

Speaker Biographies

Dr. Mohamed Abdou, CEREL President, Distinguished Professor and Director, Center for Energy Science and Technology, University of California, Los Angeles

Mohamed Abdou is a Distinguished Professor of Engineering and Applied Science at University of California, Los Angeles (UCLA). He is also the Director of The Center for Energy Science and Technology (CESTAR) and the Director of the Fusion Science and Technology Center at UCLA. He currently serves as the President of CEREL. He received his PhD in nuclear engineering from the University of Wisconsin and worked as Department Head at Argonne National Laboratory and Professor at Georgia Institute of Technology prior to joining UCLA.

Prof. Abdou is one of the world's most recognized leaders of fusion science and technology. He has published >350 scholarly journal papers on creative designs of fusion experimental facilities and power plants, development pathways, and on experiment, modelling, and analysis for neutronics, tritium transport, MHD thermofluids, thermomechanics and materials. Prof. Abdou is the Chair of the International Standing Committee for Fusion Nuclear Science and Technology (FNST) and he promotes and leads many collaborative activities among the US, Japan, Europe, Russia, China and Korea. He leads the US program on FNST and the Blanket Testing Program for ITER – an international fusion project under construction in France.

Prof. Abdou won many honors and recognition for his pioneering technical contributions and leadership in nuclear and fusion science and engineering in the US and internationally. These include the American Nuclear Society Outstanding Achievement Award, Secretary of Energy Distinguished Associate Award, and Fusion Power Associates leadership award. He is a fellow of the American Nuclear Society and "Einstein Professor" of the Chinese Academy of Science.

Dr. William F. Brinkman, Director of the Office of Science, Department of Energy

Dr. William F. Brinkman was confirmed by the Senate on June 19, 2009 and sworn in on June 30, 2009 as the Director of the Office of Science in the U.S. Department of Energy. He joins the Office of Science at a crucial point in the Nation's history as the country strives toward energy security – a key mission area of the Department of Energy. Dr. Brinkman said during his confirmation hearing that he looked forward to working "tirelessly to advance the revolution in energy technologies, to understand nuclear technologies and to continue basic research in the 21st century."

Dr. Brinkman brings decades of experience in managing scientific research in government, academia, and the private sector to the post. He leaves a position as Senior Research Physicist in the Physics Department at Princeton University where he played an important role in organizing and guiding the physics department's condensed matter group for the past eight years.

He joined Bell Laboratories in 1966 and, after a brief sojourn as the Vice President of Research at DOE's Sandia National Laboratories, where he oversaw the expansion of its computer science efforts. Dr. Brinkman returned to Bell Laboratories in 1987 to become the executive director of its physics research division. He advanced to the Vice President of Research in Bell Laboratories in 2000, where he directed research to enable the advancement of the technology underlying Lucent Technologies' products. Brinkman led a research organization that developed many of the components and systems used in communications today, including advanced optical and wireless technologies.

He was born in Washington, Missouri and received his BS and Ph.D. in Physics from the University of Missouri in 1960 and 1965, respectively. Since this time, he has served as a leader of the physics community. He has spent one year as a National Science Foundation postdoctoral fellow at Oxford University. He has served as president of the American Physical Society and on a number of national committees, including chairmanship of the National Academy of Sciences Physics Survey and their Solid-State Sciences Committee. He is a member of the American Philosophical Society, National Academy of Sciences, and the American Academy of Arts and Sciences.

He has worked on theories of condensed matter and his early work also involved the theory of spin fluctuations in metals and other highly correlated Fermi liquids. This work resulted in a new approach to highly correlated liquids in terms of almost localized liquids. The explanation of the superfluid phases of one of the isotopes of helium and many properties of these exotic states of matter was a major contribution in the middle seventies. The theoretical explanation of the existence of electron-hole liquids in semiconductors was another important contribution of Brinkman and his colleagues in this period. Subsequent theoretical work on liquid crystals and incommensurate systems are additional important contributions to the theoretical understanding of condensed matter.

