

PUBLIC POLICY
AND
NUCLEAR THREATS

TRAINING THE NEXT GENERATION

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About the Speakers

Eli Berman is associate professor of economics at UC San Diego and affiliated faculty of the School of International Relations and Pacific Studies. He is also currently research director for international security studies at the UC Institute on Global Conflict and Cooperation. His research interests include labor economics, the economics of religion, labor markets and technological change, economic demography, applied econometrics, economic growth and development, and environmental economics. His work on the economics of Ultra-Orthodox Jewish communities was published in the *Quarterly Journal of Economics* in 2000. Recent grants from the National Science Foundation (2002 and 2005) have enabled Berman to look closely at relationships between religion and fertility from an economic standpoint. His latest publications include, "Religious Extremism: The Good, the Bad, and the Deadly" (with Laurence R. Iannaccone) in *Public Choice* (2006), and "The Economics of Religion," in the *New Palgrave Encyclopedia of Economics* (with Laurence R. Iannaccone, forthcoming). Berman received his Ph.D. in economics from Harvard University in 1993. He was a National Bureau of Economic Research Sloan Fellow in 1999, was promoted to associate professor (with tenure) at Boston University in 2000, and held the Mitchell Chair in Sustainable Development at Rice University before joining UC San Diego.

Adam Bernstein is group leader for the Advanced Detectors Group in the Physics and Advanced Technologies Directorate at Lawrence Livermore National Laboratory (LLNL). At LLNL, and earlier at Sandia National Laboratories, he has developed novel methods for cooperative monitoring and tracking of nuclear materials and nuclear fuel cycle facilities, including "car-wash" detector systems to detect hidden nuclear material in containerized cargo, and cubic-meter-scale antineutrino detectors for real-time monitoring of power levels and plutonium content in nuclear reactors. He has also worked on nonproliferation policy as a consultant to the Union of Concerned Scientists and as a post-doctoral fellow at the Center for Nonproliferation Studies, Monterey Institute of International Studies. Bernstein received his Ph.D. in experimental high energy physics from Columbia University.

Harold Brown, former Secretary of Defense under President Jimmy Carter, has had a long and distinguished career of public and academic service. Brown graduated from Columbia University with an A.B. degree in 1945, A.M. degree in 1946, and Ph.D. in physics in 1949. He has received 12 honorary degrees. Brown has lectured in physics at Columbia University, Stevens Institute of Technology, and the University of California (1947-1952); was group leader, division leader, and later, director of the Radiation La-

boratory at Livermore, University of California (1952-1961). He was a member of the Polaris Steering Committee (1956-1958), a member of the Air Force Scientific Advisory Board (1956-1961), and consultant to, and then member of, the President's Science Advisory Committee (1958-1961). He was senior science adviser at the Conference on the Discontinuance of Nuclear Tests (1958-1959) and a delegate to the Strategic Arms Limitations Talks in Helsinki, Vienna, and Geneva (1969-1977). Previously, Brown served as director of defense research and engineering (1961-1965); secretary of the U.S. Air Force (1965-1969), and president of the California Institute of Technology (1969-1977).

From 1984 to 1992, Brown was chairman of the Foreign Policy Institute of the Johns Hopkins University School of Advanced International Studies, and from 1981 to 1984, he was distinguished visiting professor there. In 1992 he joined the Center for Strategic and International Studies as counselor. He is a trustee of the California Institute of Technology, RAND, the Trilateral Commission (North America), and CSIS.

Among his many honors, Dr. Brown was awarded the Presidential Medal of Freedom in 1981 and the Fermi Award in 1993. He is the author of *Thinking About National Security: Defense and Foreign Policy in a Dangerous World* (1983) and editor of *The Strategic Defense Initiative: Shield or Snare?* (1987).

Robert L. Brown is a Ph.D. candidate in political science at UC San Diego. His dissertation examines why countries use international organizations to cooperate on nonproliferation goals for nuclear proliferation and chemical weapons disarmament but not for threats related to chemical weapons. His research interests more broadly include international relations theory, international organizations, international security issues, nuclear deterrence, and sovereignty issues. He has a M.A. in International Affairs from the George Washington University's Elliott School, where his studies focused on security regimes in Northeast and Southeast Asia, and a B.A. in Political Science with a minor in Japanese Studies from the University of California, where his studies focused on Northeast Asian political economy and development.

Tai Ming Cheung is a research fellow and research coordinator at IGCC. His responsibilities include managing the institute's track two program the Northeast Asia Cooperation Dialogue (NEACD), which brings together senior foreign ministry and defense officials as well as academics from the United States, China, Japan, South Korea, North Korea, and Russia for informed discussions on regional security issues. He also teaches at the School of International Relations and Pacific Studies (IR/PS) at UC San Diego. Cheung is a long-time analyst of Chinese defense and national security affairs. He was based in Asia from the mid-1980s to 2002 covering political, economic and strategic developments in greater China. He was also a journalist and political and business risk consultant in northeast Asia. He received his Ph.D. from the War Studies Department at King's College, London University, in 2006.

Daniel H. Chivers is a Ph.D. candidate in the Nuclear Engineering Department at UC Berkeley and holds dual B.S. degrees in electrical and nuclear engineering, also from UC Berkeley. His dissertation research involves increasing detection sensitivity for gamma-ray imaging systems for use in homeland security and nuclear materials accountancy programs. Before entering Berkeley, Chivers served for six years in the U.S. Navy as a nuclear reactor operator and spent several years in the embedded systems industry

as a software engineer. During his naval service, he served as a staff instructor at the INEL S5G prototype reactor and as reactor controls leading petty officer on the USS Arkansas. His tenure on the Arkansas culminated in 1996 with a Naval Achievement Medal for actions performed during Operation Desert Strike.

