

NAE Racial Justice and Equity Committee Activities

Darryll J. Pines

President and Glenn L. Martin Professor of Aerospace Engineering
University of Maryland

*Addressing Diversity, Equity, Inclusion, and Anti-Racism In
21st Century STEMM Organizations: A Summit*

Wednesday, June 30, 2021



NATIONAL ACADEMY OF ENGINEERING

Outline

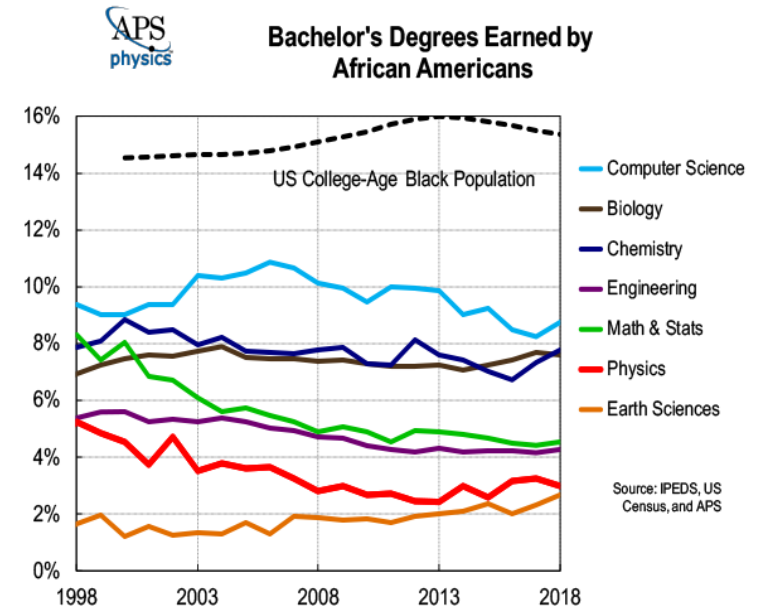
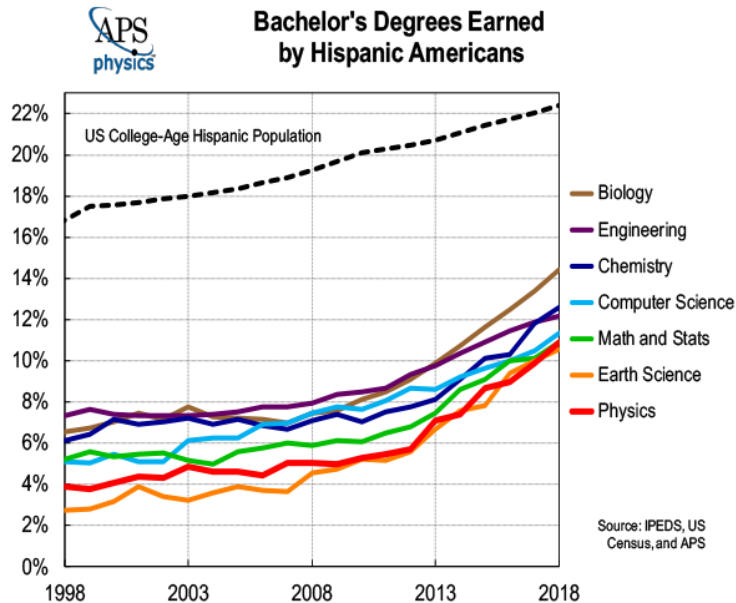
- **Background/Motivation**
- **Overview of NAE RJ&E Committee**
 - Membership, Charge, Subcommittees on Membership and Planning
- **Impact of NAE RJ&E Committee Activities**
 1. Call to Action-NAE Community: Lecture by **Dr. John B. Slaughter** to NAE community at Annual Meeting in October of 2020.
 2. RJ&E Subcommittee on Membership: Progress in URM NAE nominations
 3. NSF/NAE Workshop on “**Sharing Exemplary Admissions Practices that Promote Diversity in Engineering**”
 4. NSBE/50K Coalition/NAE Workshop on “**Community College Linkages-Scaling our Collective Wisdom**”
 5. Workshop on “**Pathways to Engineering**”-partnership with the Alfred P. Sloan Foundation (TBA)
- **Summary**
- **Future Activities**