In FY 2009, the Office of Science received \$4.758 billion in appropriations with an additional \$1.6 billion from American Recovery and Reinvestment Act. With these funds, the Office of Science is the single largest supporter of basic research in the physical sciences in the United States, providing more than 40 percent of total funding for this vital area of national importance. It oversees – and is the principal federal funding agency of – the Nation’s research programs in high-energy physics, nuclear physics, and fusion energy sciences. In addition, the Office of Science manages fundamental research programs in basic energy sciences, biological and environmental sciences, and computational science. In addition, the Office of Science is the Federal Government’s largest single funder of materials and chemical sciences, and it supports unique and vital parts of U.S. research in climate change, geophysics, genomics, life sciences, and science education.

Andrea Burgess, Senior Legislative Assistant, Office of Representative Rush Holt (D-NJ)

Andrea Burgess serves as the Senior Legislative Assistant for Representative Rush Holt (D-NJ). Her legislative areas include Energy, Environment, Transportation and Taxes. Andrea’s responsibilities include writing speeches and floor statements, briefing the member before hearings and votes, advising the member on issues that are important to New Jersey’s 12th district, drafting legislation and legislative letters, and meeting with constituents and lobbyists on behalf of the member. Andrea also staffs the Congressman on the Natural Resources Committee, where he serves on the Subcommittee on National Parks, Forests, and Public Lands and Subcommittee on Energy and Minerals. Prior to working for Representative Holt, Andrea worked as a Legislative Aide for Representative Ellen Tauscher (D-CA) where she handled issues relating to Agriculture, Resources, Animals, Judiciary, Election Reform, Women and Arts issues. She also served Representative Tauscher as a Legislative Correspondent, Staff Assistant and Intern. Andrea has a degree in Political Science from Lewis and Clark College in Portland, OR. She has also taken courses in Civil Military Relations and Ideology and Legitimacy at the National Defense University.

John Byrne, Director, Center for Energy and Environmental Policy, University of Delaware

John Byrne is Director of the Center for Energy and Environmental Policy (CEEP) and Distinguished Professor of Energy and Climate Policy at the University of Delaware. He has contributed to Working Group III of the United Nations-sponsored Intergovernmental Panel on Climate Change (IPCC) since 1992 and

shares the 2007 Nobel Peace Prize. He is co-founder and co-executive director of the Joint Institute for a Sustainable Energy and Environmental Future, an innovative research and policy advocacy organization headquartered in South Korea with the mission of promoting sustainable policy options in East Asia. He is also a founding member of and served as the first research chair for the *International Solar Cities Initiative* – a pioneering program to assist cities around the world in building sustainable futures. He presently co-chairs the Sustainable Energy Utility Oversight Board, created by the Delaware General Assembly, and is the architect of this innovative concept for the promotion of energy efficiency, conservation, and distributed renewable energy generation.

Dr. Byrne created the first graduate degrees in the United States in the combined area of energy and environmental policy and a recent external review conducted by a committee of internationally respected scholars rated the CEEP graduate program to be among the three best in the field. Dr. Byrne has been recognized by the Chinese government for his expertise in environmental and energy policy and his name appears on China's foreign expert registry. He was appointed and continues to serve as Policy Advisor to the Environmental Forum of the Korea National Assembly (the only non-Korean to serve in this capacity) and he has held advisory appointments with China's State Environmental Protection Agency, the Chinese Academy of Sciences, The Energy and Resources Institute (TERI in India) and the Korea Energy Economics Institute, among others.

Dr. Byrne is editor of the annual book series *Energy and Environmental Policy*, published by Transaction Books. His recent books for the series include: *Energy and Environment: The Policy Challenge*, which addresses the global warming debate; *Environmental Justice*, which examines international linkages between social and environmental inequality; and *Transforming Power*, which explores the prospects for, and social and environmental (especially carbon) implications of, significant changes in the world energy system.

