



THE WHITE HOUSE
PRESIDENT
GEORGE W. BUSH

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President Bush Presents Awards to 2005 and 2006 National Medal of Science and Technology Recipients

East Room

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THE PRESIDENT: Thank you all. Please be seated. Thank you. Good afternoon. Welcome to the White House. It's an honor to welcome some of our country's most gifted and accomplished citizens. I appreciate your work on behalf of our nation. I congratulate you on this achievement, and I look forward to presenting you the National Medals of Science and Technology.



I welcome your families and I welcome your friends. I also welcome the Secretary of State, Condoleezza Rice. Madam Secretary, thank you for joining us today. (Applause.) Secretary of Commerce, Carlos Gutierrez. Mr. Secretary. (Applause.) Dr. Jack Marburger, who is the Director of Office of Science and Technology Policy. Dr. Marburger. (Applause.) Dr. Arden Bement, Director of the National Science Foundation. Arden, thank you for coming. (Applause.) I welcome the representatives from the National Science Foundation who have joined us, members of the Board from the National Science and Technology Medals Foundation. Our awardees have got to be thanking you, as well. (Laughter.)

I thank Dr. Zerhouni, Director of the National Institute of Health. Thanks for coming, Doc. Dr. Bill Jeffrey, Director of the National Institute of Standards and Technology. Appreciate all the previous recipients of the National Medals of Science and Technology who have joined us. I thank the students from Benjamin Banneker Academic High School here in Washington, D.C. for being with us. I thank my friends, the Barretts, who are strong supporters of basic research and good science, for bringing future scientists and engineers to the White House in the hopes that this ceremony will inspire them and others to contribute to our country like our award winners have today.

From the earliest days, we have been a nation of innovators -- people who look at challenges, and find creative ways to adapt and improve. There's been some interesting examples of that attitude right here in the East Room. For example, Abigail Adams needed a place to hang her clothes, so she innovated and converted the East Room into a White House laundry room. Or Theodore Roosevelt used the East Room as a roller skating rink for his children. Gerald Ford's daughter, Susan, used this very room as the site of her high school prom, which was well attended, I might add. (Laughter.)

This afternoon, the East Room is home to innovators of a different kind -- some of our finest science and technology leaders. The men and women we salute have been recognized with countless honors, including the Nobel Prize. They have served as leaders of major research foundations, university presidents, directors of government agencies, and heads of academic departments. And now they add to their deep and remarkable

resumes the highest award a President can confer in their fields, the National Medals of Science and Technology. And I congratulate you.

The intellectual achievements of these men and women are momentous. In a single room, we have thinkers who helped formulate and refine the Big Bang theory of the universe, the "bootstrap re-sampling technique" of statistics, the algebraic K-theory of mathematics. I'm going to play like I understand what all that means. (Laughter.) We have experts in fields like organometallic chemistry, atomic physics, and neurobiology. We have researchers who have drilled into glaciers, isolated the DNA of mobile genes, and pioneered the distributed feedback laser. In other words, we've got some smart people here. (Laughter.) And we're glad you're Americans. (Applause.)

Each of our Laureates has deepened our understanding of the world, and many have directly changed our lives. Their discoveries have led to hopeful treatments for HIV/AIDS, new vaccines to prevent childhood illnesses, safer drinking water around the world. Innovations are responsible for the CD players in our homes, the guardrails on our highways, the stealth fighters in our Air Force. Their breakthroughs have helped make it possible for burn victims to heal with fewer scars, and older people to hear more clearly, businesses to e-mail documents around the world, and doctors to administer medicine without needles. That's a much welcome change for a lot of us.

Whatever their chosen field, the National Laureates in Science and Technology have brought great credit to themselves and this country. And you have the gratitude of the American people. And that's what we're here to tell you today.

The work of these Laureates demonstrates that innovation is vital to a better future for our country and the world. In America, the primary engine of innovation is the private sector. But government can help by encouraging the basic research that gives rise to promising new thought and products. So that's why I've worked with some in this room and around our country to develop and propose the American Competitiveness Initiative. Over ten years, this initiative will double the federal government's commitment to the most critical, basic research programs in physical sciences. Last year the Congress provided more than \$10 billion, and that's just a start. And I call on leaders of both political parties to fully fund this initiative for the good of the country.