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Background/Motivation

- The Racial Justice and Equity Committee of the NAE was formed in July 2020 after the death of George Floyd in Minneapolis, MN. NAE Member, **Dr. Percy A. Pierre**, initiated a discussion with **NAE President, Dr. John Anderson**, to create such a committee. The **NAE RJ&E Committee was officially announced by Dr. Anderson on 9/15/2020** in a letter to the entire membership.
- Historically, the NAE in the 1970s and 1980s played an important role in convening discussions about growing a diverse pipeline of engineering talent.
- **Why?**



Racial Justice & Equity Committee

- **Percy A. Pierre (Chair)**, Glenn L. Martin Adjunct Professor of Electrical and Computer Engineering, University of Maryland, College Park
- **Wanda M. Austin**, Retired President and CEO, The Aerospace Corporation
- **Thomas P. Bostick**, CEO, Intrexon and Lieutenant General (retired), U.S. Army
- **Rafael L. Bras**, Former Provost, Georgia Institute of Technology
- **Nicholas M. Donofrio**, IBM Fellow Emeritus, IBM Corporation
- **Mauricio Futran**, Vice President, Advanced Technology, Johnson and Johnson
- **Wesley L. Harris**, Charles Stark Draper Professor of Aeronautics and Astronautics, Massachusetts Institute of Technology



- **Gary S. May**, Chancellor, University of California, Davis
- **Warren F. (Pete) Miller, Jr.**, Former Assistant Secretary for Nuclear Energy, U.S. Department of Energy
- **Roderic I. Pettigrew**, CEO, EnHealth, Texas A&M University
- **Darryll J. Pines**, President, University of Maryland, College Park
- **Wanda A. Sigur**, Retired Vice President and General Manager of Civil Space, Lockheed Martin Corporation
- **John B. Slaughter**, Professor of Education and Engineering, University of Southern California and former director, National Science Foundation
- **Kenneth E. Washington**, CTO, Ford Motor Company



50% of membership from Industry/Government

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Racial Justice & Equity Committee Charge

1. Recommend ways to make NAE members and the general engineering community **aware of racial justice and inequity.** (Awareness)
2. Recommend initiatives designed to **increase the percentage of engineering BS and Ph.D. degrees** achieved by African Americans in the US. (Pipeline)
3. Recommend ways that **technology can be used to improve racial justice.** (Technology)
4. Develop strategies to **increase the number of underrepresented minorities in the highest leadership positions of the NAE.** (Leadership)
5. Recommend actions to **create sustained required change.** (Sustainment)



Racial Justice & Equity Subcommittee-Membership



Dr. Darryll J. Pines, *Chair*
(Section 1, 10)
President
University of Maryland, College Park



Dr. Pedro J.J. Alvarez
(Section 4)
George E. Brown Professor
Civil and Environmental
Engineering Rice University



Dr. Cristina H. Amon
(Section 10, 7)
Dean Emerita, Faculty of Applied
Science & Engineering and Alumni
Distinguished Professor of
Bioengineering
University of Toronto



Dr. Wanda Austin
(Section 1, 12)
President and Chief Executive
Officer (Retired)
The Aerospace Corporation



Dr. Gilda A. Barabino
(Section 2, 3)
President and Professor of
Biomedical and Chemical
Engineering
Olin College of Engineering



Dr. Rafael L. Bras
(Section 12)
Georgia Institute of
Technology School of
Civil and Environmental
Engineering



Dr. Carolina Cruz-Neira
(Section 5, 12)
Agere Chair
Department of Computer Science
Harris Engineering Center
University of Central Florida



Dr. Joseph M. DeSimone
(Section 9, 3)
Professor, Department of
Radiology and the Molecular
Imaging Program
Stanford University



Mr. Nicholas M. Donofrio
(Section 7, 5)
IBM Fellow Emeritus, IBM
Corporation (Retired)
NMD Consulting, LLC



Dr. Mauricio Futran
(Section 3)
Vice President, Advance
Technology Janssen Supply
Chain
Johnson and Johnson



Dr. Ronald E. Goldsberry
(Section 8)
Consultant, Deloitte



Dr. Warren F. (Pete) Miller, Jr.
(Section 6, 12, 10)
Former Assistant Secretary for
Nuclear Energy
U. S. Department of Energy
Los Alamos National Laboratory
(Retired)



