

PUBLIC POLICY
AND
NUCLEAR THREATS

TRAINING THE NEXT GENERATION

About the 2004–05 IGERT Fellows and Associates

IGCC is pleased to announce the second group of fellows and associates for the National Science Foundation-funded Public Policy and Nuclear Threats (PPNT) program. For 2004–2005, the PPNT program has twelve fellows and six associates. This second group comprises current and incoming Ph.D. students from eight departments and six of the nine UC campuses. Both PPNT fellows and associates will come together this summer for a month-long seminar on both technical and policy issues surrounding nuclear threats and international security.

IGERT FELLOWS

Joseph P. Bassi
Kyle Beardsley
Thomas C. Butler
Monti Narayan Datta
Justin Hastings
Amanda Johnsen
Lance Kim
Bethany Lyles
Kai Pommerenke
Akhil Shah
Dane Swango
Peter Towbin

IGERT ASSOCIATES

Omar Clay
Juan Escobar
Jonathan D. Hagood
Jamus Lim
Lisa Saum
Jonathan Snider

Joseph P. Bassi, a native New Yorker and Yankees fan, is Ph.D. student in the Department of History at UC Santa Barbara. He is a consultant with the Aerospace Corporation supporting NASA/JPL and recently was a graduate research associate at Pacific Northwest National Lab where he worked nonproliferation issues at DOE/NNSA HQ.

A retired Air Force officer with twenty-six years of active duty, he at various points in his military career served as Director of the Joint Typhoon Warning Center (Guam), Professor of Strategic Studies at a Department of Defense college, HQ Air Force Action Officer and Program Element Manager, Chief of the Acquisition Meteorology Office at Air Force Space Systems Division, and Assistant Professor of Physics at the USAF Academy. He has graduate degrees in Meteorology from Penn State, Astrophysics from the University of Colorado, and History from the George Washington University. While at GWU, he was a NASA Space Grant Research Fellow at the Space Policy Institute, Elliot School of International Affairs.

Bassi graduated from Manhattan College in 1974 with a B.S. in Physics (Phi Beta Kappa) and was a distinguished graduate of the Air Force ROTC program. His current interests include the role of technology in the Cold War, the history of National Labs and their role in arms control and nonproliferation, and U.S. space policy and history.

Kyle Beardsley is a Ph.D. student in the Department of Political Science at UC San Diego. He specializes in both international relations and methodology. Currently, his research focuses on mediation in international crises, specifically with regard to why mediation occurs in some disputes and not others. Relevant to nuclear weapons proliferation, Beardsley is interested in why mediation almost never occurs between nuclear powers and what might be done to make mediation an attractive alternative to brinkmanship. Beardsley was born and raised in Maryland and attended the University of Maryland, College Park. As an undergraduate, he pursued bachelor's degrees in Economics and Government and Politics. While a student, he worked part-time as a crime analyst for the Washington/Baltimore High-Intensity Drug Trafficking Area and as a research assistant for the Center for Substance Abuse Research. While crime mapping and drug policy continue to be topics of interest, Beardsley shifted his focus to international politics after brief study abroad opportunities in Cuba, Prague, and Budapest.

A native of Woodinville, Washington, **Thomas C. Butler** received his B.S. in Physics from Brigham Young University in the summer of 2004 and is currently a graduate student in physics at UCLA with research interests in condensed matter physics and applied math. His interest in work on public policy and nuclear threats was greatly increased during a three-month stay at the University of Konstanz in Germany, where he was a guest researcher during the summer of 2003. His experience there, partly because of the arms inspection issues in Iraq and the related disagreements between the governments of the United States and Germany, made him see the importance of a role for scientists in policy decisions about technological issues. This realization has led to his current interest in technical issues surrounding recent suggestions for new nuclear weapons. Ultimately, Butler hopes to continue working on both policy and scientific issues in a national lab or a university.

A native Californian, **Omar Clay** has worked his way down the coast, studying at UC Santa Cruz, Santa Barbara, and San Diego. Although his interest in sustainable policy developed early, his formal education reflects a broad interest in fundamental science. He has been awarded numerous academic honors and holds undergraduate degrees in mathematics, physics, and psychology. Currently a physics Ph.D. student in a neuro-physics lab at UCSD, his research has primarily focused on nonlinear quantum physics with an eye for application in ultra-fast laser-based brain imaging technology. His interests include chaotic dynamics, networks of coupled oscillators, education research, international security, foreign policy, nuclear science and nonproliferation, missile defense, biotechnology, and the interplay between science and policy. Clay is an active participant in several local political and policy groups, including UCSD's Science Policy Analysis Roundtable and the Scripps Institution of Oceanography's Environmental Science Policy group. He is always alert for new developments and opportunities in these and related areas.