As an NSF PPNT Fellow, Chivers has taken part in many projects integrating nuclear technology and national security policy, where his focus has been on the implementation of nuclear forensics as a tool for the prevention nuclear terrorism. Currently interning at the Domestic Nuclear Detection Office (DNDO) within the Department of Homeland Security, Chivers is developing strategic policy for transformational research and development.

Jill Cooley is director of the Division of Concepts and Planning in the International Atomic Energy Agency's Department of Safeguards responsible for the development, design, and standardization of safeguards concepts, approaches, procedures, and training including strategic planning. Ms. Cooley has more than twenty-five years of experience with international safeguards, particularly in the development of safeguards for uranium enrichment plants and the use of environmental sampling as a safeguards verification tool. She has been with the IAEA for twelve years and is currently working with Member States to identify measures to further strengthen the safeguards system. Previous to her current position with the IAEA, Cooley was manager of the Safeguards Program of Lockheed Martin Energy Systems in Oak Ridge, Tennessee. Cooley has an M.S. in nuclear engineering from the University of Wisconsin.

Monti Narayan Datta is a Ph.D. candidate in political science at UC Davis. His dissertation focuses upon the extent to which global attitudes toward the United States (i.e., cross-national variation in pro/anti-American sentiment) is deleterious toward the U.S. national interest. From 2004 to 2006, Datta was an IGERT fellow with "Public Policy and Nuclear Threats: Training the Next Generation." He vividly recalls his PPNT "boot camp" experience back in the summer of 2004 as instrumental in helping shape his understanding of nuclear weapons nonproliferation policy. Currently, Datta is writing a paper with two other PPNT alumni (Jamus Lim and Lisa Saum-Manning) on revisiting models of Cold War deterrence in engaging the North Korea nuclear threat. Datta holds a bachelor's degree in English Literature from UC Berkeley, and a Master of Public Policy degree from Georgetown University. His most recent publication, co-authored with Miroslav Nincic, is "Of Paradise, Power and Pachyderms," *Political Science Quarterly* (summer 2007).

Sidney Drell is a professor of physics and deputy director emeritus at Stanford University's Linear Accelerator Center, and a senior fellow at the Hoover Institution. For many years he has been an adviser to the U.S. government on technical national security and arms control issues, including membership on the President's Foreign Intelligence Advisory Board. He is the co-author, with James Goodby, of *The Gravest Danger: Nuclear Weapons* (Hoover Institution Press, 2003) and author of *Nuclear Weapons, Scientists, and the Post-Cold War Challenge: Selected Papers in Arms Control* (World Scientific Press, 2007).

Jay Fahlen is Ph.D. student at UCLA and a member of the first cohort of IGCC's Public Policy and Nuclear Threats Fellows. His research interests include computer simulations of laser-plasma interactions in conditions similar to those to be achieved by the National Ignition Facility at Lawrence Livermore National Lab. Fahlen spent the summer of 2005 at the Center for Global Security Research, a nonproliferation group at LLNL, producing a report on the nuclear fuel cycle and its weapons latency. He also coauthored with two other fellows a paper proposing a novel reactor for a potential future reactor deal North Korea.

Robin Frost is an intelligence analyst with the Canadian government. He is the author of Nuclear Terrorism after 9/11 (Adelphi Paper #378, December 2005) as well as a number of other publications and conference presentations on nuclear terrorism and nuclear strategy. Before taking his present role he worked variously as an academic, a radio, print and industrial journalist, a technical writer and editor, a training officer, a bus driver, and a scuba instructor. He holds an M.A. in political science, specializing in international relations and strategic studies, and has also done post-graduate work in clinical psychology and human resources management. His undergraduate degree was in journalism and psychology.

Neil Joeck is a senior fellow at the Center for Global Security Research (CGSR) at the Lawrence Livermore National Laboratory (LLNL) and an adjunct professor of political science at UC Berkeley. He served from 2004 to 2005 as director for counterproliferation strategy at the National Security Council and from 2001 to 2003 as a member of the Department of State's Policy Planning Staff, where he received a Meritorious Honor Award. Joeck worked on India and Pakistan as a political analyst and group leader in Z Division at LLNL from 1987 to 2001. During that time, he took leave as a research fellow at the International Institute for Strategic Studies in London (1996-1997). He served in 1999 as consultant to the Commission to Assess the Organization of the Federal Government to Combat the Proliferation of Weapons of Mass Destruction, and worked for the RAND Corporation under contract with the Department of Defense Office of Net Assessments in 2000.

Joeck received a Ph.D. and M.A. in political science from UCLA (1986), an M.A. from the Paterson School of International Affairs at Carleton University in Canada (1976), and a B.A. from UC Santa Cruz (1973). In addition to classified reports for the U.S. government, his publications include Maintaining Nuclear Stability in South Asia, Adelphi Paper #312 (Oxford University Press, 1997) and two edited books: Arms Control and International Security (with Roman Kolkowicz, Westview Press, 1984) and Strategic Consequences of Nuclear Proliferation in South Asia (Frank Cass, 1986). He has contributed articles to Comparative Strategy, Journal of Strategic Studies, International Herald Tribune, Los Angeles Times, Energy and Technology Review and various chapters to edited books.