Maintaining our global leadership also requires a first-class education system. There are many things that American schools are doing right -- including insisting on accountability for every single child. There are also some areas where we need to improve. And so as members work to reauthorize the No Child Left Behind Act, one of their top priorities has got to be to strengthen math and science education.

One way to do that is to create an "adjunct teachers corps" of math and science professionals all aiming to bring their expertise into American classrooms. It's not really what the aim is -- the aim is to make it clear to young Americans that being in science and engineering is okay; it's cool; it's a smart thing to do. And so for those of you who are involved with inspiring youngsters, thank you for what you're doing. I appreciate you encouraging the next generation to follow in your footsteps. And I ask that Congress fully fund the adjunct teacher corps, so you can have some help as you go out to inspire.

One of the many reasons that I am an optimistic fellow, and I am, is because I understand that this country is a nation of discovery and enterprise. And that spirit is really strong in America today. I found it interesting that one of today's Laureates, Dr. Leslie Geddes, is 86 years old and continues to teach and conduct research at Purdue University. Even more interesting is what he had to say. He said, "I wouldn't know what else to do. I'm not done yet." (Laughter.)

He's right. He's not done yet, because the promise of science and technology never runs out. With the imagination and determinations of Americans like our awardees today, our nation will continue to discover new possibilities and to develop new innovations, and build a better life for generations to come. And that's what we're here to celebrate.

So I thank you for your many contributions to our nation, congratulate you on your fine achievements. And now I ask the military aide to read the citations. (Applause.)

(The medals are presented as the citations are read.)

2005 National Medal of Science to Jan D. Achenbach, for his seminal contributions to engineering research and education in the area of wave propagation in solids and for pioneering the field of quantitative non-destructive evaluation.

2005 National Medal of Science to Ralph A. Alpher, for his unprecedented work in the areas of nucleosynthesis, for the prediction that universe expansion leaves behind background radiation, and for providing the model for the Big Bang theory.

2005 National Medal of Science to Gordon H. Bower, for his unparalleled contributions to cognitive and mathematical psychology, for his lucid analyses of remembering and reasoning, and for his important service to psychology and American science.

2005 National Medal of Science to Bradley Efron, for his contributions to theoretical and applied statistics, especially the bootstrap sampling technique; for his extraordinary geometric insight into nonlinear statistical problems; and for applications in medicine, physics, and astronomy.

2005 National Medal of Science to Anthony S. Fauci, for pioneering the understanding of the mechanisms whereby the human immune system is regulated, and for his work on dissecting the mechanisms of pathogenesis of human immunodeficiency virus (HIV) that has served as the underpinning for the current strategies for the treatment of HIV disease.

2005 National Medal of Science to Tobin J. Marks, for his pioneering research in the areas of homogeneous and heterogeneous catalysis, organo-f-element chemistry, new electronic and photonic materials, and diverse areas of coordination and solid state chemistry.

2005 National Medal of Science to Lonnie G. Thompson, for his pioneering research in paleoclimatology analyzing isotopic and chemical fingerprints found in tropical ice cores from the world's highest mountain glaciers and for his courage in collecting these disappearing climate archives that has transformed our understanding of the natural and anthropogenic factors influencing climate variability on our planet, past and present.

2005 National Medal of Science to Torsten N. Wiesel, for providing key insights into the operation of the visual system and for the discovery of the manner in which neural connections in the brain are made during the development and how they are maintained.

2006 National Medal of Science to Hyman Bass, for his fundamental contributions to pure mathematics, especially in the creation of algebraic K-theory, his profound influence on mathematics education, and his service to the mathematics research and education communities.

2006 National Medal of Science to Marvin H. Caruthers, for his work in developing robust methods for the chemical synthesis of DNA, which has enabled genetic engineering of new biopharmaceuticals, forensic "DNA fingerprinting," and the human genome project.

