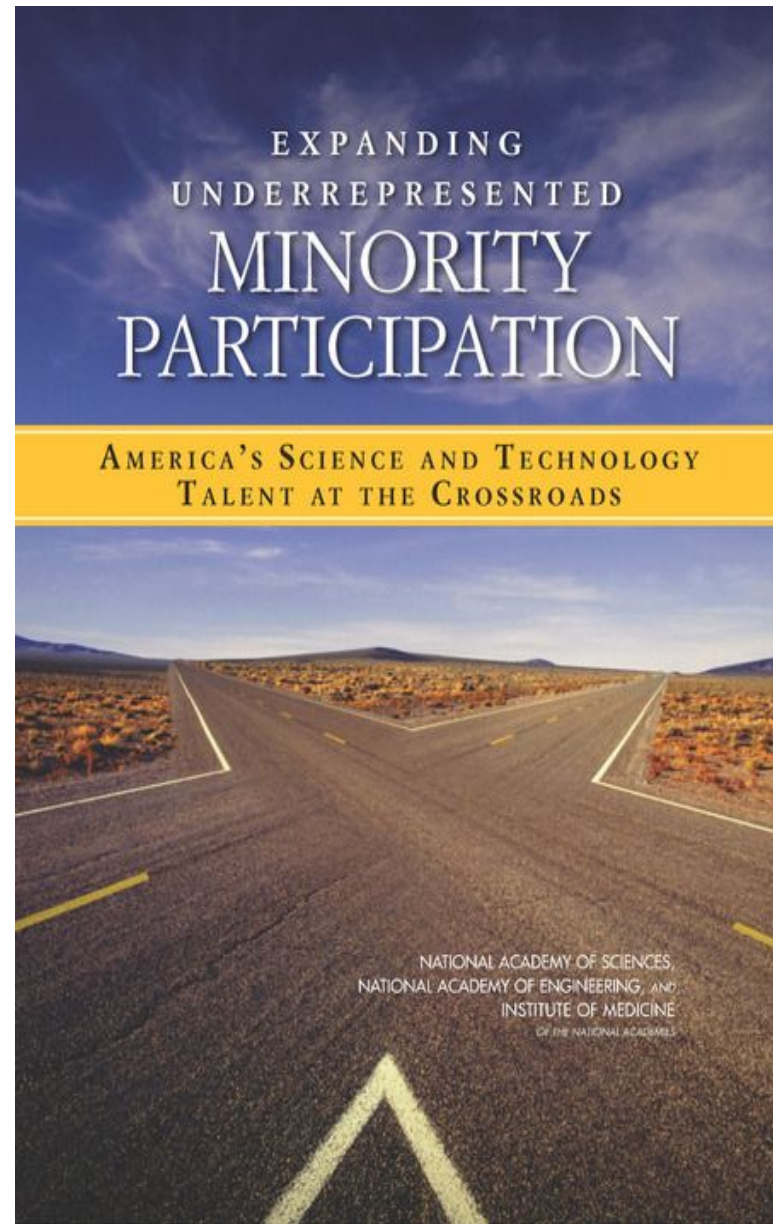
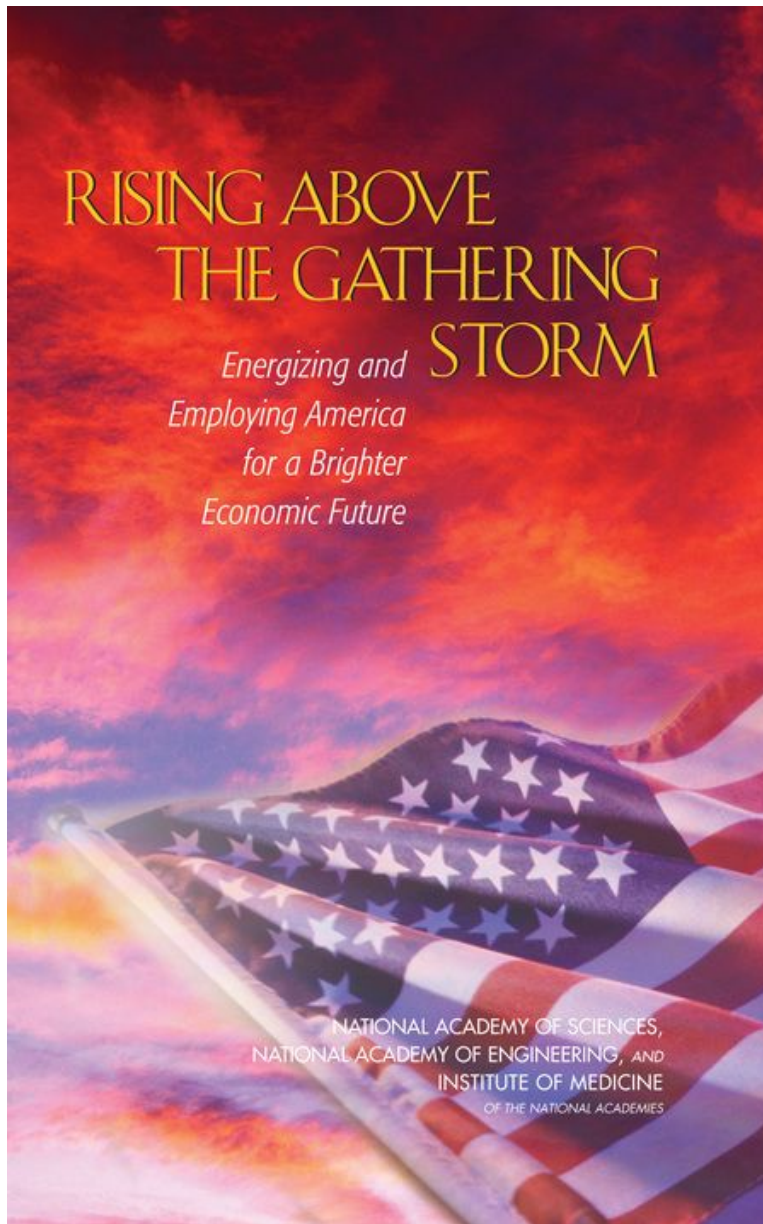