Kent Johnson was the chief of staff for Lawrence Livermore National Laboratory's Defense and Nuclear Technologies directorate, the organization responsible for the nuclear weapons program at Livermore, from 1997 to 2005. In this position, he coordinated activities of program managers, worked with the associate director on strategic planning and communications, and managed weapons program reviews with the University of California. In the past he has managed LLNL's advanced weapons concepts group, and served as both group leader and deputy division leader in the systems analysis and weapons effects

program. He was the program manager for the W87/Peacekeeper nuclear warhead program during part of its development, and earlier worked as a design physicist in the thermonuclear design division. During two Washington assignments, he helped to develop the framework and implementation plans for the U.S. Stockpile Stewardship Program.

Johnson graduated magna cum laude from Lehigh University with a degree in engineering physics. He was awarded a Woodrow Wilson Fellowship and a NASA Fellowship, and received a Ph.D. in physics from Cornell University. He is now retired, continuing to support weapons program activities at LLNL on a part-time basis. He is a member of the Annual Assessment Red Team, and is the lab's representative to the Technical Evaluation Panel, an advisory group for DoE's Office of Classification.

S. Paul Kapur is an associate professor in the Department of Strategic Research at the U.S. Naval War College and a visiting professor at Stanford University's Center for International Security and Cooperation. His research interests include deterrence theory, nuclear weapons proliferation, ethno-religious violence, and the international security environment in South Asia. Kapur's recent publications include *Dangerous Deterrent: Nuclear Weapons Proliferation and Conflict in South Asia* (Stanford University Press 2007); and "India and Pakistan's Unstable Peace: Why Nuclear South Asia is Not Like Cold War Europe," *International Security* (fall 2005). He holds a Ph.D. in political science from the University of Chicago.

Kerry Kartchner is senior strategic planner in the Office of Strategic Planning and Outreach, Bureau of International Security and Nonproliferation, U.S. Department of State. He recently completed a two-year detail to the Advanced Systems and Concepts Office of the Defense Threat Reduction Agency, where he was chief of the Division of Strategy and Policy Studies. Prior to that assignment, he was senior advisor for missile defense policy in the Bureau of Arms Control, U.S. Department of State. His current duties include advanced planning and outreach initiatives on policies related to deterrence, weapons of mass destruction, strategic arms control, and nonproliferation.

Kartchner has more than twenty years' experience in the field of national security affairs, with particular emphasis on nuclear weapons policy and arms control. Prior to his current assignment, he served as the senior State Department representative to the Standing Consultative Commission (for the ABM treaty), and to the Joint Compliance and Inspection Commission (for the START treaty). While serving as senior State Department representative to the Joint Compliance and Inspection Commission, he was chairman and chief U.S. spokesman for the Inspection Protocol Working Group and the Space Launch Issues Working Group.

Kartchner has been the recipient of a Meritorious Honor Award (1999) and a Hubert H. Humphrey Arms Control Fellowship (1989), both from the Arms Control and Disarmament Agency. He is the author of the book *Negotiating START: Strategic Arms Reduction Talks and the Quest for Strategic Stability* (New Brunswick: Transaction Books, 1992), as well as a contributor to other journals and edited collections. He has a Ph.D. from the University of Southern California (1987) and a B.A. in international relations

from Brigham Young University (1981). He is a frequent speaker on topics related to arms control, U.S. foreign policy, and ballistic missile defense.

Robert E. Kelley is currently a senior inspector in the IAEA Department of Safeguards. He is a nuclear engineer from the United States who has worked in the U.S. Nuclear Complex for more than thirty years. He has worked in nuclear nonproliferation efforts at Livermore, Los Alamos and was director of the Remote Sensing Laboratory in Las Vegas, Nevada. Kelley has field experience as an inspector and chief inspector including four years inspecting Iraq's clandestine nuclear weapons program in the 1992 and 2002 time periods. He also participated in the evaluation of South Africa's nuclear weapons in 1993, and the inspections of the vestiges of Libya's nuclear weapons program in 2004. At IAEA headquarters his main areas of responsibility are in Africa, the Middle East and South Asia. Kelley's practical laboratory experience includes plutonium metallurgy, gas centrifuge design, weapons engineering, nuclear emergency response and remote sensing.

Michael Krepon is co-founder of the Henry L. Stimson Center and the author or editor of twelve books and more than 350 articles. Prior to co-founding the Stimson Center, Krepon worked at the Carnegie Endowment for International Peace, the U.S. Arms Control and Disarmament Agency during the Carter administration, and in the U.S. House of Representatives, assisting Congressman Norm Dicks. He received an M.A. from the School of Advanced International Studies, Johns Hopkins University, and a B.A. from Franklin & Marshall College. He also studied Arabic at the American University in Cairo, Egypt.

Krepon divides his time between Stimson's South Asia and Space Security projects. The South Asia project concentrates on escalation control, nuclear risk reduction, confidence building, and peace-making between India and Pakistan. This project entails field work, publications, and Washington-based programming, including a visiting fellowship program. The Space Security project seeks to promote a Code of Conduct for responsible space-faring nations and works toward stronger international norms for the peaceful uses of outer space. Krepon also teaches in the Politics Department at the University of Virginia.

Matthew Kroenig is an assistant professor in the Department of Government and the School of Foreign Service at Georgetown University. In the 2007-2008 academic year, he will hold a postdoctoral fellowship at the Belfer Center for Science and International Affairs at Harvard University. Kroenig's research explains the strategic incentives that drive states to provide nuclear weapons technology to nonnuclear-weapon states. His other research focuses on international security, nuclear weapons proliferation, homeland security, terrorism, and civil war. His writings on international security have appeared in such publications as *Foreign Affairs*, *Foreign Policy*, and *Security Studies*. His research has been supported by the National Science Foundation, the Center for International Security and Cooperation at Stanford University, and the Institute on Global Conflict and Cooperation.

