

PUBLIC POLICY
AND
NUCLEAR THREATS

TRAINING THE NEXT GENERATION

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About the Participants

Susan Allen is a molecular biologist at Lawrence Livermore National Laboratory specializing in the analysis of foreign biological weapons (BW) programs and biological terrorism. She received her master's degree in zoology with emphasis in the molecular genetics of development in 1988 from Arizona State University and has spent the next six years performing laboratory research in such areas as the molecular aspects of Alzheimer's disease and DNA repair mechanisms. In 1996, she moved to her current position where she studies the proliferation of biotechnology and its relation to the development of biological weapons programs in countries of WMD proliferation concern. Allen has produced numerous publications of analysis of BW proliferation and biological terrorism for the Department of Defense, the Department of Homeland Security, and the intelligence and policy communities. In 2003, Allen was part of the Transition Planning Office of the Executive Office of the President that stood up the Department of Homeland Security, where she helped to develop the Strategic Assessments section of the Information Analysis and Infrastructure Protection Directorate. In 2006, Allen served as the director of the Department of Homeland Security's Biological Threat Characterization Center. Currently, she is a deputy associate program leader in the International Assessments Program at LLNL.

Donna Alvah received her Ph.D. in history at UC Davis in 2000. Since 2002 she has been an assistant professor at St. Lawrence University. She is a past recipient of an IGCC dissertation fellowship (1999–2000). Her most recent book is *Unofficial Ambassadors: American Military Families Overseas and the Cold War, 1946–1965* (NYU Press, 2007), and has an essay on U.S. military families in the post-Cold War era forthcoming in the collection *Gender and Sexuality in the U.S. Military Empire* (Duke UP, 2008). She is interested in preparing an historical synthesis that examines nuclear weapons science and strategy together with social and cultural responses to living in a world with nuclear weapons.

Helit Barel is a Ph.D. student in the Department of Government and Politics at the University of Maryland, College Park. Her thesis explores nuclear learning during the Cold War and the applicability of lessons from the past to the potential emergence of Iran as a nuclear adversary. Before joining the University of Maryland Barel worked in the Office of the Prime Minister in Tel-Aviv, Israel. She holds a Bachelor's degree from the Hebrew University of Jerusalem and a Master's in Public Policy from Harvard University's Kennedy School of Government.

Peter Bedrossian received A.B. and Ph.D. degrees in physics from Harvard University. He has worked at Sandia Laboratories in Albuquerque and as an Alexander von Humboldt Fellow at KFA/Julich. Bedrossian is currently on the staff of Lawrence Livermore National Laboratory. When not in the laboratory, he performs as a freelance cellist with regional orchestras and chamber groups.

Camille Bibeau has been an employee of Lawrence Livermore National Laboratory since 1986. Until 2006, she had spent her entire career in the field of Laser Science and Engineering and worked on projects that ranged from small investigative R&D projects to very large laser systems such as the Nova Laser. She was an adjunct associate professor and thesis advisor at UC Davis from 1998 to 2002. In 2006, she made a major transition to Homeland Security technology development within LLNL. In this position, she serves as the radiation detection technologies program leader with oversight, execution, and program development responsibilities for several projects funded by multiple agencies.

Robin L. Bowman is a captain in the United States Air Force and a graduate student in political science at UC Irvine. Her research interests include international relations, comparative politics, policy and security studies, Southeast Asian politics, and political violence and terrorism. Bowman received her bachelor's degree in political science from UC Berkeley and her master's degree in national security affairs from the Naval Postgraduate School. She taught in the Political Science Department at the United States Air Force Academy, winning Best New Instructor and Outstanding Instructor in the Upper Division. Courses taught included American Politics, Geopolitics, Asian Politics, and International Security: Political Violence and Terrorism. She has also been awarded two research grants from the Air Force's Institute for National Security Studies for her work on terrorism and ethno-religious separatist movements in Southeast Asia.