Dr. Altaf Carim, Program Manager, Office of Basic Energy Sciences, Department of Energy

Dr. Altaf H. (Tof) Carim serves as a DOE program manager in the Office of Basic Energy Sciences (BES) of the Office of Science, U.S. Department of Energy (DOE). He leads the team managing the portfolio of Energy Frontier Research Centers, major collaborative efforts spanning a wide range of energy research and addressing the underpinning fundamental science grand challenges. He also has responsibilities for five Nanoscale Science Research Center user facilities and three Electron Beam MicroCharacterization user facilities, and coordinates DOE and interagency activities in nanotechnology.

Dr. Carim entered Federal service at DOE/BES in September 2001. Prior to joining the Scientific User Facilities Division in October 2005, he was a program manager in the Materials Sciences and Engineering Division with primary responsibility for activities in the structure and composition of materials. Before joining DOE, Dr. Carim was on the faculty at The Pennsylvania State University (Penn State) in the Department of Materials Science and Engineering and as Chair of the Electronic and Photonic Materials Program. He previously was a faculty member at the University of New Mexico, and had prior research posts and activities at the Philips Natuurkundig Laboratorium in The Netherlands, Philips Research Laboratories Sunnyvale, Bell Laboratories, and the Xerox Palo Alto Research Center, and a sabbatical at the Geophysical Laboratory of the Carnegie Institution of Washington.

Dr. Carim's primary scientific expertise is in microstructural and microchemical characterization of materials, with research contributions in a variety of areas including semiconductor interfaces, superconducting and ferroelectric oxide thin films and ceramics, crystal structure determination, crystalline defects, joining of ceramics and composites, development of anisotropic microstructures, electron holography, and morphology of nanoparticles and nanowires. He has authored or coauthored over 85 research publications in these areas and has given over 100 conference, seminar, and other presentations.

He has been active in numerous professional societies, organized technical meetings and symposia, and held editorial roles with several journals. His awards and honors include recognition as an Office of Naval Research Young Investigator, receipt of an AIST Foreign Researcher Invitation to lecture in Japan, and participation in the project teams recognized with several of the Secretary of Energy's Project Management Excellence Awards.

Dr. Paul Falkowski, Director, Rutgers Energy Institute, Rutgers University

Paul G. Falkowski is the Board of Governors Professor in the Institute of Marine and Coastal Sciences and the Department of Earth and Planetary Sciences at Rutgers University and is the founding director of the Rutgers Energy Institute (www.rei.rutgers.edu). Falkowski earned his B.S. and M.Sc. degrees from the City College of the City University of New York and his Ph.D. from the University of British Columbia. He joined Brookhaven National Laboratory 1976 as a scientist in the newly formed Oceanographic Sciences Division and served as head of the division from 1986 to 1991. From 1991 to 1995 he was Deputy Chair in the Department of Applied Science, responsible for the development and oversight of all environmental science programs. He moved to Rutgers University in 1998 and his research efforts are directed towards understanding the co-evolution of biological and physical systems. He is a member of the American Academy of Arts and Sciences and the National Academy of Sciences is an advisor to the National Science Foundation and NASA. He lives in Princeton, NJ with his wife and two daughters.

Joshua Freed, Director, Clean Energy Initiative, Third Way

Joshua Freed directs the Clean Energy Initiative at Third Way. He focuses on the policies and strategies needed to bring about clean energy reform and to address climate change. Prior to joining Third Way, Mr. Freed served for more than a decade as a political strategist for national, federal and local campaigns and was a senior staffer on Capitol Hill. Most recently, he was a Vice President at GMMB, where he was part of the media team for Obama for America and advised the senior leadership of the Bill & Melinda Gates Foundation. Mr. Freed also was the communications director for the Obama Colorado caucus campaign and advised the Obama for Colorado campaign in the general election. Previously, Mr. Freed ran the Washington, D.C. office and served as the chief policy advisor for Representative Rob Andrews, and was Deputy Chief of Staff for Representative Diana DeGette, a member of the House Energy and Commerce Committee. Mr. Freed graduated from Brandeis University and received a Master's Degree from the University of Maryland-College Park. He has been featured in the media including *National Journal*, *Politico*, *The Los Angeles Times*, *Denver Post*, *Market Watch* and *Fox Business News*.

