

# Barack Obama Presidential Library

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the National Medal of Science and the National

Medal of Technology and Innovation, 02/01/2013 [3

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# THE PRESIDENT

welcomes you to

THE WHITE HOUSE

on the occasion of the presentation of

THE NATIONAL MEDAL OF SCIENCE

AND

THE NATIONAL
MEDAL OF TECHNOLOGY
AND INNOVATION



Friday, February 1, 2013

# THE NATIONAL MEDAL OF SCIENCE

The National Medal of Science is the Nation's highest scientific honor. Established by Congress in 1959 and administered by the National Science Foundation, it is bestowed annually by the President of the United States on individuals deserving of special recognition for their outstanding contributions in biology, chemistry, geology, physics, mathematics, sociology, behavioral and economic sciences, and engineering. In 1963, President John F. Kennedy awarded the first Medal of Science — to the late Theodore Von Karman, then professor emeritus at the California Institute of Technology. Since then, more than four hundred sixty individuals have been awarded the Medal of Science. An independent presidentially appointed committee of scientists and engineers reviews nominations and makes its recommendations to the President, who selects the laureates.





# THE NATIONAL MEDAL OF TECHNOLOGY AND INNOVATION

The National Medal of Technology and Innovation is the Nation's highest award for technological achievement. It recognizes American innovators whose vision, intellect, creativity, and determination have made profound and lasting contributions to our economy and quality of life. Established by the Congress and administered by the United States Patent and Trademark Office within the Department of Commerce, more than one hundred eighty Medals have been awarded to individuals, team members, and companies since the first Medal of Technology was presented in 1985 by President Ronald Reagan. An independent committee representing both private and public sectors evaluates the merits of all candidates nominated through an open, competitive solicitation process. The committee forwards its recommendations to the Secretary of Commerce, who makes recommendations to the President for final decision.

# **PROGRAM**

Remarks by

THE PRESIDENT

Presentation of Medals



Reception to follow

# 2011 NATIONAL MEDAL OF SCIENCE LAUREATES

#### Allen J. Bard

University of Texas, Austin

For contributions in electrochemistry, including electroluminescence, semiconductor photoelectrochemistry, electroanalytical chemistry, and the invention of the scanning electrochemical microscope.

#### Sallie W. Chisholm

Massachusetts Institute of Technology

For contributions to the discovery and understanding of the dominant photosynthetic organisms in the ocean, promotion of the field of microbial oceanography, and influence on marine policy and management.

#### Sidney D. Drell

Stanford University

For contributions to quantum field theory and quantum chromodynamics, application of science to inform national policies in security and intelligence, and distinguished contributions as an advisor to the United States Government.

#### Sandra M. Faber

University of California, Santa Cruz

For leadership in numerous path-breaking studies of extra-galactic astronomy and galaxy formation, and for oversight of the construction of important instruments, including the Keck telescopes.

# Sylvester James Gates, Jr.

University of Maryland

For contributions to the mathematics of supersymmetry in particle, field, and string theories and extraordinary efforts to engage the public on the beauty and wonder of fundamental physics.

#### Solomon W. Golomb

University of Southern California

For pioneering work in shift register sequences that changed the course of communications from analog to digital, and for numerous innovations in reliable and secure space, radar, cellular, wireless, and spread-spectrum communications.

### John B. Goodenough

University of Texas, Austin

For groundbreaking cathode research that led to the first commercial lithium ion battery, which has since revolutionized consumer electronics with technical applications for portable and stationary power.

# 2011 NATIONAL MEDAL OF SCIENCE LAUREATES

#### M. Frederick Hawthorne

University of Missouri

For highly creative pioneering research in inorganic, organometallic, and medicinal borane chemistry, sustained and profound contributions to scientific and technical advice related to national security, and for effective, prolific, and devoted service to the broad field of chemical sciences.

#### Leroy Hood

Institute for Systems Biology

For pioneering spirit, passion, vision, inventions, and leadership combined with unique cross-disciplinary approaches resulting in entrepreneurial ventures, transformative commercial products, and several new scientific disciplines that have challenged and transformed the fields of biotechnology, genomics, proteomics, personalized medicine, and science education.

### Barry C. Mazur

Harvard University

For original and landmark contributions to differential topology, number theory, and arithmetic algebraic geometry, where, among other applications, his work was foundational to Wiles' proof of Fermat's Last Theorem, and for his dedication to communicating subtle mathematical ideas to the broader public.

# Lucy Shapiro

Stanford University

For the pioneering discovery that the bacterial cell is controlled by an integrated genetic circuit functioning in time and space that serves as a systems engineering paradigm underlying cell differentiation and ultimately the generation of diversity in all organisms.

### Anne M. Treisman

Princeton University

For a 50-year career of penetrating originality and depth that has led to the understanding of fundamental attentional limits in the human mind and brain.



# 2011 NATIONAL MEDAL OF TECHNOLOGY AND INNOVATION LAUREATES

#### Frances H. Arnold

California Institute of Technology

For pioneering research on biofuels and chemicals that could lead to the replacement of pollution-generating materials.

#### George Carruthers

U.S. Naval Research Lab

For invention of the Far UV Electrographic Camera, which significantly improved our understanding of space and earth science.

#### **Robert Langer**

Massachusetts Institute of Technology

For inventions and discoveries that led to the development of controlled drug release systems, engineered tissues, angiogenesis inhibitors, and new biomaterials.

#### Norman R. McCombs

AirSep Corporation

For the development and commercialization of pressure swing adsorption oxygen-supply systems with a wide range of medical and industrial applications that have led to improved health and substantially reduced health care costs.

### Gholam A. Peyman

University of Arizona College of Medicine and Arizona Retinal Specialists

For invention of the LASIK surgical technique, and for developing the field of intraocular drug administration and expanding the field of retinal surgery.

# 2011 NATIONAL MEDAL OF TECHNOLOGY AND INNOVATION LAUREATES

#### Arthur H. Rosenfeld

American Council for an Energy-Efficient Economy and California Institute for Energy and Environment

For extraordinary leadership in the development of energy-efficient building technologies and related standards and policies.

#### Jan T. Vilcek

New York University School of Medicine

For pioneering work on interferons and key contributions to the development of therapeutic monoclonal antibodies.

### Samuel Blum\*, Rangaswamy Srinivasan, and James Wynne

IBM Thomas I. Watson Research Center

For the pioneering discovery of excimer laser ablative photodecomposition of human and animal tissue, laying the foundation for PRK and LASIK, laser refractive surgical techniques that have revolutionized vision enhancement.

# Raytheon BBN Technologies

Cambridge, Massachusetts

For sustained innovation through the engineering of first-of-a-kind, practical systems in acoustics, signal processing, and information technology.



\*Awarded Posthumously

