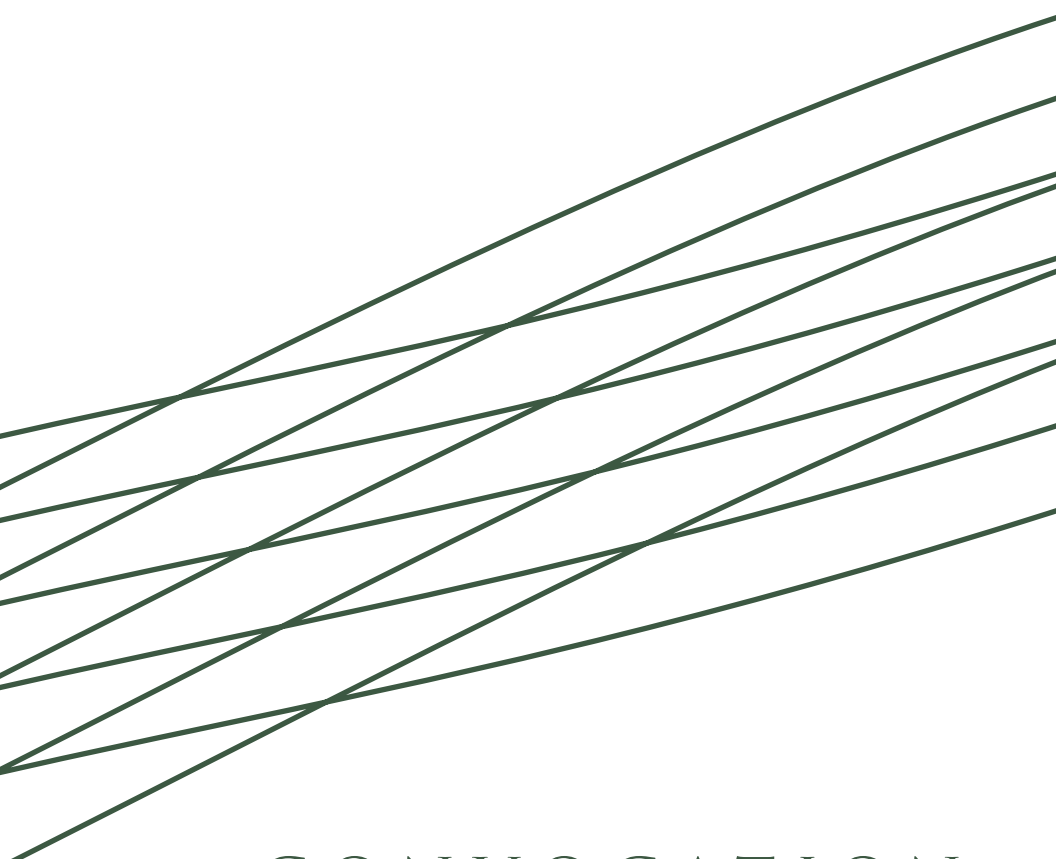


THE ROCKEFELLER UNIVERSITY



CONVOCATION
FOR CONFERRING DEGREES · 2024

THURSDAY, THE SIXTH OF JUNE, 2024

ACADEMIC PROCESSION

NEW CASTLE BRASS QUINTET

WELCOMING REMARKS

RICHARD P. LIFTON, M.D., PH.D.
PRESIDENT AND CARSON FAMILY PROFESSOR

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TIM STEARNS, PH.D.
DEAN OF GRADUATE AND POSTGRADUATE STUDIES
VICE PRESIDENT FOR EDUCATIONAL AFFAIRS

CONFERRING OF THE DEGREE OF DOCTOR OF PHILOSOPHY

DR. LIFTON

**CONFERRING OF THE DEGREE OF DOCTOR OF SCIENCE,
HONORIS CAUSA**

DR. LIFTON

FRANCES H. ARNOLD, PH.D.
FREEMAN A. HRABOWSKI, III, PH.D.
MICHAEL E. MANN, PH.D.