Dr. Franklin M. Orr, Jr.
(Section 11)
Professor Emeritus
Department of Energy Resources
Engineering
Stanford University



NAE Staff:
Deborah Young, CAE
Program Officer
Email: dyoung@nae.edu
Phone: 202.334.1266

1 – Aerospace	7 – ECIS
2 – Bioengineering	8 – IMOS
3 – Chemical	9 – Materials
4 – Civil	10 – Mechanical
5 – Comp Sci/Eng	11 – Earth Res
6 – Elec Pwr/Energy Sys	12 – Spec Fields/ Interdisc

Racial Justice & Equity Subcommittee-Planning



Wanda A. Sigur, Retired
Vice President and General Manager of Civil
Space, Lockheed Martin Corporation



Gary S. May,
Chancellor
University of California, Davis



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Former Assistant Secretary for Nuclear
Energy
U. S. Department of Energy
Los Alamos National Laboratory



Dr. Mauricio Futran
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Johnson and Johnson



Wesley L. Harris,
Charles Stark Draper Professor of
Aeronautics and Astronautics, Massachusetts
Institute of Technology



NAE Staff:
Beth Cady
Program Officer
Email: ecady@nae.edu
Phone: 202.334.1266

Racial Justice & Equity Committee

Impact of Activities



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Special Lecture: Dr. John B. Slaughter

Charge 1: Awareness

- Approximately 800 viewed the lecture live
- NAE website page (<https://www.nae.edu/238776/Special-Lecture-Racial-Justice-and-Equity>): 850 visits since the NAE annual meeting
 - The associated YouTube video has 100 views
- **'We Must Let Opportunity Meet Talent'** feature story (<https://www.nationalacademies.org/news/2020/10/we-must-let-opportunity-meet-talent>): approximately 300 visits, just over 3 minutes per visit
- Speech Transcript: <https://pullias.usc.edu/blog/transcript-dr-john-slaughter-issues-call-to-action-for-racial-justice-and-equity-in-engineering/>



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Progress on 2022 URM NAE Nominations

Charge 4: increase numbers

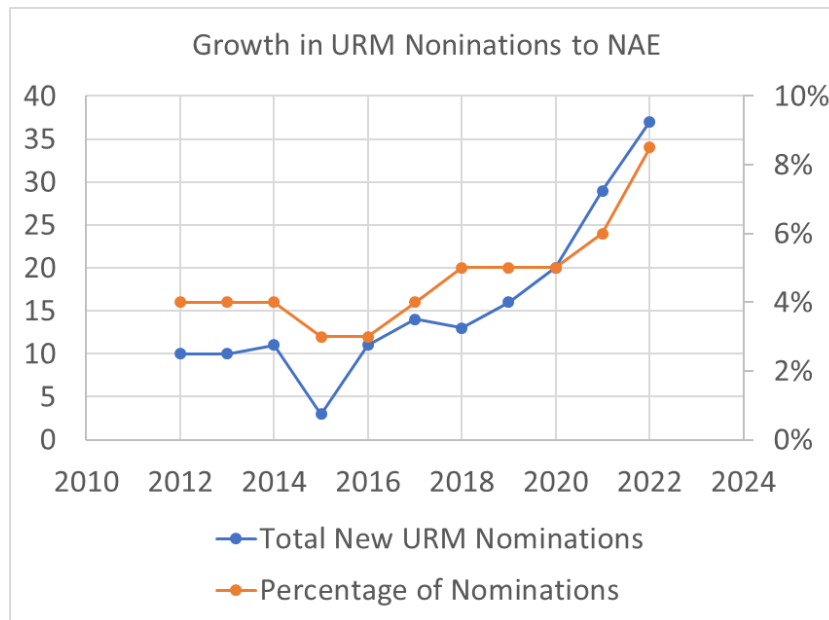
2022 Nomination Stats as of 5.13.21								
Section	Total	A	B	O	New	Renom	Female	U-R.M
1	42	20	9	13	28	14	9	3
2	60	41	14	5	36	24	10	6
3	43	29	13	1	28	15	5	7
4	81	47	22	12	45	36	11	6
5	52	27	22	3	31	21	15	4
6	29	9	14	6	14	15	3	1
7	61	35	17	9	35	26	12	1
8	34	17	13	4	20	14	4	6
9	71	40	18	13	45	26	13	6
10	62	38	19	5	34	28	8	8
11	60	22	29	9	28	32	14	3
12	47	24	8	15	31	16	7	4
Total*	587	320	183	84	343	244	106	49