Kroenig has also served as a strategist in the Office of the Secretary of Defense where he was a principal author of key national security strategy and defense review documents and where he led the develop-

ment of a U.S. government-wide strategy for deterring terrorist networks. For his work, Kroenig received the Office of the Secretary of Defense's Award for Outstanding Achievement.

Michael A. Levi is a fellow for science and technology at the Council on Foreign Relations and an adjunct assistant professor at Columbia University. His interests center on the intersection of science, technology, and foreign policy. He currently directs the Council on Foreign Relations Independent Task Force on Climate Change. Before joining the Council, Levi was a nonresident science fellow and a science and technology fellow in foreign policy studies at the Brookings Institution. Prior to that, he was director (2002-2003) and deputy director (2001) of the Federation of American Scientist's flagship Strategic Security Project.

Levi is the author of *On Nuclear Terrorism* (Harvard University Press, 2007). He is coauthor of *The Future of Arms Control* (Brookings Institution Press, 2005), which proposed new principles for controlling dangerous technologies in a world fraught by terrorism, and of the monograph *Untapped Potential: U.S. Science and Technology Cooperation with the Islamic World* (Brookings Institution Press, 2005), which explored new opportunities for engaging Muslim publics.

Levi holds a Ph.D. from the University of London (King's College), where he was affiliated with the Department of War Studies and was the SSHRC William E. Taylor fellow. He holds an M.A. in physics from Princeton University, where he studied string theory and cosmology, and a B.Sc. (Hons.) in mathematical physics from Queen's University (Kingston).

Jamus Lim is an assistant professor at Centre College, Kentucky. He was educated at the University of California, the London School of Economics, and the University of Southern Queensland, where he obtained his doctorate, masters, and honors degrees in economics, respectively. He has also worked as a research associate at the Institute of Southeast Asian Studies as well as an analyst at the former J. P. Morgan. Lim's areas of research expertise (and interest) lie at the intersection of international economics and political economy, although he has also worked on various aspects of global political economy, international development, and information and communications technology. He has published more than a dozen academic articles in both refereed journals and conference volumes, together with a host of op-ed articles for the general public.

Bethany Lyles is a Ph.D. candidate in nuclear engineering at UC Berkeley. Her research interests lie in the indirect determination of neutron-induced reaction cross-sections on radioactive nuclei. Lyles' scientific pursuits have direct application to national security, in particular, bolstering such programs as stockpile stewardship, nuclear attribution, and neutron-based interrogation systems. Lyles graduated top in her class with a B.A. in Mathematics, a B.S. in Chemistry from Fort Lewis College, and a M.S. in Nuclear Engineering from UC Berkeley. Since beginning her graduate work, Lyles has interned at the Lawrence Livermore National Laboratory and the Australian National University. Her career goal is to perform valuable research in nuclear physics at an internationally recognized facility and to serve as a liaison between scientists and U.S. policymakers.

Michael May is professor emeritus (research) in the School of Engineering and a senior fellow with the Freeman-Spogli Institute for International Studies at Stanford University. He is the former co-director of Stanford University's Center for International Security and Cooperation, having served seven years in that capacity through January 2000. May is director emeritus of the Lawrence Livermore National Laboratory where he worked from 1952 to 1988. While there, he held a variety of research and development positions, serving as director from 1965 to 1971.

May was technical adviser to the Threshold Test Ban Treaty negotiating team; a member of the U.S. delegation to the Strategic Arms Limitation Talks; and at various times has been a member of the Defense Science Board, the General Advisory Committee to the AEC, the Secretary of Energy Advisory Board, the RAND Corporation Board of Trustees, and the Committee on International Security and Arms Control of the National Academy of Sciences. He is a member of the Council on Foreign Relations and the Pacific Council on International Policy, and a Fellow of the American Physical Society and the American Association for the Advancement of Science.

May received the Distinguished Public Service and Distinguished Civilian Service Medals from the Department of Defense, and the Ernest Orlando Lawrence Award from the Atomic Energy Commission, as well as other awards. May's current research interests are in the area of safeguarding the nuclear fuel cycle, nuclear terrorism, energy, security and environment, and the relation of nuclear weapons and foreign policy.

Clark Murdock, a senior adviser at the Center for Strategic and International Studies, specializes in strategic planning, defense policy, and national security affairs. In January 2001, he joined CSIS and coauthored the study "Revitalizing the U.S. Nuclear Deterrent" (CSIS, 2002). He now is the director of the Project on Nuclear Issues (PONI), which was established in mid-2003 to build a network of young professionals in the nuclear community, and is increasingly active on nuclear issues. Murdock also is directing the four-phase study on Defense Department reform entitled "Beyond Goldwater-Nichols: USG and Defense Reform for a New Strategic Era," which released reports in March 2004, July 2005, July 2006, and summer 2007. He is the principal author of *Improving the Practice of National Security Strategy: A New Approach for the Post-Cold War World* (CSIS, 2004), which synthesizes lessons learned for national security strategists from the corporate strategy literature and post-Cold War case studies. Murdock is an honors graduate (in political science) from Swarthmore College and holds a Ph.D. in political science (with a minor in economics) from the University of Wisconsin at Madison.