Bowman contributed a case study on the Moro separatists in the Philippines in *Countering Terrorism and Insurgency in the 21st Century: International Perspectives* (James J.F. Forest, editor). She has also co-authored a chapter on Chinese and American security policy in the post-Cold War world in the upcoming tentatively titled *International Dimensions of the Global War on Terrorism and 21st Century World Security Challenges: Perspectives from China, Europe, Russia, and the United States*. She has also presented at various academic conferences, including the International Studies Association Annual Conference and the Western Conference of the Association for Asian Studies. Professionally, she has served for over eight years as both a Communications and Information Systems Officer and Instructor, and will return to the Air Force Academy to continue teaching in the Political Science Department.

Kimberly Budil is the Associate B Program Leader for Science, Technology and Experiments within the Defense and Nuclear Technologies (DNT) Directorate at LLNL. In this role she manages the fundamental research program supporting DNT including the Dynamic Material Properties Campaign and the ASC Physics and Engineering Models Program. Prior to this assignment, Budil was an associate division leader in the Materials Science and Technology Division in the Chemistry and Materials Science. In this role she was detailed to NNSA headquarters in Washington, D.C. for two years where she was assigned to the Office of Defense Science. She managed the Dynamic Materials Properties Campaign, served as the chair of the Pit Lifetime Working Group and provided technical advice on a variety of issues.

During her career at LLNL Budil has pursued research in a number of areas including High Energy Density Physics, performing experiments on the Nova, and later Omega, lasers investigating hydrodynamic instabilities, equations-of-state, and radiation transport, and computational studies of fundamental materials properties and other weapon physics issues. In 2002 Budil was selected to be the scientific editor for the publications Science and Technology Review and National Security Review.

Denia Djokic is a Ph.D. student in nuclear engineering at UC Berkeley. She received her B.S. in physics from Carnegie Mellon University in 2005. She is interested in environmental aspects of nuclear waste disposal as well as proliferation resistance of the nuclear fuel cycle from a radioactive waste management point of view. In the fall of 2007 she began an appointment as a Department of Energy Office of Civilian Radioactive Waste Management fellow to research these topics in more detail.

Thomas Doyle is a Ph.D. candidate in political science at UC Irvine. His dissertation will focus on the ethics of nuclear weapons acquisition. Doyle is concerned with the integration of theory and practice and with the justificatory strategies that are used to support or defend political policy amongst states and institutions. Doyle earned a B.A. (Point Loma Nazarene University, 1980) in history and political science, with an emphasis on Cold War history and international politics. He taught high school in Los Angeles Unified School District from 1983–2004. In 1997 and 2001, Doyle was a winner of the "Most Inspirational Teachers in Los Angeles" award given by then Mayor Richard Riordan. He earned a masters degree in education (California State University, Northridge, 1987), a masters degree in philosophy (California State University, Los Angeles, 2001), and a second masters degree in philosophy (University of California, Irvine, 2005).

Huban Gowadia joined the Department of Homeland Security's DNDO in November 2005 as the assistant director for assessments. In this role, she is responsible for all DNDO-related test and evaluation as well as red teaming and net assessments, ensuring the independent evaluation of all components of the global nuclear detection architecture. Dr. Gowadia is also leads the Securing the Cities Initiative. In 2006, Dr. Gowadia was selected for the Senior Executive Service. She holds a B.S. in Aerospace Engineering from the University of Alabama and a Ph.D. in mechanical engineering from the Pennsylvania State University.

Elaine Jennings was appointed special assistant to the director for the Office of Homeland Security by Governor Arnold Schwarzenegger in September 2006. In this position she is serving as the project manager in the development of the Preventive Rad/Nuc Detection Program for the State of California. Jennings has served in the Schwarzenegger administration for three years. Previously she served as press secretary for the Department of Corrections and Rehabilitation and as director of press advance for the Office of the Governor. Jennings also worked for the U.S. Department of State's Bureau of Diplomatic Security while in Washington, D.C. Jennings' master's degree work is in International Relations with an emphasis in non-proliferation and terrorism issues from the University of Denver. Her undergraduate degree in political science is from California State University, Northridge. She also studied French at the Monterey Institute of International Studies.

