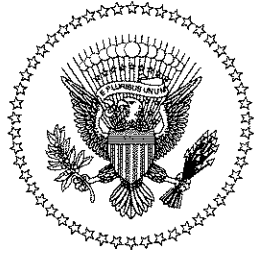




*The Presidential
Early Career Awards
for
Scientists and Engineers*

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JUNE 13, 2005

P E C A S E



THE WHITE HOUSE
WASHINGTON

April 13, 2005

Congratulations to the recipients of the 2004 Presidential Early Career Awards for Scientists and Engineers.

New discoveries and technologies are changing the way Americans live and work. Through dedicated research and development, scientists and engineers expand our knowledge and lay the foundation for the progress of our country's security and enhance the quality of life of our citizens

I appreciate the hard work and commitment to excellence of this year's PECASE honorees. Your efforts contribute to a bright future and embody the spirit of American innovation.

Laura and I send our best wishes on this special occasion.

A handwritten signature in black ink, appearing to read "George W. Bush". The signature is fluid and cursive, with a large initial "G" and a long, sweeping underline.

PRESIDENTIAL EARLY CAREER AWARDS FOR SCIENTISTS AND ENGINEERS

The Presidential Early Career Awards for Scientists and Engineers embodies the high priority placed by the government on maintaining the leadership position of the United States in science by producing outstanding scientists and engineers and nurturing their continued development.

The Presidential Awards are intended to recognize some of the finest scientists and engineers who, while early in their research careers, show exceptional potential for leadership at the frontiers of scientific knowledge during the twenty-first century. The Awards foster innovative and far-reaching developments in science and technology, increase awareness of careers in science and engineering, give recognition to the scientific missions of participating agencies, enhance connections between fundamental research and national goals, and highlight the importance of science and technology for the nation's future.

The participating agencies are:

*Department of Agriculture: Agricultural Research Service, Forest Service, and
Cooperative State Research, Education, and Extension Service*

*Department of Commerce: National Oceanic and Atmospheric Administration,
National Institute of Standards and Technology*

Department of Energy: Office of Science, Defense Programs

Department of Defense

Department of Health and Human Services: National Institutes of Health

Department of Veterans Affairs

National Aeronautics and Space Administration

National Science Foundation

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Agenda

PECASE Awards Ceremony

**Presidential Hall
Eisenhower Executive Office Building**

Welcome

Dr. John H. Marburger, III
Director
Office of Science and Technology Policy

Presentation of PECASE Certificates

June 13, 2005

Reception

**Room 350
Eisenhower Executive Office Building**

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2004 PECASE AWARD CITATIONS

Department of Agriculture

Edward S. Buckler, IV (USDA Agricultural Research Service)

For development and adaptation of novel gene mapping strategies that enable exploitation of the natural variation and diversity evolved over the history of a crop to enhance quality and yield, and for the effective and extensive transfer of these strategies to scientists in academia, government, and industry.

Devin G. Peterson (Pennsylvania State University)

For outstanding research in improving our understanding of how specific bioactive flavonoids alter the chemical pathways responsible for Maillard-type reactions important for flavor generation in food products and commodities, and for teaching and outreach to both the scientific and lay communities.

Michael K. Schwartz (USDA Forest Service)

For exemplary professionalism in the field of wildlife genetics and ecology and leadership in international collaborations to use novel statistical methods to analyze genetic data and develop natural resource management policies.

Department of Commerce

Daniel J. Cziczo (National Oceanic and Atmospheric Administration)
For pioneering research in climate studies that have made the first unambiguous identification of the atmospheric particle types that are effective "seeds" for cloud formation in the atmosphere, and for leadership in education outreach activities.

Michael J. Fasolka (National Institute of Standards and Technology)
For experimental and theoretical studies of nanostructured polymer films and investigations that further extend the power of next-generation scanned probe microscopy techniques with exquisitely designed structures, providing quantitative measures of chemical, mechanical, and opto-electronic nanoscale material properties, and for exceptional outreach activities.

Philip Roni (National Oceanic and Atmospheric Administration)
For national and international leadership as an authority on stream and watershed restoration, and for far-reaching initiatives in the field of restoration ecology.