**Marcel Agüeros**  
**Columbia University**

***Finishing the Job:***  
**Graduate Education**  
**and the NASA Workforce**

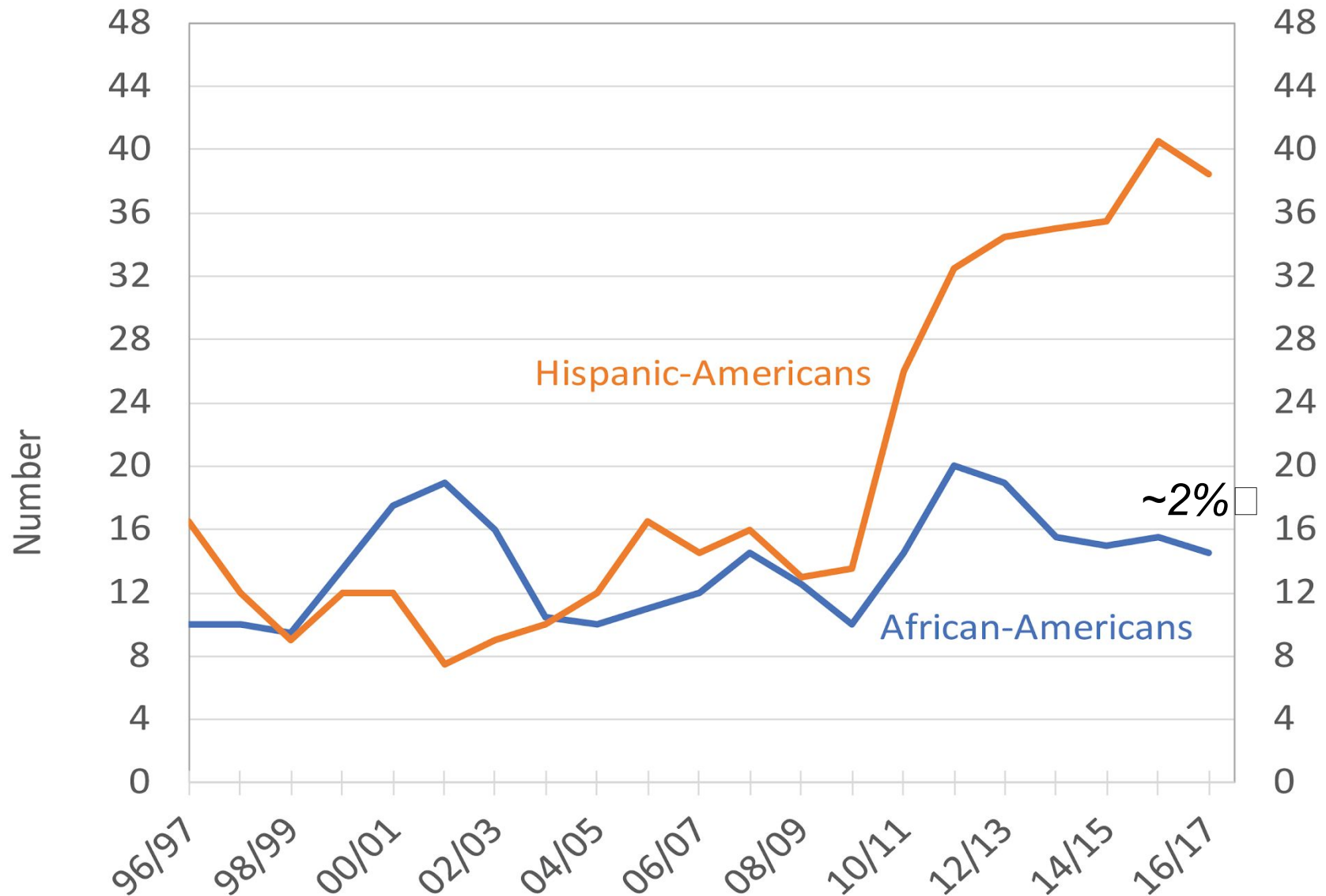
**dedicated to the memory of Dr Harriet Jenkins**