Michael Laufer is a Ph.D. student in the Nuclear Engineering Department at UC Berkeley. His research will likely focus on future fission reactor designs and supporting development of the nuclear fuel cycle, including implications for national energy and security policy. As an undergraduate at Stanford University, Laufer earned his B.S. in mechanical engineering and honors in international security studies for completing a thesis on the development of nuclear export control laws in the 1970s. Laufer spent the year before entering graduate school at the Electric Power Research Institute modeling plant operations and gaining knowledge about the nuclear power industry. He has also interned at the Carnegie Endowment for International Peace, on Capitol Hill, and at Ducati Motorcycles.

Gautam Mukunda is a graduate student at the Massachusetts Institute of Technology where he is pursuing a Ph.D. in political science focusing on international relations and international security. His dissertation is entitled "The Paths of Glory: Structure, Selection, Leaders, and War." He is a 2005 Paul & Daisy Soros New American Fellow.

Before graduate school Mukunda was a consultant with McKinsey & Company focusing in the pharmaceutical and financial industries. He is also the founding managing director of the Two Rivers Group, a strategy consulting firm that brings the insights of and knowledge of the academic world to bear on problems facing the private, public, and non-profit sectors. He worked at the Kennedy School of Government as administrator of the Russian Investment Symposium and as program coordinator of the Kommersant Program on Executive Education in Russia. His research interests include military innovation, psychological factors in international relations, the theory and policy implications of disruptive innovation, and the impact of "black swan" events on public policy.

Mukunda is a National Science Foundation IGERT Fellow as part of MIT's Program on Emerging Technologies where he studies the management of emerging technologies, focusing on the international security and intellectual property implications of biotechnology. He graduated from Harvard College with an A.B. in Government magna cum laude. He is a board member and chair of the mentorship committee of the Upakar Foundation, a national non-profit dedicated to providing college scholarships to underprivileged Indian-Americans.

Neil Narang is a Ph.D. student in the Department of Political Science at UC San Diego. He studies international relations with a particular interest in international institutions, security, and methodology. He is currently exploring dissertation topics related to various aspects of failed states. Narang received his bachelor's degrees in political science and molecular cell biology from UC Berkeley in 2004. He has been an employee of the Los Alamos National Laboratory for several years, most recently serving as a graduate researcher in the Nuclear Nonproliferation Division and the International and Advanced Technology Division.

Chad Nelson is a Ph.D. student in political science at UCLA. He studies international relations, and his interests include the Middle East, particularly Iran.

Thaddeus Orzechowski received a Ph.D. in physics from the Massachusetts Institute of Technology in 1975. After a one-year postdoctoral fellowship at MIT, he joined the Lawrence Livermore National Laboratory where he has worked in the Beam Research Program investigating free electron lasers, the Laser Program studying inertial confinement fusion, and the nuclear weapons program.

Heather Pragnell has worked at the UK Atomic Weapons Establishment (AWE) since leaving college in 1983. She was initially based in the Hydrodynamics Department as a research scientist working in the area of explosively driven experimental geometries. During that time she also worked to obtain a Higher National Certificate (Physics) from Reading College of Technology. Her work progressed to computational modelling of those experiments, in turn providing an opportunity to transfer to the Design Physics Department where she is currently working.

Specializing in complex geometries, Pragnell is tasked with developing and validating the UK capability in 3-D modeling of defined dynamic experiments. Although in a technical post, the past year has provided the option to explore the much wider issue of nuclear policy with the intention of generating a stronger link between the technical and policy areas. Having become involved with the Project on Nuclear Issues (PONI), she continues to explore the main themes to be addressed by PONI during 2007.

Matt Squeri is the coordinator for the Project on Nuclear Issues (PONI) at the Center for Strategic and International Studies, where he previously served as a research assistant. He is responsible for coordinating all PONI conferences, events, and publications. He also runs the Nuclear Scholars Initiative, a program to bring young scholars to Washington, D.C., to research and discuss nuclear issues. Prior to joining CSIS, Squeri earned a B.A. in political science from Stanford University, where he worked as a teaching assistant for courses on U.S. foreign policy, conducted research on democracy promotion, and coached high-school debate.

