

AGENDA

September 22, 2022

National Academy of Sciences Building
2101 Constitution Avenue, NW
Washington, DC 20418

All times listed are in Eastern Time

Webcast: <https://bit.ly/3BSe4EV>

12:00 – 12:15 PM

Kavli Auditorium or Webcast

12:15 – 1:25 PM

Kavli Auditorium or Webcast

1:25 – 1:30 PM

Kavli Auditorium or Webcast

1:30 – 2:30 PM

Kavli Auditorium or Webcast



THE ENDLESS FRONTIER The Next 75 Years in Science



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Event Code:

#EndlessFrontier

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Opening Remarks

Alan Leshner (event emcee), Chair, Endless Frontier Symposium 2022 Planning Committee; Chief Executive Officer Emeritus, American Association for the Advancement of Science; Chair, Committee on Science, Engineering, Medicine, and Public Policy, the National Academies

Cynthia Friend, President, The Kavli Foundation

Marcia McNutt, President, National Academy of Sciences

Reevaluating the Structure of Institutions and the Scientific Enterprise

Richard Meserve (moderator), Member, Endless Frontier Symposium 2022 Planning Committee; President Emeritus, Carnegie Institution for Science; Senior Of Counsel, Covington & Burling LLP

Frances Arnold, Co-Chair, President's Council of Advisors on Science and Technology; Linus Pauling Professor of Chemical Engineering, Bioengineering, and Biochemistry, California Institute of Technology

Harvey Fineberg, President, Gordon and Betty Moore Foundation

Ottoline Leyser, Chief Executive Officer, United Kingdom Research and Innovation

Elias Zerhouni, Professor Emeritus, Radiology and Biomedical Engineering, Johns Hopkins University; former Director, National Institutes of Health; President, OPKO Health

Pre-recorded Remarks from U.S. Senator Todd Young, R-Indiana

The "Valleys of Death": Addressing the Translational Gaps Between Discovery and Innovation

Shirley M. Tilghman (moderator), Member, Endless Frontier Symposium 2022 Planning Committee; Professor, Molecular Biology, Princeton University; President Emerita, Princeton University

Mark Fishman, Professor, Harvard Department of Stem Cell and Regenerative Biology; President Emeritus, Novartis Institutes for BioMedical Research; Founder, AditumBio; Board of Directors, Beam Therapeutics and Skyline Therapeutics

Demis Hassabis, Co-founder and CEO, DeepMind

Geraldine Richmond, Under Secretary for Science and Innovation, Department of Energy

2:30 – 2:50 PM

Great Hall

2:50 – 3:50 PM

Kavli Auditorium or Webcast

3:50 – 3:55 PM

Kavli Auditorium or Webcast

3:55 – 4:55 PM

Kavli Auditorium or Webcast

4:55 – 5:00 PM

Kavli Auditorium or Webcast

5:00 – 5:05 PM

Kavli Auditorium or Webcast

5:05 – 6:05 PM

Great Hall

Break

Producing the Right Technical and Professional Science Workforce: Ensuring Inclusivity, Increasing Diversity, and Improving Training

Kim Hunter Reed (moderator), Member, Endless Frontier Symposium 2022 Planning Committee; Commissioner of Higher Education for the Board of Regents, State of Louisiana

Angela Belcher, James Mason Crafts Professor, Biological Engineering, Materials Science; Head, Department of Biological Engineering, Massachusetts Institute of Technology

Kafui Dzirasa, K. Ranga Rama Krishnan Endowed Associate Professor, Duke University; Investigator, Howard Hughes Medical Institute

Keith Yamamoto, Vice Chancellor for Science Policy and Strategy, University of California, San Francisco; Director, University of California, San Francisco Precision Medicine; Professor, Cellular and Molecular Pharmacology, University of California, San Francisco

Pre-recorded Remarks from U.S. Representative Frank Lucas, R-Oklahoma, Ranking Member, Committee on Science, Space, and Technology

Is the Science and Technology Enterprise Optimized to Benefit Society?

Bryan Walsh (moderator), Editor, Future Project, Vox

Peter Gluckman, President, International Science Council; Distinguished Professor, University of Auckland; Director, Koi Tū: the Centre for Informed Futures

Darshan Karwat, Assistant Professor, School for the Future of Innovation in Society, College of Global Futures, Arizona State University

Alondra Nelson, Deputy Assistant to the President and Performing the Duties of the Director, Office of Science and Technology Policy (OSTP)

Pre-recorded Remarks from U.S. Representative Eddie Bernice Johnson, D-Texas, Chairwoman, Committee on Science, Space, and Technology

Closing Remarks

Adam Falk, President, Alfred P. Sloan Foundation

Alan Leshner, Chair, Endless Frontier Symposium 2022 Planning Committee; Chief Executive Officer Emeritus, American Association for the Advancement of Science; Chair, Committee on Science, Engineering, Medicine, and Public Policy, the National Academies

Reception



ENDLESS FRONTIER SYMPOSIUM 2022

Research and Higher Education Institutions
for the Next 75 Years : Relevant Session Articles
found in *Issues in Science and Technology*

**found in *Issues in Science and Technology's* special edition titled,
The Next 75 Years of Science Policy

Re-evaluating the Structure of Institutions and the Scientific Enterprise: Frances Arnold, Harvey Fineberg, Ottoline Leyser, and Elias Zerhouni

Articles written by or about speakers

- [Stark, High, and Urgent](#) by Harvey Fineberg
 - The COVID-19 pandemic reveals the stakes of the relationship between science and society—and shows how science can rise to meet new challenges. How can this experience shape science policy in the future?
- [Working in the Penumbra of Understanding](#) by William S. Hammack & John L. Anderson**
 - A twenty-first century science and technology policy that works to solve society's problems must fully incorporate engineering's unique perspective.
 - Includes the story of how Frances Arnold pioneered directed evolution.

