

**DANIEL J. EPSTEIN DEPARTMENT OF
INDUSTRIAL AND SYSTEMS ENGINEERING**

EPSTEIN INSTITUTE SEMINAR • ISE 651 SEMINAR

The Changing Face of Engineering

John Slaughter

Professor, Viterbi School of Engineering and the Rossier School of Education

ABSTRACT

America is a nation embroiled in a global contest for scientific and technological leadership. In today's flat world, we must act quickly on a number of fronts to maintain a strong position of competitiveness in science and technology in order to ensure a future of prosperity and security. Failure to act will guarantee that preeminence in innovation and entrepreneurship will reside in the hands of those nations that are most adept at developing and retaining talent. As Shirley Ann Jackson, president of Rensselaer Polytechnic Institute and former head of the Nuclear Regulatory Commission, said, "If we fail to act, the looming gap in the U.S. science and engineering workforce is a quiet crisis that will grow in intensity and quickly undermine the ability of our nation to continue as the preeminent leader in science and engineering."

Given the demographic changes occurring in America, the deficiencies in many of our elementary and secondary schools, the tremendous progress in science and technology occurring in developing countries, and tightening immigration policies, we can no longer depend upon an endless supply of foreign talent, nor continue to afford the historic underrepresentation of women and minorities in the STEM disciplines. Confronting the Grand Challenges of Engineering will require that we improve opportunities for all Americans to receive rigorous and high quality educations in science and engineering. In short, the engineering profession must shed itself of the myopia that has limited its ability to benefit from the remarkable diversity of America. As Dean Yortsos stated in the concluding paragraph of his editorial, ". . . the realization is urgently emerging of the need to engage all of our talent pool."

Diversity is not an issue that was on the radar screen of the engineering profession in America until the latter decades of the 20th Century. It was not until 1974 that an industry-inspired national program was initiated to increase the number of underrepresented minority baccalaureate graduates. In that year, the proportion of African Americans, Latinos and American Indians reached one percent of the cohort of approximately 44,000 B.S. engineering graduates. The number of women engineering graduates was similarly miniscule. While it is true that progress has been made since that time, especially with the presence of women, the representation of members of these minority groups among engineering students as well as practitioners still lags far behind their presence in the population. It is important, though dismaying, to note that industry and government have done a better job of diversifying their senior technical and management-level engineering positions than have our research universities with their engineering faculties.

**TUESDAY, FEBRUARY 26, 2013
VON KLEINSMID CENTER (VKC) ROOM 100
3:45 – 5:00 PM**

SPEAKER BIO



Dr. John Brooks Slaughter joined the Rossier School of Education in January, 2010 as Professor of Education, with a joint appointment at the Viterbi School of Engineering. Slaughter has had remarkably distinguished career, which began as an electrical engineer and includes leading two universities and heading the National Science Foundation (NSF) as its first African American director, among many other accomplishments.

In 1956, Slaughter began his career as an engineer at General Dynamics Convair, which he left in 1960 to work as a civilian at the United States Naval Electronics Laboratory Center in San Diego. He worked for the Navy for 15 years, becoming director of the Information Systems Technology Department. Slaughter went on to become director of the Applied Physics Laboratory, a research and development facility at the University of Washington in Seattle, until his appointment as assistant director of the Astronomical, Atmospheric, Earth and Ocean Sciences directorate of the NSF in Washington, D.C. in 1977.

In 1979, Slaughter became academic vice president and provost of Washington State University, but left for his historic appointment in 1980 as the first African American to direct the National Science Foundation (NSF). He returned to higher education in 1982 as chancellor of the University of Maryland, where he made major advancements in the recruitment and retention of African American students and faculty.

Slaughter took the job of president of Occidental College in 1988, and transformed the school during his 11-year tenure into the most diverse liberal arts college in America. He taught courses in diversity and leadership for one year as Irving R. Melbo Professor of Leadership Education at USC before accepting the position of president and CEO of the National Action Council for Minorities in Engineering (NACME), whose mission is to increase the number of engineers of color, in 2000.

Slaughter holds honorary degrees from more than 25 institutions, and has received numerous awards, including the Martin Luther King, Jr. National Award in 1997; UCLA Medal of Excellence in 1989; the first U.S. Black Engineer of the Year award in 1987; the NAE Arthur M. Bueche Award in 2004; UCLA Distinguished Alumnus of the Year in 1978; NSF Distinguished Service Award in 1979, among many others.

Slaughter holds a Ph.D. in engineering science from the University of California, San Diego (1971), a M.S. in engineering from the University of California, Los Angeles (1961), and a B.S. in Computer Sciences from Kansas State University (1956).