Joe Pilat is a senior advisor in the National Security Office at Los Alamos National Laboratory, providing particular expertise in national security policy, nonproliferation, and threat reduction. He was a special advisor to the DOE's representative at the Third Review Conference of the Nuclear Non-Proliferation Treaty (NPT) and served as representative of the Secretary of Defense to the Fourth NPT Review Conference and as an adviser to the U.S. Delegation at the 1995 NPT Review and Extension Conference. Pilat also served as representative of the Secretary of Defense to the Open Skies negotiations. He has been special assistant to the principal director and assistant for nonproliferation policy in the Office of the Deputy Assistant Secretary of Defense for Negotiations Policy, a senior research associate in the Con-

gressional Research Service, and a research associate at the International Institute for Strategic Studies in London.

Pilat has taught at Cornell University, Georgetown University, and the College of William and Mary, and has been a senior associate member of St. Antony's College, Oxford University, a visiting fellow at Cornell's Peace Studies Program, and a Philip E. Mosely Fellow at the Center for Strategic and International Studies. He has lectured widely at leading institutions and has written numerous articles and opinion pieces for U.S. and European scholarly journals and newspapers. He is the author or editor of many books, including the forthcoming *Atoms for Peace: A Future after Fifty Years?*

Paul R. Pillar is a visiting professor and member of the core faculty of the Security Studies Program in the Edmund A. Walsh School of Foreign Service at Georgetown University. He retired in 2005 from a 28-year career in the U.S. intelligence community, in which his last position was National Intelligence Officer for the Near East and South Asia. Earlier he served in a variety of analytical and managerial positions, including as chief of analytic units at the CIA covering portions of the Near East, the Persian Gulf, and South Asia. Pillar also served in the National Intelligence Council as one of the original members of its Analytic Group. He has been executive assistant to the CIA's Deputy Director for Intelligence and executive assistant to Director of Central Intelligence William Webster. He has also headed the Assessments and Information Group of the DCI Counterterrorist Center and from 1997 to 1999 was deputy chief of the center. He was a Federal Executive Fellow at the Brookings Institution in 1999-2000.

Pillar received an A.B. *summa cum laude* from Dartmouth College, a B.Phil. from Oxford University, and an M.A. and Ph.D. from Princeton University. He is a retired officer in the U.S. Army Reserve and served on active duty in 1971-1973, including a tour of duty in Vietnam. He is the author of *Negotiating Peace and Terrorism* and *U.S. Foreign Policy*.

Daniel A. Pinkston is the director of the East Asia Nonproliferation Program and a Korea specialist at the Center for Nonproliferation Studies at the Monterey Institute of International Studies. He has directed the research and production of the Nuclear Threat Initiative's North Korea Country Profile, which is the most comprehensive open-source overview and assessment of North Korea's programs to develop weapons of mass destruction and ballistic missiles. Pinkston has written on Korean political economy and security issues, and also served as a Korean linguist in the U.S. Air Force. He has a doctorate in international affairs from UC San Diego, and a master's degree in Korean studies from Yonsei University in Seoul.

Jonathan D. Pollack is professor of Asian and Pacific Studies and chairman of the Asia-Pacific Studies Group at the U.S. Naval War College, in Newport, Rhode Island. Between 2000 and 2004 he also served as chair of the college's Strategic Research Department. Pollack's major research interests include U.S.-China relations; East Asian international politics; Chinese national security policy; U.S. foreign policy and defense strategy; Korean politics and foreign policy; and East Asian technological and military development. He has frequently briefed U.S. government departments and agencies on these issues, and also interacts extensively with government officials and policy analysts across East Asia. In addition, he is a

regular media contributor in the United States and abroad, including numerous op-eds and strategic commentaries.

After completing his Ph.D. at the University of Michigan, Pollack was a post-doctoral fellow at Harvard University. He then joined the Rand Corporation, where he served in various research and management capacities, including as chair of the Political Science Department, corporate research manager for international policy, and senior advisor for international policy. Pollack has taught strategic studies, East Asian international relations, and Chinese security and foreign policy at Brandeis University, the Rand Graduate School of Policy Studies, UCLA, and the Naval War College. He is a member of the International Institute for Strategic Studies, the Council on Foreign Relations, and the Committee on International Security and Arms Control, a standing committee of the National Academy of Sciences.

Pollack is presently completing a multi-year project on major strategy and policy issues facing the United States in the Asia-Pacific region. In addition to publishing numerous reports, research monographs and edited volumes, he contributes regularly to leading professional journals in the United States and Asia.

William Potter is institute professor and director of the Center for Nonproliferation Studies at the Monterey Institute of International Studies. He is the author or editor of fourteen books, the most recent of which is *The Four Faces of Nuclear Terrorism* (2005). Potter has been a member of numerous committees of the National Academy of Sciences and currently serves on the Nonproliferation Panel of the Academy's Committee on International Security and Arms Control. He is a member of the Council on Foreign Relations and the Pacific Council on International Policy, and served for five years on the UN Secretary-General's Advisory Board on Disarmament Matters and the Board of Trustees of the UN Institute for Disarmament Research. He currently serves on the International Advisory Board of the Center for Policy Studies in Russia (Moscow). He was an advisor to the delegation of Kyrgyzstan to the 1995 NPT Review and Extension Conference and to the 1997, 1998, 1999, 2002, 2003, 2004 and 2007 sessions of the NPT Preparatory Committee, as well as to the 2000 and 2005 NPT Review Conferences.

Robert Powell is Robson Professor of Political Science at UC Berkeley. His research focuses on war, international conflict, and the politics of weakly institutionalized states, and he is a specialist in game-theoretic approaches to these issues. He received a B.S. in mathematics from Harvey Mudd College, an M. Phil. in international relations from Cambridge, and his M.A. and Ph.D. in economics from UC Berkeley. His published work includes *Nuclear Deterrence Theory: The Search for Credibility* (Cambridge University Press, 1990); *In the Shadow of Power: States and Strategies in International Politics* (Princeton University Press, 1999); "Bargaining and Fighting While Learning," *American Journal of Political Science* (April 2004); and "The Inefficient Use of Power: Costly Conflict with Complete Information" *American Political Science Review* (May 2004).