Joel N. Ullom (National Institute of Standards and Technology)
For new insights into quasiparticle dynamics in superconductors and the physics governing noise in superconducting phase transitions, for development of improved superconducting sensors, and the first practical quantum solid-state refrigerator, and for exceptional outreach activities.

P E C A S E

Department of Defense

Ali Adibi (Georgia Institute of Technology)

For contributions to optical storage by exploring two-center holographic recording and to chip-scale all-optical information processing modules by exploring photonic waveguide crystals and related nanophotonic approaches, and for outstanding teaching.

Marija Drndic (University of Pennsylvania)

For contributions to understanding the physics and applications of broad ranging nanoscale electronic devices and materials and innovative studies of semiconductor nanocrystals for practical device applications, and for outstanding teaching and guest lectures to both domestic and international audiences.

David S. Ginger (University of Washington)

For ground-breaking work on Dip-Pen Nanolithography in the area of bio-inspired assembly which led to solving the vexing problem of how one lithographically patterns biomolecules on a surface to create a high density array with the speed of robotic manipulation, and for exceptional teaching and mentoring undergraduates in research in nanotechnology.

John C. Howell (University of Rochester)

For outstanding research accomplishments in atomic and optical physics, entangled photons, quantum information theory and experiments, ultra-low light level nonlinear optics, single photon detection, coherent atom-light interactions, quantum measurement theory, cloning, and fundamental tests of quantum mechanics, and for numerous guest lectures to both domestic and international audiences.

P E C A S E

Raadhakrisiinan Poovendran (University of Washington)

For outstanding research accomplishments in applied cryptography in resource-constrained wireless networks, groundbreaking work on entropy techniques for multiuser security, discovering novel distributed key generation algorithms, seminal work on cross-layer design techniques, developing defense against attacks using geometric random graphs, relating routing and security using complexity theory, and for outstanding teaching and graduate student mentoring.

Mark J. Schnitzer (Stanford University)

For innovative research on novel fiber-optic multiphoton endoscope techniques employing gradient refractive index fibers and micro-optic lenses to permit direct imaging capabilities of cellular activity in brain circuits of behaving animals.

P E C A S E

Department of Energy

John R. Arrington (Argonne National Laboratory)

For innovative research into the quark distributions of nuclei with exceptionally high quark momentum fractions, which has provided a compelling new look into the short-range structure of nuclei, and for showing science to the public through support of undergraduate research and Argonne National Laboratory's Open House Day.

William J. Ashmanskas (Fermi National Accelerator Laboratory)

For applying state-of-the-art digital electronics techniques to instrumentation and control systems at the Fermilab accelerator and the CDF detector, and for involving university physics students in accelerator instrumentation projects.

Wei Cai (Stanford University)

For the development of a computational theory of dislocation dynamics, which has been able to unify dislocation physics and crystal plasticity into a new computational discipline, for developing ways to deal with challenging multiscale problems, especially those with widely disparate time scales, and for the development of innovative tools to aid in teaching beginning students about atomistic simulations.

William P. King (Georgia Institute of Technology)

For work in nanoscale heat transfer and thermomechanical properties of materials at small length scales, which is critical to developments in non-proliferation, stockpile surety, and homeland defense, for collaborations with industry towards the commercialization of nanotechnology, and for excellent teaching of graduate and undergraduate students.

P E C A S E

Yunfeng Lu (Tulane University)

For his pioneering work in the synthesis of novel porous and composite nanoscale materials and their application to sensing and detection in support of the country's national security mission.

Hong Qin (Princeton Plasma Physics Laboratory)

For seminal contributions to the numerical and analytical studies of collective effects in high intensity charged particle beams and innovative development of gyrokinetic theory including high-frequency electro-magnetic effects in magnetically-confined plasmas, and for work with students in the laboratory's graduate and undergraduate educational programs.

Robert B. Ross (Argonne National Laboratory)

For pioneering work in the design of parallel file systems and high-performance interfaces for managing large datasets that is helping users worldwide to overcome the input/output bottleneck that has hampered performance on commercial parallel computers, and for work with students in Argonne's Summer Student Program and students at Northwestern, Pennsylvania State, and Clemson Universities.

Paul Vaska (Brookhaven National Laboratory)

For leadership and scientific innovation in the field of medical imaging physics, particularly the development of novel instrumentation and techniques to improve the capabilities of positron emission tomography in medicine, and for providing research opportunities and scientific mentorship to students at the high school, undergraduate, graduate, and postdoctoral levels.