ACADEMIC RECESSION

PLEASE JOIN US FOLLOWING THE CEREMONY FOR A RECEPTION
ON THE ABBY ALDRICH ROCKEFELLER LAWN.

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ALEX BARBULESCU*

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OLIVIA GOLDMAN

B.A., BARNARD COLLEGE

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B.A., JOHNS HOPKINS UNIVERSITY

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B.A., WASHINGTON UNIVERSITY IN SAINT LOUIS

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PRESENTED BY ALAN R. RODRIGUES

YIHAO YANG

B.S., UNIVERSITY OF CALIFORNIA, LOS ANGELES

Pioneer Factors Compete for Epigenetic Factors in Switching Stem Cell Fates

ELAINE FUCHS

FRANCES H. ARNOLD, PH.D.

With a nonconformist spirit, an inclination to try new things, and confidence to overcome challenges, Frances Arnold has opened new realms of biological catalysis. By exploiting the principles of evolution, she has harnessed its power to make improved and novel enzymes, some of which perform reactions unknown in the natural world. The process that she invented has delivered agents that enable the environmentally clean manufacture of biofuels, pharmaceutical agents, diagnostic tools, and consumer and agricultural products.

When Dr. Arnold was a teenager, she chose to leave home and live on her own in Pittsburgh rather than agree to her parents' request that she attend school regularly and stop hitchhiking to antiwar protests. Despite her terrible attendance record, she was admitted to Princeton University. In 1979, she graduated with a bachelor's degree in mechanical and aerospace engineering. She continued to the chemical engineering program at the University of California, Berkeley, and earned a Ph.D. in 1985.

While in graduate school, she became captivated by the possibility of engineering proteins. The existing approach, in which scientists predicted amino-acid changes that they hoped would deliver desired effects, often fell short. Rather than trying to decipher nature's design rules, Dr. Arnold focused on function. She aimed to generate enzymes that possess beneficial properties without needing to know in advance what alterations to make.

She joined the Caltech faculty in 1987 and embarked on her quest. By introducing random mutations into an amino acid sequence and then screening for proteins that can perform the chemical feat of interest, she developed a method called directed evolution, which reliably produces enzymes with a vast array of capabilities and applications.

Dr. Arnold co-chairs the President's Council of Advisors on Science and Technology (PCAST), and through its activities, she can reach even more broadly to apply science for the good of humanity and the planet. She is currently the Linus Pauling Professor of Chemical Engineering, Bioengineering, and Biochemistry at Caltech. Her many honors include the 2018 Nobel Prize in Chemistry, the National Medal of Technology and Innovation, the Millennium Technology Prize, and the Charles Stark Draper Prize for Engineering. She is a member of the National Academies of Engineering, Sciences, and Medicine and a foreign member of the Royal Society.

FREEMAN A. HRABOWSKI, III, PH.D.

Through force of will and inspired leadership, Freeman Hrabowski has invigorated the U.S. scientific enterprise by cultivating talent among underrepresented groups. As president of the University of Maryland, Baltimore County (UMBC), he designed and pioneered an approach that has fostered academic excellence and ongoing success even among students who have historically floundered in science at institutions of higher learning.

As a mathematically precocious youngster in Birmingham, Alabama, Dr. Hrabowski participated in the Civil Rights Children's Crusade in 1963 and spent five days in jail at age 12. He graduated from Hampton Institute and continued to the University of Illinois Urbana-Champaign, where he earned a Master's degree in mathematics and a Ph.D. in higher education administration and statistics. He has dedicated his career to creating data-driven strategies for broadening participation in STEM.