George H. Quester is a professor of government and politics at the University of Maryland, where he teaches courses in international politics, American foreign policy, and international military security. He has taught previously at Cornell and Harvard Universities, at UCLA, and in the Department of Military Strategy at the National War College. From 1991 to 1993, he served as the Olin Visiting Professor at the

United States Naval Academy. Quester is the author of ten books on international security issues, and on broader questions of international relations, and he is a member of the International Institute of Strategic Studies and the Council on Foreign Relations. His most recent book is *Nuclear First Strike: Consequences of a Broken Taboo* (Johns Hopkins University Press, 2006).

Jeffrey T. Richelson is a senior fellow with the National Security Archive. He received his Ph.D. from the University of Rochester and has taught at the University of Texas and American University. He is the author of a number of books, including *Spying on the Bomb: American Nuclear Intelligence from Nazi Germany to Iran and North Korea* (W.W. Norton, 2006), *The Wizards of Langley: Inside the CIA's Directorate of Science and Technology* (Westview, 2001), *America's Space Sentinels: DSP Satellites and National Security* (University Press of Kansas, 1999), and *America's Secret Eyes in Space: The US KEYHOLE Spy Satellite Program* (Harper & Row, 1990). His articles have appeared in the *Scientific American*, *Bulletin of the Atomic Scientists*, *International Journal of Intelligence and Counterintelligence*, *International Security*, *Intelligence and National Security*, and other publications.

Philip G. Roeder is a professor of political science at UC San Diego. Roeder's research focuses on nationalism and on authoritarian politics with special attention to the Soviet successor states. He is the author of *Where Nation-States Come From: Institutional Change in the Age of Nationalism*, *Red Sunset: The Failure of Soviet Politics*, and *Soviet Political Dynamics*. He is also the co-author of *Postcommunism and the Theory of Democracy* and co-editor of *Sustainable Peace: Power and Democracy after Civil Wars*. His articles have appeared in such journals as *American Political Science Review*, *World Politics and International Studies Quarterly*. He is currently conducting research on 1) the design of political institutions to avoid or resolve wars of national liberation; and 2) American foreign policy interests in the Soviet successor states of Central Eurasia. He received his Ph.D. and M.A. from Harvard University.

Larry Rubin is a Ph.D. candidate in political science at UCLA and a 2003-2004 PPNT Fellow. After receiving a B.A. in history from UC Berkeley, he earned graduate degrees from the London School of Economics and the University of Oxford. Rubin has held positions at the RAND Corporation and Near East South Asia Center for Strategic Studies at the National Defense University. He was also a member of the Young Nuclear Scholars Program at the Center for Strategic and International Studies (2005-2006). Currently, Rubin is the assistant editor of the journal *Terrorism and Political Violence*. He has conducted fieldwork in Yemen, Morocco, Egypt, and Israel, and he speaks both Arabic and Hebrew. His dissertation is entitled "Who's Afraid of an Islamic State? Threat Perception and Foreign Policy in the Middle East."

Scott Sagan is a professor of political science and co-director of Stanford's Center for International Security and Cooperation. Before joining the Stanford faculty, Sagan was a lecturer in the Department of Government at Harvard University and served as a special assistant to the Director of the Organization of the Joint Chiefs of Staff in the Pentagon. He has also served as a consultant to the office of the Secretary of Defense and at the Los Alamos National Laboratory. Sagan is the author of *Moving Targets: Nuclear Strategy and National Security* (Princeton University Press, 1989), *The Limits of Safety: Organizations, Accidents, and Nuclear Weapons* (Princeton University Press, 1993), and co-author with Kenneth N. Waltz of *The Spread of Nuclear Weapons: A Debate Renewed* (W. W. Norton, 2002). He is the co-

editor of *Planning the Unthinkable* (Cornell University Press, 2000) with Peter R. Lavoy and James L. Wirtz.

Currently, Sagan's main research interests are nuclear proliferation in South Asia, ethics and international relations, and accidents in complex organizations. Sagan was the recipient of Stanford University's 1996 Hoagland Prize for Undergraduate Teaching and the 1998 Dean's Award for Distinguished Teaching. As part of CISAC's mission of training the next generation of security specialists, he and Professor Stephen Stedman founded Stanford's Interschool Honors Program in International Security.

Mark Schanfein first joined the International Atomic Energy Agency's Secretariat in 1978 where he served four years as an inspector within the Department of Safeguards and as a group leader implementing the first geographical team approach to safeguarding nuclear complexes including low enriched and MOX fuel fabrication facilities, reprocessing, research reactors, and research labs. From August 2000 to 2004, Schanfein returned to the IAEA as the unit head of the Unit for Unattended Monitoring System (UMS) in the Section for Installed Systems in the Department of Safeguards, while maintaining inspector status for short term assignments. He managed a team of scientists, engineers, and technicians supporting more than 90 fielded systems installed world-wide, carried out the design and testing of new systems, and managed the multi-million-dollar UMS R&D program.