Monti Narayan Datta is a doctoral student in the Department of Political Science, UC Davis. His dissertation examines the consequences of anti-Americanism for the U.S. national interest. Datta earned a bachelor's degree in English literature from UC Berkeley in 1994, after which he spent three years teaching English in Japan and South Korea. During this time, he made several interesting treks throughout India and Thailand. In 2002 he completed a master's degree in public policy from Georgetown University. In 2005, he interned for the American Embassy in the Netherlands, working for its division of political affairs. After obtaining his Ph.D. in political science, Datta plans to pursue a career straddling academia and the policy world.

Juan Escobar was born in Mexico City in 1976. After high school he debated between economy, literature, and physics as a career. He decided on physics because he was told it would give him the most future options. He obtained his bachelor's degree in UNAM, Mexico, and had the chance to study abroad at UC Santa Cruz for six months. Escobar worked on granular materials and taught high school physics for a year before starting the Ph.D. program in physics at UCLA in 2000 as a Fulbright fellow. At UCLA, he is working on fracture dynamics and hysteresis at the nanometer scale. His interests include energy focusing phenomena, collective behavior, and the microscopic roots of irreversibility.

Jonathan D. Hagood is a Ph.D. student in History at the University of California, Davis. The primary focus of his research is the history of science, medicine, and technology policy in the twentieth century. His work includes research in Latin American science and technology, the role of the United States and Europe in science on the periphery, and the history of global nuclear proliferation. Hagood's public policy interests include nuclear weapons and defense strategies, science and technology issues, and foreign policy. He has a B.Architecture and a B.A. in Latin American Studies from the University of Texas at Austin. Prior to entering the Ph.D. program at UC Davis, Jonathan was a partner in an information technology consulting firm in San Francisco, California.

Justin Hastings is a fifth-year Ph.D. student in Political Science at UC Berkeley. His research interests primarily center on both traditional military and non-traditional security issues in China and Southeast Asia. Hastings' dissertation deals with the political geography of clandestine transnational networks in Southeast Asia, including terrorist groups, insurgents, smugglers, and maritime pirates, and is based on eleven months of fieldwork in the region. In terms of nuclear issues, he is interested in nuclear weapons doctrine, East Asian nuclear issues, and applying the concepts of non-traditional security to countering nuclear proliferation.

After graduating from Princeton University, Hastings lived for a year in Japan, working as a Princeton-in-Asia intern at a pharmaceutical company in Tokyo. He has been affiliated with the Institute for Defense and Strategic Studies in Singapore, and has worked at Lawrence Livermore National Laboratory, the Institute for Defense Analyses, and the Department of Defense.

Amanda M. Johnsen is a Ph.D. student in the Nuclear Engineering Department at UC Berkeley. Her current research interest is in radiochemistry. She has been studying neptunium thermodynamics as part of the Stockpile Radiochemistry group at Lawrence Livermore National Laboratory.

Johnsen grew up in an army family, moving frequently, and her interest in international relations began while her family was living at SHAPE, a NATO base in Belgium, at the end of the Cold War. More recently, her interests are in U.S. national security policy, including nuclear nonproliferation and security.

Before entering UC Berkeley, Johnsen received a B.S. in nuclear engineering from the Massachusetts Institute of Technology. She has interned at Pacific Northwest National Laboratory on a nuclear fuel development project and at Bettis Atomic Power Laboratory, a research lab that designs nuclear reactors for the U.S. Navy.

Lance K. Kim is pursuing a joint Masters in Public Policy and Nuclear Engineering and a Ph.D. in Nuclear Engineering at UC Berkeley. His research will likely focus on the technical and policy aspects of proliferation resistant reactors, safeguards, and/or critical infrastructure protection. Kim spent the last year at the International Atomic Energy Agency as a U.S. Support Program Fellow in the Non-Destructive Assay Systems unit with the Department of Safeguards. Prior to the IAEA, he worked in probabilistic risk analysis and advanced reactor nuclear analysis at the U.S. Nuclear Regulatory Commission.

Kim received his B.S. from UC Berkeley with a double major in Nuclear and Mechanical Engineering. He also has experience in heavy ion fusion research and energy analysis. His hobbies include classical guitar, scuba diving, cycling, skiing, and traveling.

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 in both the public sector, having spent time as a research associate at the Institute of Southeast Asian Studies, as well as the private sector, 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. When not holed up in the office, Lim can often be found in the gym, behind the drums, or in the cellar (in reverse order).