2006 National Medal of Science to Rita R. Colwell, for her in-depth research that has contributed to a greater understanding of the ecology, physiology, and evolution of marine microbes, most notably *Vibrio cholerae*, the causative agent of pandemic cholera, and which has elucidated critical links between environmental and human health.

2006 National Medal of Science to Peter B. Dervan, for his fundamental research contributions at the interface of organic chemistry and biology, and for his influence in education and industrial innovation.

2006 National Medal of Science to Nina V. Federoff, for her pioneering work on plant molecular biology, and for her being the first to clone and characterize maize transposons. She has contributed to education and public policy pertaining to recombinant DNA and genetic modification of plants.

2006 National Medal of Science to Daniel Kleppner, for his pioneering scientific studies of the interaction of atoms and light including Rydberg atoms, cavity quantum electrodynamics, quantum chaos; for developing techniques that opened the way to Bose Einstein Condensation in a gas; and for lucid explanations of physics to non-specialists and exemplary service to the scientific community.

2006 National Medal of Science to Robert S. Langer, for his revolutionary discoveries in the areas of polymeric controlled release systems and tissue engineering and synthesis of new materials that have led to new medical treatments that have profoundly affected the well being of mankind.

2006 National Medal of Science to Lubert Stryer, for his elucidation of the biochemical basis of signal amplification in vision and pioneering the development of high density micro-arrays for genetic analysis. His influential biochemistry textbook has influenced and inspired millions of students.

2005 National Medal of Technology to Alfred Y. Cho, for his contributions to the invention of the MBE technology and the development of the MBE technology into an advanced electronic and photonic devices production tool, with applications to cellular phones, CD players, and high-speed communications.

2005 National Medal of Technology to Dean L. Sicking, for his innovative design and development of roadside and race track safety technologies that safely dissipate the energy of high-speed crashes, helping prevent fatalities and injuries.

2005 National Medal of Technology to Ronald Eby, Velupillai Puvanesarajah, Dace Madore, and Maya Koster, for their work in the discovery, development and commercialization of Prevnar, the first-ever vaccine to prevent the deadly and disabling consequences of Streptococcus pneumoniae infections in children.

2005 National Medal of Technology to Genzyme Corporation, for pioneering dramatic improvements in the health of thousands of patients with rare diseases and harnessing the promise of biotechnology to develop innovative new therapies.

2005 National Medal of Technology to Semiconductor Research Corporation, for building the world's largest and most successful university research force to support the rapid growth and advance of the semiconductor industry; for proving the concept of collaborative research as the first high-tech research consortium; and for creating the concept and methodology that evolved into the International Technology Roadmap for Semiconductors.

2005 National Medal of Technology to Xerox Corporation, for over 50 years of innovation in marking, materials, electronics, communications, and software that created the modern reprographics, digital printing, and print-on-demand industries.

2006 National Medal of Technology to Leslie A. Geddes, for his contributions to electrode design and tissue restoration, which have led to the widespread use of a wide variety of clinical devices. His discoveries and inventions have saved and enriched thousands of lives and have formed the cornerstone of much of the modern implantable medical device field.

2006 National Medal of Technology to Paul G. Kaminski, for his contributions to national security through the development of advanced, unconventional imaging from space, and for developing and fielding advanced systems with greatly enhanced survivability. He has made a profound difference in the national security posture and the global leadership of the United States.

2006 National Medal of Technology to Herwig W. Kogelnik, for his pioneering contributions and leadership in the development of the technology of lasers, optoelectronics, integrated optics, and lightwave communication systems that have been instrumental in driving the growth of fiber optic transmission systems for our nation's communications infrastructure.

2006 National Medal of Technology to Charles M. Vest, for his visionary leadership in advancing America's technological workforce and capacity for innovation through revitalizing the national partnership among academia, government, and industry.

2006 National Medal of Technology to James E. West, for co-inventing the electret microphone in 1962. Ninety percent of the two billion microphones produced annually and used in everyday items such as telephones, hearing aids, camcorders, and multimedia computers employ electret technology.

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