Progress on 2022 URM NAE Nominations

RJ&E Subcommittee on Membership

- 15/37 New Nominations
- 6 /13 re-nominations
- Total = 21 out of 50 URM nominations (42%)



587 Total NAE
Nominations
for 2022 Class



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Workshop on “Sharing Exemplary Admissions Practices that Promote Diversity in Engineering”

- NSF-funded workshop activity Under NAE Program Director-Beth Cady,
- Workshop Committee: Dr. Beth Holloway, Purdue University, Dr. Theresa Maldonado, University of California, Dr. Beth Myers, University of Colorado Boulder, Dr. Darryll Pines, University of Maryland, Dr. Andrew Williams, University of Kansas
- Goals
 - Recognize institutions that are effectively diversifying engineering education using admissions policies,
 - Provide guidance to institutions working to advance diversity
 - Define directions for future research on best practices, metrics, and policies and how they fit into the larger system of recruiting and retaining engineering students from all backgrounds
- Ad hoc committee selected 8 exemplary programs/policies
- Workshop held in spring 2021 (May 24-26, 2021) to share best practices/research
- Workshop proceedings will be disseminated fall 2021



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Workshop on “Sharing Exemplary Admissions Practices that Promote Diversity in Engineering,” Highlights

- **Panel 1-Higher Education Admissions System:** We learned about **Test Optional, Test Blind**, and about numerous studies suggesting that standardized tests do not correlate with student success and outcomes (retention, graduation). We also learned about a little about **holistic and comprehensive application review**.
- **Panel 2- Admissions Policies and Programs:** We learned that partnerships between two-year institutions and 4-year institutions played an important role in student success. Dr. Golshani enlightened us with his perspective and I quote “No student is average”. We must meet students where they are as learners and adapt services to help them excel.
- **Panel 3-Transfer 3/2 Programs:** All panelists talked about successful partnership and collaborations with other institutions was key to success. Barriers to success included not common course numbering, but ensure proper mapping for various fields of study between primary institution to secondary institution. Bob Pieri commented that “We must meet learners where they are”
- **Panel 4-Best Practices:**
Redshirt Program, Summer Bridge, and Mental Health Support Resources
- **Panel 5-Research:**We learned that there is bias in Admissions and that it may require a comprehensive review with the possibility of changing campus policies. There are four main characteristics of **Holistic Review-comprehensiveness, contextualization (GPAs, etc.), Systematic, and Equity mindedness**.





Workshop on “Community College Linkages-Scaling our Collective Wisdom” (May 6, 2021)

50,000 DIVERSE ENGINEERS
GRADUATING ANNUALLY BY 2025

Sponsored by the 50K Coalition in partnership with NAE RJ&E

Objective:

- *To inspire engineering scholars and practitioners in higher education to take immediate and deliberate action to **fully democratize engineering** through community colleges.*

The Charge:

- Develop Scalable yet Contextualizable Solutions for Diverse Community College Campuses and Students
- Rethink the Level of Engagement that Four-Year Engineering Programs should have with Community Colleges, particularly Colleges with large BIPOC and women populations
- Challenge Conventional Thinking about the Undergraduate Engineering Education Experience at Four-Year Colleges and Schools
- Advocate for Change within your Local Ecosystem



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Community College Students Represent the US