Zhangbu Xu (Brookhaven Laboratory)

For pioneering scientific research and technical developments in the study of resonances, open charm and particle identified Cronin effect in relativistic heavy ion collisions, and for outstanding contribution to mentoring students from the United States and collaborating countries engaged in research at the Relativistic Heavy Ion Collider.

P E C A S E

*Department of Health and Human Services:
National Institutes of Health*

Luis R. Garcia (Texas A&M University)

For excellent studies of a particular gene in *C. elegans* that appears to be a homolog of a human gene associated with irregular heartbeat, and for the active recruitment of Hispanic students to work with him in his laboratory.

Catherine M. Gordon (Boston Children's Hospital)

For developing and testing a new therapy to prevent bone loss in adolescents with anorexia, and for sharing information about bone health with school children, local pediatric groups and hospitals, and encouraging young scientists in career day fairs for middle school children.

Joanna C. Jen (University of California, Los Angeles)

For studies using gene cloning and neuroimaging techniques to identify the genetic and functional basis of horizontal gaze palsy with progressive scoliosis that led to the identification of a candidate gene, and for trying to improve the identification of children with epilepsy to find ways to improve the lives of children with this disease.

Yuhong Jiang (Harvard University)

For the investigation of contextual cueing using complex visual stimuli to guide visual-spatial attention as it relates to the perceptual/cognitive vulnerabilities associated with dyslexia, autism, and schizophrenia, and for active outreach activities and teaching both graduate and undergraduate students about cognitive neuroscience.

Neil L. Kelleher (University of Illinois)

For developing custom instrumentation for analysis of the higher order structure of proteins and protein complexes, and for outstanding teaching.

P E C A S E

Tejvir S. Khurana (University of Pennsylvania)

For investigation of the effects of myostatin on muscle growth, mass and strength leading to a clinical trial on myostatin inhibitor in patients with muscular dystrophy, and for serving as the founding medical officer of a medical rescue service in the Himalayas and other community service.

Robin F. Krimm (University of Louisville)

For studies of the effect of neurotrophins on neurite targeting associated with taste bud development and associated work related to neural regeneration following injury or transplantation, and for teaching oral microanatomy to dental students and mentoring undergraduate and high school students.

Suneeta Krishnan (University of California, San Francisco)

For investigations of the links between gender and social inequalities and HIV transmission in India and work with schools of public health in India, and for establishing a network of community organizations concerned with HIV/AIDS and adolescent reproductive health.

Kenneth D. Mandl (Children's Hospital of Boston)

For work on surveillance in real time using geotemporal methods that can recognize patterns of disease in emergency room databases, and for promoting adolescent, maternal and child health both professionally and within the community.

Marisela Morales (National Institute on Drug Abuse)

For investigations of regional and cellular distribution of receptors, transcription factors, growth factors and structural proteins that may be involved in the biology of drugs of abuse, and for sharing knowledge of cellular mechanisms involved in drug abuse with her colleagues and service on the NIH diversity council.

P E C A S E

Teresa A. Nicolson (Oregon Health and Science University)

For investigations of hearing and the use of vestibular mutant zebra fish to identify genes required for sensory hair-cell function with implications for the diagnosis, management and treatment of deafness, and for conducting laboratory tours for Portland area high school students and advocacy for women in science.

Brenda A. Schulman (St. Jude Children's Research Hospital)

For analyses of the steps in the ubiquitin conjugation process, which controls cell division, signal transduction, embryonic development, endocytic trafficking and the immune response, and for service as a teacher at St. Jude's Children's Hospital and mentoring undergraduate and graduate students.

P E C A S E

Department of Veterans Affairs

William M. Grady (University of Washington)

For outstanding contributions to the understanding of the mechanisms of colon cancer formation, a major cause of cancer related deaths in VA patient population, and for commitment to improving health care for all cancer patients.

Kevin G. Volpp (University of Pennsylvania)

For contributions to the understanding of the interface between clinical medicine and economics by examining the effects of economic policies and health system design on quality of care and cost-quality tradeoffs, and for helping us understand the underlying causes of health disparities and how to develop effective interventions for these disparities.