- 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





**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)

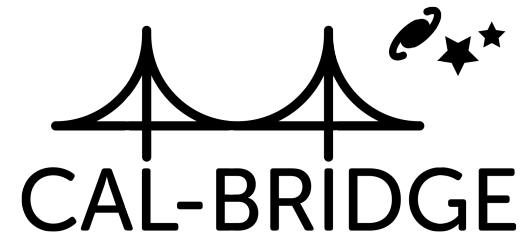
**AAS Staff Liaison to the Task Force:**

Michelle Farmer, AAS



#1 recommendation, admissions & recruitment

***partner with and recruit from programs that produce large numbers of graduates from underrepresented groups***



# THE TIME IS NOW

Systemic Changes to Increase African Americans with Bachelor's Degrees in Physics and Astronomy



## CHANGE MANAGEMENT

A new level of thinking is required to solve a persistent problem.

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

<p style="writing-mode: vertical-rl; transform: rotate(180deg);"><b>6ab: Departmental Learning and Change</b></p>	<p>The department has little capacity to review national reports. Guidance for change comes internally from the Dean.</p>	<p>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.</p>	<p>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.</p>
<p style="writing-mode: vertical-rl; transform: rotate(180deg);"><b>6c: Faculty preparation and training</b></p>	<p>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.</p>	<p>The department encourages faculty of all ranks to propose new directions in education and diversity efforts, and supports faculty travel for professional development.</p>	<p>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.</p>
<p style="writing-mode: vertical-rl; transform: rotate(180deg);"><b>6e: Ongoing data collection, assessment, and accountability</b></p>	<p>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.</p>	<p>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.</p>	<p>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.</p>
<p><b>Stage 1: Emerging</b></p>		<p><b>Stage 2: Developing</b></p>	<p><b>Stage 3: Transforming</b></p>





7/9/2003

**Jennifer Ross-Nazzari:** 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.

*NASA Headquarters Oral History Project, 8/5/2011*





7/8/2003





## 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 biliterate 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.