Between 1992 and 2022, Dr. Hrabowski served as president of UMBC. The university has generated more Black bachelor's degree recipients who have gone on to earn Ph.D.s in the natural sciences or engineering and M.D.–Ph.D.s than any other institution in the nation. Dr. Hrabowski and philanthropist Robert Meyerhoff co-founded the Meyerhoff Scholars Program in 1988. It emphasizes high expectations, intensive faculty support, and student community that continues as graduates' careers unfold. The program's power has created a culture of academic excellence not only for Black people, but for students of all races at UMBC, whose population is predominantly White and Asian. The system that Dr. Hrabowski built has provided a prototype for schools across the country.

In 2022, the Howard Hughes Medical Institute launched the \$1.5 billion Freeman Hrabowski Scholars Program, which aims to expand diversity in science. It supports early-career researchers who run their labs in a way that fosters inclusivity.

The author of five books, Dr. Hrabowski chaired the National Academy of Sciences committee that produced the 2011 report, *Expanding Underrepresented Minority Participation: America's Science and Technology Talent at the Crossroads*. The following year, President Obama appointed him chair of the President's Advisory Commission on Educational Excellence for African Americans. He is a member of the National Academy of Engineering and the National Academy of Sciences. In 2023, he received the NAS Public Welfare Medal for his "outstanding leadership in transforming U.S. science education and increasing cultural diversity within the science workforce."

HONORARY DEGREE

MICHAEL E. MANN, PH.D.

In schoolyards, congressional hearings, and courtrooms, Michael Mann has fended off bullies. Despite massive pushback from the fossil fuel industry and its powerful political allies, he has made watershed contributions to our knowledge about climate change.

Dr. Mann double majored in physics and applied math at the University of California, Berkeley, and went on to earn an M.S. in physics from Yale University. Drawn by the prospect of investigating an important real-world problem, he became interested in natural climate variability. He dug into that topic for his Ph.D., which he earned from Yale's geology and geophysics department.

Dr. Mann continued this work as a postdoctoral fellow at the University of Massachusetts, Amherst, where his discoveries led him into the contentious arena of human-influenced climate change. He used surrogate measures of climate to estimate historical temperatures and, in the late 1990s, he and colleagues reported that the planet had begun to heat up at the start of the 20th century. Their analysis pointed toward greenhouse gases as the culprit and their studies produced a compelling and easy-to-grasp image that became a symbol of human-induced global warming, the so-called hockey-stick graph.

Climate change deniers jumped on Dr. Mann and his results, using multi-pronged intimidation tactics to disrupt his work and equanimity. The threat of congressional subpoenas loomed, his emails were hacked and misrepresented in an organized effort to discredit him, and he received death threats. Throughout, Dr. Mann persevered in his research and his commitment to explain his findings and their implications.

Dr. Mann has written six books for lay audiences and he is currently crafting a seventh, with vaccine expert Peter Hotez, about the anti-science movement. He co-founded the website RealClimate.org, which aims to educate the public and journalists about a range of topics pertaining to climate science and relevant context. He is currently Presidential Distinguished Professor in the department of earth and environmental science at the University of Pennsylvania. He also directs the Penn Center for Science, Sustainability, and the Media. His distinctions include membership in the National Academy of Sciences and foreign membership in the Royal Society. He has earned many honors, including the Tyler Prize for Environmental Achievement and the Leo Szilard Award of the American Physical Society. In 2023, the American Humanist Association named him Humanist of the Year.

Founded in 1901, The Rockefeller University is a world-renowned center for research and graduate education in the biomedical and physical sciences. The university's some 70 laboratories conduct research on a broad range of biological and biomedical questions with the mission of improving the understanding of life for the benefit of humanity. Over the years, Rockefeller has been the site of many historic breakthroughs, including the landmark discovery that genes are made of DNA. Twenty-six researchers associated with Rockefeller throughout its history have been awarded the Nobel Prize.

The graduate program, with a unique curriculum that emphasizes independent research, began in 1955 and was named in honor of David Rockefeller in 2005. Since the first convocation in 1959, The Rockefeller University has granted doctor of philosophy degrees to 1,469 individuals – including 38 students who will receive their Ph.D. degrees today.

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