P E C A S E

*National Aeronautics
and Space Administration*

David Alexander (Rice University)

For outstanding contributions on crucial and innovative research on solar flares, and for demonstrating unique skill in effectively communicating the results to the public.

Michael G. Bosilovich (National Aeronautics and Space Administration)

For exceptional leadership in the historical data analysis for Climate Change Science Program and the use of NASA models and observations to understand the Earth's water cycle, and for forming an interdisciplinary group of NASA scientists and outside international collaborators in the development and validation of the global surface energy and water budget.

P E C A S E

National Science Foundation

David V. Anderson (Georgia Institute of Technology)

For innovations in ultra-low power analog processing with digital computing, and for outreach and educational impact through new digital-analog design courses delivered over the Internet.

Paul H. Barber (Boston University)

For research on biological and oceanographic processes underlying the biodiversity of Pacific coral reefs, and for exemplary education programs for undergraduates from under-represented groups.

Michael A. Bevan (Texas A&M University)

For research on manipulating complex colloidal interactions to enable the formation of novel thermodynamic structures, and for developing visualization tools for outreach activities.

Derrick T. Brazill (City University of New York, Hunter College)

For significant contributions to understanding how cells sense their surroundings, and for incorporating his research into teaching and mentoring of minority students.

Frank L. Brown (University of California, Santa Barbara)

For development of novel techniques for the computer simulation of cellular membranes, and for his key role in the creation of a new Computational Science and Engineering Program designed to modernize the curriculum and introduce students to important new directions in cyberscience.

Marianella Casasola (Cornell University)

For work on the influences of children's language environments on their development of spatial concepts, and for mentoring and community activities.

P E C A S E

Elaine Chew (University of Southern California)

For research on performer-centered approaches to computer-assisted music making, and for efforts to integrate research and education at the intersection of music and engineering.

Martin L. Culpepper (Massachusetts Institute of Technology)

For research that will advance the understanding of nanoscale positioning and manipulating, and for mentoring activities including outreach to minority students.

Oscar D. Dubon, Jr. (University of California, Berkeley)

For research in the fundamental details of crystal growth utilizing the surfactant effect in hetero-epitaxial growth of silicon-germanium on crystalline calcium fluoride, and for activities that address interests of high school, community college, and university students.

Michael J. Garvin, II (Columbia University)

For the development of new ideas and tools to make better civil infrastructure decisions, and for activities involving continuing education workshops and middle school outreach efforts.

Sean Gavin (Wayne State University)

For theoretical work probing the dynamics of relativistic heavy-ion collisions, and for efforts to improve science training of pre-service teachers.

Jennifer A. Jay (University of California, Los Angeles)

For research addressing the public health threat of mercury contamination of food chains, and for outreach and mentoring activities involving women and minorities.

Jun Jiao (Portland State University)

For research leading to the fabrication of new single carbon nanotube emitters, and for educational activities involving undergraduate students and outreach to high school and K-12 students.

P E C A S E

Shaline Kishore (Lehigh University)

For innovative research on ubiquitous wireless access to communication networks, and for educational and outreach activities in Susquehanna County.

Wei Li (University of Washington)

In recognition for work involving an innovative fabrication process for hierarchically structured open cell porous polymeric materials, and for outreach to under-represented groups.

Donna L. Maney (Emory University)

For innovative research on influences of the natural environment on brain processes controlling behavior, and for developing science-intensive writing courses for students and training high-school teachers.

Daniel J. Mindiola (Indiana University)

For developing the chemistry of early-transition metal complexes containing metal-ligand multiple bonds to carbon, nitrogen and phosphorus, and for implementing a classroom concept-mapping assessment technique in chemistry.

Becky W. Packard (Mount Holyoke College)

For innovative research investigating factors that attract and retain low-income, mostly ethnic minority urban youth, into science and technology education and career paths, and for involving undergraduates in this research.

P E C A S E

Russell S. Schwartz (Carnegie-Mellon University)

For developing computational methods for simulating self-assembly systems in cells along with tools, and for curricula to train a new generation of computational biologists in modeling and predicting cell functions.

Cheng Xiang Zhai (University of Illinois, Urbana-Champaign)

For work on user-centered adaptive information retrieval that improves accuracy of search engines and text understanding, and for efforts in providing an excellent interdisciplinary training environment for students.

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