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 🧪 Bioelectronics Engineering

**Jessica Marquez**  
 Researcher at NASA Ames  
 Sunnyvale, California · 496 connections  
 Join to Connect

## About

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

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 Get the latest research information from NIH NIH staff guidance on coronavirus (NIH Only)

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About NIBIB > Staff Directory > Tiffani Bailey Lash

## About NIBIB

### Who We Are

**Tiffani Bailey Lash**  
 Tiffani Lash, Ph.D.  
 Program Director  
 Division of Health Informatics Technologies (Informatics)  
 Connected Health - Mobile Health and Telehealth  
 Point of Care Technologies - Diagnostics  
 Telehealth

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# ALBERTO CRUZ-MARTÍN

## Current Research

The neocortex is important 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 stereotyped patterns of connections between populations of neurons. The arrangements of these highly conserved circuits allow populations of neurons to coordinate a wide range of sensory and motor functions that underlie 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

**TITLE**  
 Assistant Professor of Biology

**EDUCATION**  
 PhD, University of California, Los Angeles

**Omar Mireles · 2nd**  
 Research Engineer at NASA Marshall Space Flight Center  
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NASA Marshall Space Flight Center  
 University of Florida

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

**Educational Background**  
 Postdoctoral Fellow, Biological Engineering, MIT, 2006-2008  
 Ph.D. Biomedical Engineering, Georgia Institute of Technology and Emory University, 2006  
 B.S. Biology, Morehouse College, 2001

**Hobbies**  
 Reality TV, Live Concerts, Origami

**Current Theme Song:**  
 "Nice for What" Drake

**Awards and Honors**  
 Emerging Scholar, Diverse: Issues in Higher Education magazine, 2015  
 Selection, Indo-American Frontiers of Engineering Symposium sponsored by National Academies of Engineering, 2014  
 Selection to participate as rapporteur in National Academies of Science Workshop on *AI&E*-Fostering Convergence in the Life Sciences, 2014  
 Junior Faculty Above and Beyond Award - Institute of Biengineering and Biosciences, 2012  
 Georgia Tech Junior Faculty Outstanding Undergraduate Research Mentor Award, 2012  
 Fellow, Keystone Symposia on Molecular and Cellular Biology, 2011-2012  
 NIH Director's New Innovator Award, 2010  
 Georgia Cancer Distinguished Cancer Scientist, 2009  
 NIH/International AIDS Society Scholarship, 2009  
 FACES Career Initiation Grant, 2008  
 UNCF/Merck Postdoctoral Science Research Fellowship, 2007  
 FACES Portable Postdoc Fellowship, 2006  
 HHMI - Emory University Teacher-Scholar, 2005  
 NASA Harriet G. Jenkins Predoctoral Fellowship, 2003  
 David and Lucile Packard Foundation Fellowship, 2001

**Danena Gaines, Ph.D.**  
 Principal and Atlanta Office Director at Cambridge Systematics, Inc.  
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 Massachusetts Institute of Technology

**Platt Lab** Georgia Tech EMORY UNIVERSITY  
**Tissue Remodeling, Repair, and Regeneration**

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**Educational Background**  
 Postdoctoral Fellow, Biological Engineering, MIT, 2006-2008  
 Ph.D. Biomedical Engineering, Georgia Institute of Technology and Emory University, 2006  
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 Junior Faculty Above and Beyond Award - Institute of Biengineering and Biosciences, 2012  
 Georgia Tech Junior Faculty Outstanding Undergraduate Research Mentor Award, 2012  
 Fellow, Keystone Symposia on Molecular and Cellular Biology, 2011-2012  
 NIH Director's New Innovator Award, 2010  
 Georgia Cancer Distinguished Cancer Scientist, 2009  
 NIH/International AIDS Society Scholarship, 2009

**Hobbies**  
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**Current Theme Song:**  
 "Nice for What" Drake

- last decade has not seen the progress we need to address underrepresentation in STEM
- current efforts focus on examining and changing institutional culture, and requires commitments from all partners
- finishing the job means doubling down on long-term, targeted investments in workforce development

Boston U Biology

professional development across Washington, creation and implementation of the first Google...  
 Director's Center for...  
 Howard University and was a lead writer for the K-12 CS Framework (Code.org)

## ALBERTO CRUZ-MARTÍN

**Current Research**

The neocortex is important 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 stereotyped patterns of connections between populations of neurons. The arrangements of these highly conserved circuits allow populations of neurons to coordinate a wide range of sensory and motor functions that underlie 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

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**Contact info**

**Connect** **Message** **More...**

NASA Marshall Space Flight Center  
 University of Florida

practice, excellent problem solving skills, track record of finishing projects on time and within or under budget; manages portfolio of State DOT and federal consulting engagements

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