Bethany F. Lyles is a doctoral candidate in the Department of Nuclear Engineering at UC Berkeley and a fellow in the Institute on Global Conflict and Cooperation's (IGCC) Public Policy and Nuclear Threats program. Lyles has performed research at the Lawrence Livermore National Laboratory, the Australian National University, the Stanford Synchrotron Radiation Laboratory and the Massachusetts Institute of Technology, among others. Lyles was a finalist in UC Berkeley's 2006 Science Technology and Engineering Policy White Paper Competition. She recently organized IGCC's 2007 Emerging Nuclear Threats Conference held in Washington, D.C., and coauthored a proposal outlining a novel means for deterring a nuclear North Korea, which was presented on Capitol Hill.

Kai Pommerenke is a Ph.D. student in International Economics at UC Santa Cruz. His research interests center on the application of game theory to cooperation between rivals, considering both cooperative and non-cooperative approaches. After finishing his military service safeguarding nuclear artillery shells, Kai studied psychology and economics in Germany, France, Belgium, and the United States. A scholar of the German National Academic Foundation, Pommerenke graduated with distinction from the University of Cologne before pursuing a master's degree at the London School of Economics. He also worked as a management consultant in the United Kingdom, mostly in the energy and financial services industries. In his free time Pommerenke enjoys reading and playing beach volleyball.

Lisa Saum is a Ph.D. candidate in Political Science at UCLA. Her dissertation focuses on national security reform issues, specifically those that involve the intelligence community and the interest groups that gain access to the security policymaking process. She recently worked as a summer associate at the RAND Corporation, where she researched and wrote analytical briefs on the utility of nuclear deterrence toward rogue states and terrorist organizations. She is also interested in and currently training in the field of international mediation and conflict resolution.

Akhil Shah is a Ph.D. student in the UCLA Physics Department where he studies aspects of black hole and entanglement entropy in string theory and conformal field theories. After finishing his undergraduate studies in physics and electrical engineering at UC Irvine in 2000, he worked as an engineer in the Wireless Products division of Conexant Systems until 2001, when he began his Master's program in electrical engineering at UCLA. At the same time, Shah accepted a Master's fellowship from Northrop Grumman Space Technology (formerly TRW Space and Electronics) where he has designed high-frequency integrated circuits and modeled novel photonics devices. His research in the Opto-Electronics Circuits and Systems laboratory at UCLA culminated in a Master's thesis and journal article entitled "Equalization for Broadband Predistortion of Optical Transmitters," in December 2003. Shah's academic interests include applied mathematics, computational physics, and science policy. On those occasions spent away from a computer or laboratory, he enjoys kayaking, running, and traveling.

Jonathan Snider is a Ph.D. student in Political Science at UC Davis. His research interests include the legalization of global politics, international relations theory, and nuclear security. Currently, he is working on several projects relating to legal issues surrounding the nuclear nonproliferation regime at the Center for Global Security Research (CGSR) at Lawrence Livermore National Laboratory.

Previously, Snider was a research assistant at the Japan Nuclear Cycle Development Institute (JNC). Research conducted at JNC covered a broad spectrum of nuclear energy issues including proliferation-resistant nuclear reactors, reprocessing, nuclear non-proliferation and nuclear waste management. He has also worked as a legal assistant in Washington, D.C., focusing on U.S. export controls of dual-use technology and international boundary disputes.

Snider received his master's degree from the University of Virginia and his bachelor's degree from the Edmund A. Walsh School of Foreign Service at Georgetown University.

Dane Swango is a fourth-year Ph.D. student in the Department of Political Science at UCLA. As an undergraduate he majored in economics and physics at Duke University. After graduating summa cum laude in 2001, he accepted a Fulbright fellowship to live and work in rural South Korea. Upon completing his grant activities he returned to the United States and worked in public policy research at a Washington, D.C., think tank. He has also worked for Los Alamos National Laboratory and the Department of Defense.

Swango is interested in international security theory, technology, and U.S. national security. He is particularly attracted to the impact of technical change on national security. His work has covered the effects of environmental sampling on proliferation policy, and the interaction between proliferator beliefs and the monitoring technology. His dissertation examines the causes and consequences of different monitoring and verification choices in arms control regimes. He is also interested in the international relations of East Asia and U.S. security policy in the region.

Peter Towbin is a Ph.D. student in the Department of Applied Mathematics and Statistics at the University of California, Santa Cruz. He is interested in how formal mathematical models are used to represent complex real world phenomena, and methodologies to help understand the reliability of those models. He is also studying computational tools such as agent-based exploratory modeling. These tools are being applied to the simulation of complex social phenomena and could be useful in nuclear policy analysis. His broader academic interests concern the interplay between rapidly advancing technology and the stability of economic and political structures, and security of nuclear materials.