Christopher King, Staff Director, Subcommittee on Energy and Environment, House Committee on Science and Technology

Chris joined the Committee in 2002 as Professional Staff. In 2009 he was promoted to Staff Director for the Energy and Environment Subcommittee. Chris handles a wide range of legislative and oversight issues within the areas of the Department of Energy's R&D management and general energy technology and innovation. He has been responsible for managing a number of the Committee's legislative priorities in the Energy Policy Act of 2005, the Energy Independence and Security Act of 2007, the America COMPETES Act, and the American Recovery and Reinvestment Act. Prior to joining the Committee, Chris

worked in the Texas State Legislature for the Legislative Study Group, where his responsibilities included energy, environment, worker's compensation, and consumer protection policy. He holds a B.A. in Political Science from the University of Texas at Austin.

Dr. Klaus Lackner, Director, Lenfest Center for Sustainable Energy, Columbia University

Klaus Lackner's scientific career started early and in the phenomenology of weakly interacting particles. While searching for quarks, he and George Zweig developed the chemistry of atoms with fractional nuclear charge. He participated in matter searches for particles with a non-integer charge in an experiment conducted at Stanford by Martin Perl and his group. After joining Los Alamos National Laboratory (LANL) in 1983, Lackner became involved in hydrodynamic work and fusion-related research. He was a scientist in the Theoretical Division, but also an active part of the Laboratory's upper management. He held several positions in this tier, including acting associate laboratory director for strategic and supporting research, a position which represents roughly a third of LANL's sizeable staff. In recent years, Lackner has published on the behavior of high explosives, novel approaches to inertial confinement fusion and numerical algorithms.

Lackner joined the faculty of Columbia University in 2001 and is now the Ewing-Worzel Professor of Geophysics in the Department of Earth and Environmental Engineering. He directs the Earth Institute's Lenfest Center for Sustainable Energy and is a member of the Earth Institute Faculty. Lackner earned his degrees from Heidelberg University, Germany: the Vordiplom, (equivalent to a B.S.) in 1975; the Diplom (or M.S.) in 1976; and his Ph.D. in theoretical particle physics, summa cum laude, in 1978. He was awarded the Clemm-Haas Prize for his outstanding Ph.D. thesis at Heidelberg University. Lackner held postdoctoral positions at the California Institute of Technology and the Stanford Linear Accelerator Center before beginning his professional career, and he attended Cold Spring Harbor Summer School for Computational Neuroscience in 1985.

Bradley K. Rein, PE, Director - Processing, Engineering Technology, National Institute of Food and Agriculture, US Department of Food and Agriculture

Brad Rein supervises the Processing, Engineering and Technology Section. The Processing Engineering and Technology Section oversee extramural research and extension programs that: develop bio-based products and bio-energy; apply engineering and technology to agricultural production, storage and processing; and address food safety and health issues associated with agriculture. Brad coordinates the NIFA team in implementing the Biomass Research and Development Initiative funding opportunity. Prior to becoming the Section Director, Brad provided NIFA National Program Leadership to agricultural engineering programs.

Brad is a registered professional engineer. He received his bachelor and master degrees in Agricultural Engineering from the University of Nebraska. As a research engineer at the University of Nebraska Brad conducted research in ethanol fermentation and was site engineer for the construction of the Energy Integrated Farm System. Prior to his appointment at USDA, Brad was an Extension Engineering Energy Specialist at the University of Arizona.