Patrice Stevens is the program director for Navy systems at Los Alamos National Laboratory. Stevens serves as the principal LANL interface and single point of contact for the Trident SSBN submarine nuclear warheads, the W76 and W88. She also provides technical programmatic leadership and strategic planning for surveillance and SFI activities. She first joined LANL in 1989 as a graduate research assistant after teaching seven years in Ohio and Michigan. She moved to Nuclear Material Technology Division in 1991. Stevens began working with the pit surveillance project, a main plutonium warhead component, in 1993. She has since been involved in the surveillance of nuclear components and has served as the W76 warhead program manager and the surety director within the Nuclear Weapons Program Directorate.

Stevens has received three LANL Outstanding Performance awards during her tenure; the first for the GenBank DNA/RNA sequence database, second for the Pit Surveillance Project, and third for the W76 Octave Experiment. She is a professional member of American Society of Metals (ASM) and Minerals, Metals, and Materials Society (TMS) and Project Management Institute (PMI). She earned her bachelor's degree from Muskingum College, a master's from Ohio University, and a Ph.D. from the University of New Mexico.

Captain Greg Van Dyk, United States Air Force, is currently stationed at Fort Belvoir, Virginia. He works at the Defense Threat Reduction Agency (DTRA) as a nuclear physicist where he is in charge of reviewing nuclear weapons test data as it relates to physical security. He represents DTRA at a variety of nuclear weapons safety meetings and writes applicable portions of the annual Joint Surety Report to the President of the United States.

After graduation from Rose-Hulman Institute of Technology with undergraduate degrees in electrical engineering and economics in May 2002, Van Dyk was stationed at Hanscom AFB, working in the Global Air Traffic Management group of the Electronic Systems Center. He quickly became an expert in certifying high criticality software and spoke at three conferences in front of hundreds of attendees. He was then deployed to the Middle East in support of Operation Iraqi Freedom and Operation Enduring Freedom. There he assumed command of mission planning in the 908th Expeditionary Air Refueling Squadron supplying intelligence, flight plans, refueling schedules, and code words to KC-10 and KC-135 flight crews. He flew on five combat missions aboard both KC-10 and KC-135 aircraft in support of Operation Iraqi Freedom. Shortly after returning to Hanscom AFB, Van Dyk was selected to mediate security and border disputes between former Soviet Union countries at the Black Sea Security Conference. The countries assisted included Ukraine, Moldova, Azerbaijan, and Armenia. Van Dyk recently completed his master's degree in space and nuclear systems engineering at the Air Force Institute of Technology.

Cassandra Waite is a national security analyst with Computer Sciences Corporation working at the U.S. Department of State's Bureau of International Security and Nonproliferation, Office of Cooperative Threat Reduction. Waite works on the Science Centers Program redirecting former WMD scientists and institutes in the former Soviet Union via the International Science and Technology Center in Russia and the Science and Technology Center in Ukraine. She is also developing the Nuclear Science and Security Program for the U.S. Department of State. Waite received a M.A. in security policy studies and a B.A. in international affairs, both from the George Washington University in Washington, D.C.

Stephanie Young is a Ph.D. candidate in history at UC Berkeley. Her undergraduate training, also at UC Berkeley, was in physics and history. She chose to combine these interests for graduate study in the history of science. Her research focuses on the history of the physical sciences and national security policy in the United States during the Cold War, with special emphasis on nuclear policy, systems analysis, defense management, and public administration. She is currently working on a dissertation exploring the relationship between defense analysis and federal power in the administration of the U.S. Department of Defense from the 1960s to the present.

Zachary Zwald is a Ph.D. student in the Department of Political Science at UC Berkeley. He will complete his dissertation, "Solving an Imaginary Problem: Why Should Determines Can on U.S. National Missile Defense," in August 2007. Zwald will be a post-doctoral fellow at the Mershon Center for International Security Studies at Ohio State during the 2007–2008 academic year.

Zwald's dissertation research examines how policymakers utilize strategic beliefs regarding nuclear conflict to understand and assess the possibility and feasibility of technology considered for use in a National Missile Defense system. During the next year, he will be extending his findings to consider the role of socialized beliefs on two related areas of study: the offensive-defense debate and the "nuclear revolution." Both projects will examine the implications of belief structures regarding nuclear weapons for how policymakers understand the value of military technology and, thus, the effect of weapons proliferation on international conflict.