Articles relevant to the session topic

- [Time to Say Goodbye to Our Heroes?](#) by Lindy Elkins-Tanton**
 - To increase the speed and impact of knowledge creation, the United States must radically restructure research funding and resources away from big names—and toward our biggest questions.
- [Opening Up to Open Science](#) by Chelle Gentemann, Christopher Erdmann, & Caitlin Kroeger**
 - More inclusive open science can help solve society's most pressing problems—and at a faster pace—but making it mainstream requires systemic institutional change.
- [Science Policy From the Ground Up](#) by Melissa Flagg & Arti Garg**
 - It's time to modernize the federal role in the nation's increasingly decentralized R&D ecosystem and unleash innovation at the local level.

The "Valleys of Death": Addressing the Translational Gaps Between Discovery and Innovation: Mark Fishman, Demis Hassabis, and Geraldine Richmond

Articles relevant to the session topic

- [Changing the Business of Breakthroughs](#) by Regina E. Dugan & Kaigham J. Gabriel**
 - A new worldwide network of scientists and engineers is demonstrating how philanthropy can leverage a highly effective innovation model to solve urgent global problems.
- [Scaling Research Solutions for Society's Real Problems](#) by Gopal P. Sarma**
 - To transform US research labs to better serve society, we need to bring in a new type of scientist who specializes in scientific operations.

Producing the Right Technical and Professional Science Workforce: Ensuring Inclusivity, Increasing Diversity, and Improving Training: Angela Belcher, Kafui Dzirasa, and Keith Yamamoto

Articles relevant to the session topic

- [Nothing Succeeds Like Success](#) by Freeman A. Hrabowski III & Peter H. Henderson**
 - To expand underrepresented minority participation in science and engineering, we need to fund the institutions and programs that are already graduating diverse students.
- [The Limiting Factor of "The Endless Frontier" Is Still a Human One](#) by Shirley M. Malcom**
 - In science policy circles, making science more inclusive and diverse has not received the attention it urgently needs. To remain a leader in innovation, the United States must diversify its science, engineering, and technology workforce.
- [Building a Just and Fair Scientific Enterprise](#) by Gilda A. Barabino**
 - The culture of science itself must change to fully reach untapped talent, enhance knowledge creation, and ensure the health and well-being of the nation.
- [Cultivating America's STEM Talent Must Begin at Home](#) by Ellen Ochoa & Victor R. McCrary**
 - Only with collective commitment, effort, and focus can the country educate and develop the "missing millions" needed to push the frontiers of knowledge, keep our nation safe, and power the innovation economy.

- [Attracting \(and Keeping\) the Best and the Brightest](#) by Divyansh Kaushik & Caleb Watney**
 - Foreign students and entrepreneurs helped make the United States an innovation powerhouse. With more countries competing for talent, Congress must create a system that attracts highly skilled immigrants.
- [A Moonshot for Every Kid](#) by Ayanna Howard, Charles Isbell, & Raheem Beyah**
 - The exclusion of diverse people from engineering and computer science is a blind spot in US national security—and one the nation must work to fix.
- [Democratizing Engineering for Every High School Student](#) by Darryll J. Pines**
 - Offering engineering classes to high school students can empower them to create change in their local communities and encourage them to pursue careers in the field.
- [Great Science Begins with Nurturing Early-Career Researchers](#) by Adriana Bankston**
 - Graduate students and postdocs endure long hours, low pay, uncertain employment, and inequitable conditions. To foster future innovation, we must build an environment where they thrive in all aspects, including mental health.
- [There Can Be No Innovation Without Diversity](#) by Wayne A. I. Frederick**
 - For society to advance, we need solutions and upgrades that work for everyone without leaving anyone behind.
- [For a Competitive Economy, We Need a Skilled Workforce](#) by Rebecca Blank**
 - The United States must make sustained investments in worker training and higher education to meet the shifting needs of a scientifically productive society.

Is the Science and Technology Enterprise Optimized to Benefit Society?

Peter Gluckman, Darshan Karwat, and Alondra Nelson

Articles written by or about speakers

- [Creating a New Moral Imagination for Engineering](#) by Darshan Karwat**
 - From lifesaving vaccines to weapons of mass destruction, engineers seem willing to enable any enterprise for the right price. How might engineering become better aligned with sustainability, justice, peace, and human rights?
- [“Science and Technology Now Sit in the Center of Every Policy and Social Issue”](#) interview with Alondra Nelson
 - Alondra Nelson talks about “a new social compact for science and technology policy” that would make innovation more inclusive and equitable, reckon with the nation’s past, and use social science to improve policymaking.
- [Rebooting Science Diplomacy in the Context of COVID-19](#) by Peter Gluckman & Vaughan Turekian
 - Science can be a common language and an important mechanism for calming geostrategic tensions.

Articles relevant to the session topic

- [Innovation as a Force for Equity](#) by Shobita Parthasarathy**
 - Today’s health innovation system doesn’t benefit everyone equally. To change it we need to think differently about expertise, innovation, and systems for ensuring access to crucial technologies.
- [The Next 75 Years of US Science and Innovation Policy: An Introduction](#) by Robert W. Conn, Michael M. Crow, Cynthia M. Friend, & Marcia McNutt**
 - In the future, science and technology will be called upon to address many challenges, from pandemics to climate change to food and water shortages to crises that cannot be foreseen today. Scientific research must be structured to meet society’s needs.



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