Dr. Adam Rosenberg, Subcommittee on Energy and Environment, House Committee on Science and Technology

Adam Rosenberg joined the House Committee on Science and Technology in May 2007, and serves as professional staff on the Energy and Environment Subcommittee. He holds a B.S. in applied & engineering physics from Cornell University and a Ph.D. in plasma physics from Princeton University, where he studied magnetohydrodynamic instabilities and interactions between radio frequency waves and energetic ions in a large magnetic fusion experiment at the Princeton Plasma Physics Laboratory. While an undergraduate, he also completed internships at Argonne National Laboratory and Lawrence Livermore National Laboratory. From mid-2003 through 2004, Dr. Rosenberg was an American Physical Society Congressional Fellow on the Democratic staff of the Senate Energy and Natural Resources Committee, where he worked on improving the direction for advanced scientific computing research, support for the physical sciences, overall U.S. competitiveness in high technology industries, the Department of Commerce's Advanced Technology Program, and a variety of other issues. Before joining the Science and Technology Committee, he was most recently a Program Manager in the Department of Energy Office of Science's Fusion Energy Sciences Program, where he directly oversaw a major research facility at the Massachusetts Institute of Technology as well as several other research activities across the nation.

Thomas Sarkus, Deputy Director, Office of Major Demonstrations, National Energy Technology Laboratory, Department of Energy

Tom Sarkus has 31 years of technical and managerial experience, including 24 years in project management at the U.S. Department of Energy's (U.S. DOE's) National Energy Technology Laboratory (NETL). Tom is currently the Deputy Director in NETL's Office of Major Demonstrations, where he provides expert consultation to major DOE-funded clean coal and carbon sequestration technology demonstration projects. Mr. Sarkus has worked on a variety of coal preparation, flue gas cleanup (e.g., SO₂, NO_x, Hg control) and advanced power generation (e.g., CFB, IGCC) technologies. Clean Coal projects managed under his purview have garnered national and international recognition, including the National Society of Professional Engineers' Outstanding Engineering Achievement award, the R&D 100 Award, and *Power's* annual Powerplant award (several times). Tom has hosted over 20 technical conferences focusing on unburned carbon in fly ash, SO₃, reburning technology, and selective catalytic & non-catalytic reduction technologies for NO_x control. A native of Donora, Pennsylvania, his efforts have contributed to the capture or avoidance of millions of tons of air pollutant emissions. Mr. Sarkus holds degrees in chemistry, geology, earth science and law.

Toby Smith, Associate Vice President for Federal Relations, Association of American Universities

Tobin (Toby) Smith is the Associate Vice President for Federal Relations at the Association of American Universities (AAU). In this position, he is responsible for overseeing physical sciences and engineering research and has closely monitored budgets and programs at the National Science Foundation, Department of Energy, Department of Defense and Department of Homeland Security. Toby is currently responsible at the AAU for physical sciences and engineering policy and funding, and for matters relating to innovation and competitiveness. He has primary responsibility for issues related to the Department of Energy and shares responsibility for matters concerning export controls, openness and security, technology transfer and research costs.

Prior to joining the AAU in January 2003, Toby was the Director of Federal Relations for Research for the University of Michigan. From 1992-1999 he served as Federal Relations Representative and Assistant Director of the Massachusetts Institute of Technology (MIT) Washington D.C. Office. As a federal government relations representative for the AAU, Michigan, and MIT, Toby has developed and coordinated university federal relations activities and legislative and executive branch strategies across a wide range of science policy issues. He has also maintained regular interactions with key policy makers on Capitol Hill, in the White House and within the federal science and research agencies including the NIH, NSF, NASA, and the Departments of Energy, Defense and Homeland Security. From 1988 to 1992, Toby served as a legislative assistant to Congressman Bob Traxler (D-Michigan).

Toby has written and spoken widely on issues of science policy. He is a regular contributor to the AAAS Intersociety Working Group Annual Research and Development report. He has also spoken to many groups, including the AAAS and various chapters of the Association of Women in Science (AWIS), concerning how scientists and engineers can better work with and communicate with member of Congress. He holds a Masters Degree in Arts of Legislative Affairs from George Washington University, and a Bachelor Degree in General Studies from the University of Michigan.