Between these IAEA tours, Schanfein was at Los Alamos National Laboratory (LANL). He held three main positions while there. In his first job, he had oversight responsibility for all technical aspects of domestic safeguards at LANL including all destructive and non-destructive measurement of nuclear materials and all personnel and vehicle portal monitoring. In the second, he was responsible for all non-destructive nuclear material measurements at the LANL Plutonium Facility and the Chemical and Metallurgical Research Facility including research into difficult to measure matrices. Just prior to leaving for IAEA on his second tour, he was responsible for a multi-million-dollar research and development program for domestic safeguards in support of the Department of Energy Nuclear Weapons Complex. Upon his return from the IAEA, Schanfein was the deputy group leader in N-4, Safeguards Systems, contributing to two projects: leveraging IAEA technologies into domestic safeguards and technical coordinator for safeguards in the Advanced Fuel Cycle Initiative; soon to be merged into the recently announced Global Nuclear Energy Partnership. Currently Schanfein is the LANL program manager for nonproliferation and security technologies, managing a portfolio of around \$40 million.

John Scott was educated at UC Berkeley, where he received both his B.S. and Ph.D. in nuclear engineering in 1993 and 1998, respectively. He joined Los Alamos National Laboratory (LANL) at the end of 1998 as a post-doctoral research associate in the Thermonuclear Applications group and became a technical staff member in 2000. As a staff member, the primary focus of his work has been on evaluating the performance of nuclear weapons systems. He was a technical lead on the LANL team for the first Reliable Replacement Warhead competition.

Susan Shirk is director of the University of California system-wide Institute on Global Conflict and Cooperation and professor of political science in the School of International Relations and Pacific Studies,

University of California, San Diego. From 1997 to 2000, Shirk served as Deputy Assistant Secretary of State in the Bureau of East Asia and Pacific Affairs, with responsibility for the People's Republic of China, Taiwan, Hong Kong, and Mongolia.

Prof. Shirk founded in 1993 and continues to lead the Northeast Asia Cooperation Dialogue (NEACD), a "track two," or unofficial, forum for discussions of security issues among defense and foreign ministry officials and academics from the United States, Japan, China, Russia, South Korea, and North Korea.

Shirk's publications include her books *How China Opened Its Door: The Political Success of the PRC's Foreign Trade and Investment Reforms*; *The Political Logic of Economic Reform in China*; and *Competitive Comrades: Career Incentives and Student Strategies in China*. Her latest book, *China: Fragile Superpower*, was published by Oxford University Press in 2007.

Shirk served as a member of the U.S. Defense Policy Board, the Board of Governors for the East-West Center (Hawaii), the Board of Trustees of the U.S.-Japan Foundation, and the Board of Directors of the National Committee on United States-China Relations. She is a member of the Council on Foreign Relations, and an emeritus member of the Aspen Strategy Group. As senior advisor to the Albright Group, Shirk advises private-sector clients on China and East Asia. She received her B.A. in political science from Mount Holyoke College, her M.A. in Asian studies from UC Berkeley, and her Ph.D. in political science from the Massachusetts Institute of Technology.

David Smith is currently a senior program advisor to the Domestic Nuclear Detection Office/National Technical Nuclear Forensics Center of the U.S. Department of Homeland Security in Washington, D.C. He advises the assistant director and federal program staff on the development of an interagency portfolio in international nuclear forensics integrated across the U.S. government. His responsibilities include the focus U.S. government technical forensics assets on international outreach and law enforcement coordination in partnership with the U.S. Department of State and Federal Bureau of Investigation. He is also technical lead for bilateral engagement with states in Eastern Europe, the Caucus region, Russia, and Central Asia to promote best practices in nuclear forensics. Prior to this assignment, Smith was the program leader for material nuclear forensics at Lawrence Livermore National Laboratory with responsibility for all facets of the Laboratory's effort, including management and conduct-of-operations, infrastructure, signature science and information management. He continues to serve as the lead investigator of a program to secure uranium samples from Central Asia to promote nuclear nonproliferation objectives. He is frequently asked to represent the U.S. government as a consultant to International Atomic Energy Agency on nuclear forensics and nuclear trafficking.

Harold P. Smith is Distinguished Visiting Scholar and professor with the Goldman School of Public Policy at UC Berkeley, where he focuses on the impact of technology on foreign and defense policy. He serves as an advisor to prime contractors, think tanks, and national laboratories in the defense industry. In 1960, after receiving the Ph.D. in nuclear engineering from MIT, he joined the faculty of UC Berkeley, where he published extensively on the optimal control of exotic nuclear systems and on the interaction of radiation with surfaces, including ion implantation of silicon. He retired as professor and chairman of

the Department of Applied Science in 1976 to pursue his interests in managerial consulting and entrepreneurial ventures. The Palmer Smith Corporation, a consulting firm specializing in management of high technology programs, was established and retained by many of the largest defense contractors. He was one of the early principals of SAIC, RDA-Logicon, and JAYCOR.

In 1993, Smith accepted an appointment with the Clinton administration as Assistant to the Secretary of Defense for Nuclear, Chemical, and Biological Defense Programs with responsibilities for reduction and maintenance of the U.S. and NATO arsenals of nuclear weapons, dismantlement of the chemical weapon stockpile, oversight of the chemical and biological defense programs, management of counter-proliferation acquisition, and management of treaties related to strategic weapons. He was responsible for implementation of the Cooperative Threat Reduction (Nunn-Lugar) program. He returned to private life in 1998.

Smith is a Fellow of the American Physical Society and a Commander in the Legion of Honor of France. He has thrice received the highest honor granted by the Department of Defense for civilian service, the Distinguished Public Service Award, as well as awards by the Military Services and Agencies. In addition to technical papers, he has published articles of public interest, related to national security, in the New York Times, Christian Science Monitor, Wall Street Journal, US News and World Report, and Arms Control Today.