Community College Demographics

- Women: 57%
- Hispanic: 27%
- Black: 13%
- Native American: 1%
- Non-US citizens: 9%
- Veterans: 5%
- Students with Disabilities: 20%

aacc.nche.edu

US Demographics

- Women: 51%
- Hispanic: 18%
- Black: 13%
- Native American: 1%
- Non-US citizens: 8%
- Veterans: 7%
- People with Disabilities: 26%

census.gov; cdc.gov

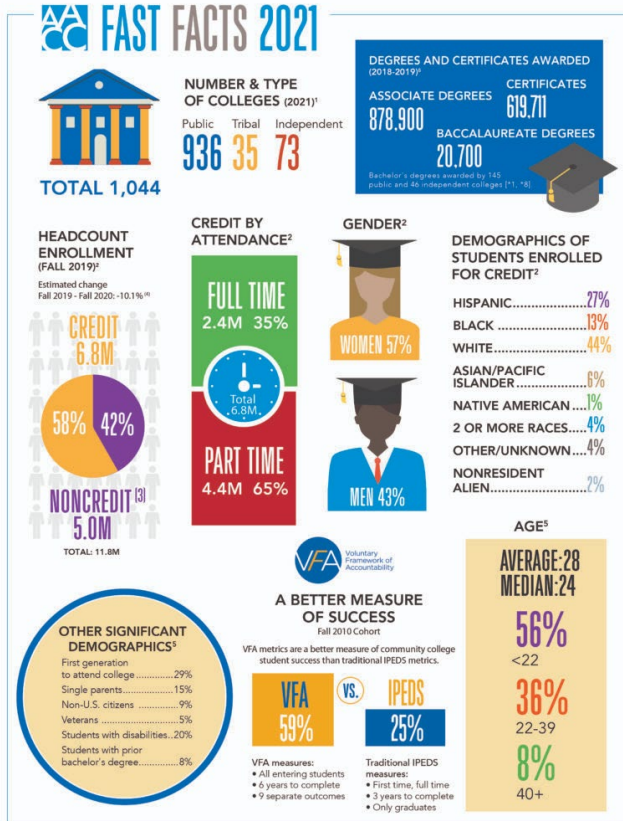
But these numbers are not yet representative of engineering



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The Framing of Engineering can Impact Equity and Access-Related Efforts

Community College Students



aacc.nche.edu

March 2021

Engineering as a Field



Lonnie Johnson Ursula Burns (NAE)



The disconnect between engineering and the community



Jose Reyes (NAE)



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NAE Workshop and Project on “Pathways to Engineering”

ALFRED P. SLOAN
FOUNDATION

- Potential Funding and Sponsorship with the Alfred P. Sloan Foundation
- Goals (To provide links between organizations supporting URMs in engineering)
 - The goal of this activity is to provide actionable insights to the engineering education community regarding existing and potential new approaches for increasing coordination and communication among the various levels of the engineering education system to boost the number of URM engineering undergraduate, graduate, and postgraduate students, and URM engineering faculty, in US colleges and universities.
 - **K-12 Ecosystem:** Understand the challenges of and opportunities for identifying, supporting, and tracking the progress of engineering-interested and capable URM students in K-12;
 - **Undergraduate and Graduate Recruitment and Preparation:** Understand the opportunities and challenges to identifying URM undergraduate and graduate engineering students who are prepared and potentially interested in pursuing more advanced engineering education;
 - **Data/Technology to Connect and Strengthen Ecosystem:** Evaluate how data systems and technologies are being or could be used to connect and match URM students at all; and
 - **Partnerships and Collaborations:** Explore existing and potential collaborations between extramural initiatives that support URM engineering student success and universities seeking to recruit and retain these students at all levels.
- Workshop TBA for late Fall 2021 or early 2022



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Summary

- NAE President, Dr. John Anderson, has taken a leadership role with respect to issues surrounding racial justice and equity.
- Dr. Percy Pierre, chair of the RJ&E is working on a number of activities that will help support the five charges of the RJ&E Committee. (Awareness, Pipeline, Leadership, Sustainment)
- The RJ&E Committee is having a positive impact on addressing its charge and supporting the goals of the NAE and the broader engineering community.
- Numerous activities are planned for the Fall and into 2022.



Future Activities

- RJ&E Subcommittee-Planning (Wanda Sigur, chair) working on a variety of strategic initiatives that will lead to actions resulting in sustainable change.
- Dr. Pierre (chair) is in ongoing discussions with other industry, government and not for profit partners.
- RJ& E seeks partnerships with NAS, and NAM on possible joint efforts focused on diversity, equity and inclusion.
- RJ&E has a four-year horizon to affect change.



Racial Justice & Equity Committee

Q&A



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