Etel Solingen is professor of political science at UC Irvine and chair of the Steering Committee of the UC Institute on Global Conflict and Cooperation. She was vice-president of the International Studies Association (2002-2003), president of the International Political Economy Section of ISA, and the recipient of a MacArthur Foundation Research and Writing Award on Peace and International Cooperation, a Social Science Research Council-Mac Arthur Foundation Fellowship on Peace and Security in a Changing World, a Japan Foundation/SSRC Abe Fellowship, and a Center for Global Partnership/Japan Foundation fellowship, among others. She serves as review editor of *International Organization*. She is the author of *Nuclear Logics: Contrasting Paths in East Asia and the Middle East* (Princeton University Press, 2007), *Regional Orders at Century's Dawn: Global and Domestic Influences on Grand Strategy* (Princeton University Press, 1998), *Industrial Policy, Technology, and International Bargaining: Designing Nuclear Industries in Argentina and Brazil* (Stanford University Press, 1996) and editor of *Scientists and the State* (University of Michigan Press, 1994). Her articles on international relations theory, international political economy, comparative regionalism, institutional theory, democratization, and international security appeared in *International Organization*, *International Studies Quarterly*, *Comparative Politics*, *International Security*, *Global Governance*, *Journal of Peace Research*, *Journal of Theoretical Politics*, *International Relations of Asia-Pacific*, *Journal of Democracy*, *Asian Survey*, and *International History Review*, among others.

C. Bruce Tarter is director emeritus of the Lawrence Livermore National Laboratory and was the eighth director to lead LLNL since it was founded in 1952. A theoretical physicist by training and experience, he began his career at LLNL in 1967. As director (1994-2002) he led LLNL in its mission to ensure national security and apply science and technology to the important problems of our time. Tarter received a bachelor's degree in physics from MIT and a Ph.D. from Cornell University. He is a fellow of the American

Physical Society and the American Association for the Advancement of Science, and received the Roosevelt Gold Medal Award for Science (1998), the National Nuclear Security Administration Gold Medal (2002), and the Secretary of Energy's Gold Award (2004).

Christopher Way teaches at Cornell University in both the fields of international relations and comparative politics, covering both political economy and security studies. His research on the politics of macroeconomic policy has produced several articles and book chapters on central bank independence, partisan theories of the macroeconomy, labor organization, and inequality in the OECD countries, and his book *Manchester Revisited* explores the relationship between economic interdependence, democracy, and military conflict. Way's current research focuses on the proliferation of weapons of mass destruction and the effectiveness of the non-proliferation regime.

Randy Willoughby is professor of political science and international relations at the University of San Diego. He received his B.A. summa cum laude from UCLA and his Ph.D. (1988) from UC Berkeley, both in political science. As a graduate student, he worked on research projects in the Executive Office of the President in Washington D.C. and with the UC Institute on Global Conflict and Cooperation. He has edited or co-edited books on ballistic missile defense, conventional arms control, and drug trafficking. His most recent publications have focused on French politics and security in the South Pacific and on security issues affecting the San Diego Tijuana border.

Herbert York was tapped to work on the Manhattan Project the year he received his M.S. in physics from the University of Rochester (1943). His illustrious career includes many distinctions, among them science advisor to President Eisenhower and first chief scientist and co-founder of the Advanced Research Projects Agency (ARPA/DoD). From 1979-81 York was an ambassador and chief negotiator at the trilateral Comprehensive Test Ban talks between the United States, Great Britain, and the Soviet Union, held in Geneva. His academic career included stints as the first chancellor of UC San Diego (1961-64), and founder and first director of IGCC (1983-88). He was also acting chancellor of UC San Diego (1970-72).

In 2000, York received three major awards recognizing his contributions to science. The first, the Enrico Fermi award, is a Presidential award-one of the oldest and most prestigious science and technology awards given by the U.S. Government and recognizes scientists of international stature for a lifetime of exceptional achievement in the development, use, or production of energy (broadly defined to include the science and technology of nuclear, atomic, molecular, and particle interactions and effects). York also received the Vannevar Bush award from the National Science Foundation's National Science Board. Finally, York received the Clark Kerr Award for Distinguished Leadership in Higher Education, created in 1968 by UC Berkeley's Academic Senate to honor individuals who have made an extraordinary and distinguished contribution to the advancement of higher education.

Stephen Zunes is professor of politics at the University of San Francisco, where he has taught since 1995. Zunes received his Ph.D. from Cornell University, his M.A. from Temple University, and his B.A. from Oberlin College. He has previously served on the faculty of Ithaca College, the University of Puget

Sound, and Whitman College. He serves as an advisory committee member and Middle East editor for the Foreign Policy in Focus Project and as an associate editor of Peace Review.

Zunes is the author of scores of articles for scholarly and general readership on Middle Eastern politics, U.S. foreign policy, international terrorism, nonproliferation, social movements, and human rights. He is the principal editor of *Nonviolent Social Movements* (Blackwell Publishers, 1999) and the author of the highly-acclaimed *Tinderbox: U.S. Middle East Policy and the Roots of Terrorism* (Common Courage Press, 2003) and the forthcoming *Western Sahara: Nationalism and Conflict in Northwest Africa* (Syracuse University Press).

Zunes has made frequent visits to the Middle East and other conflict regions, where he has met with top government officials, academics, journalists and opposition leaders. He is a foreign affairs columnist for the *National Catholic Reporter* and a regular contributor to the Common Dreams website and *Tikkun* magazine. His op-ed columns have been circulated through Knight-Ridder and other wire services and have appeared in major daily newspapers throughout the United States, Canada, and Europe.