

IGCC

2013

YEAR IN REVIEW

UC Institute on Global Conflict and Cooperation

Cover Photo by US Army SGT Daniel Love.
Released by the US Department of Defense.

Shewan, Farah province, Afghanistan.

FROM THE DIRECTOR

The past year has been another productive time for IGCC in many of our core programs. It has also been important in examining our medium-to long-term strategic priorities as we come up for competitive renewal of key programs, such as our Minerva grants funded by the Department of Defense and the University of California Multi-campus Research Programs and Initiatives competition.

We awarded more than \$400,000 in graduate student fellowships and faculty grants this past academic year. Fourteen York Global Security Dissertation Fellows and three NSSC Fellows join a group of almost 500 past awardees. We also funded faculty projects at UC Berkeley, UC Santa Barbara, and UC Merced (see full list of awards, page 8). This makes IGCC one of the largest, if not largest, sources of funding for international conflict and cooperation-related scholarship.

Our research output has significantly expanded since the late 2000s when we successfully competed for two large awards from the Department of Defense Minerva Initiative. Our research publications have more than doubled, and we continue to find outlets in leading peer-reviewed journals and at university presses (see selected publications, page 7).

It was another full year of academic conferences, workshops, and

training activities. This past summer we held our ninth Public Policy and Nuclear Threats (PPNT) summer boot camp at UC San Diego. There are now 208 alumni from this program who form a network of experts that spans the globe. We also held our fourth summer training course on Chinese security and technology, one of the many activities of IGCC's Project on the Study of Innovation and Technology in China (SITC).

In addition to these training sessions, we held sixteen conferences, dialogues, and workshops on international security, innovation, homeland security, and climate change issues. Of special note was the Transforming Security Research workshop. Research Director Eli Berman played a leading role in bringing academic researchers from the United States and United Kingdom to Washington, D.C., to examine the state of research on national security and where funding agencies in these countries should focus their dollars in the near future.

IGCC's new Northeast Asia Maritime Safety Project, which held its inaugural event, multi-national Coast Guard dialogue in Dalian in October 2012, continued with a U.S.-China





Arati Prabhakar, Director of DARPA, 3rd annual Herbert York Memorial Lecture

Coast Guard bilateral meeting in Beijing in July 2013.

As part of a new partnership on international climate impact research and policy, IGCC sponsored the Water Issues in Climate Change symposium at UC San Diego in April 2013. The other partners are the Grantham Institute for Climate Change at Imperial College, London, and the Potsdam Institute for Climate Impact Research (PIK) in Germany. Two more symposia will be hosted by our international partners over the next two years.

IGCC brought Dr. Arati Prabhakar, the director of the Defense Advanced Research Projects Agency (DARPA), to give the third Herb York Memorial Lecture at UC San Diego in October. The event brings senior policymakers to IGCC, provides an opportunity for outreach to senior UC leadership, the local community, the national labs, and industry, and helps IGCC commemorate its history and the

many roles played by Dr. Herbert F. York (renowned physicist and Manhattan Project participant; first director of Lawrence Livermore National Laboratory; first chief scientist of the Advanced Research Projects Agency [later DARPA]; first chancellor of UC San Diego; and founding director of IGCC).

Changes in the way the University funds the core functions of research centers have meant that we have to be far more entrepreneurial, agile, and connected to successfully apply for grants and other sources of outside funding. IGCC has had plenty of success in this area in the past few years (see sources of support, page 24), but we need to build upon this success as our large grants come to an end.

Significant awards in the past year include another Minerva grant, for the project Detering Complex Threats: The Effects of Asymmetry, Interdependence, and Multi-polarity on International Strategy. As states face a widening range of new destabilizing threats, the interconnectedness of the contemporary world also creates new opportunities for state or non-state adversaries to seek asymmetric advantages (low-cost actions which undermine high-cost sources of power). The five-year project led by Erik Gartzke from UCSD's Political Science Department and IGCC research

scientist Jon Lindsay will look at these complex cross-domain deterrence issues through the lenses of asymmetric threats, interdependence, and multi-polarity.

We also were able to renew grants for our Northeast Asia Cooperation Dialogue (funded by the Carnegie Corporation of New York) and the PPNT program (funded by the National Nuclear Security Administration).

IGCC's traditional strengths derive from its identity as a leading international center for research on a broad range of traditional security issues from nuclear non-proliferation to regional security dynamics in Northeast Asia and the Middle East. Our goal is to continue in these core competencies but at the same time give growing emphasis to new ones in areas such as security dynamics in the Asia-Pacific region and national security, innovation, and technological development,

especially in rapidly industrializing countries such as China and India.

Our two Minerva projects (SITC and Terrorism, Governance, and Development) have been major successes, especially in their research and policy impact within the Department of Defense and other parts of the federal government, and we will seek to capitalize on this by developing new sources of funding to support these research agendas after our funding ends in the next couple of years. Through the SITC project, IGCC has undertaken a growing amount of work on innovation policy, especially comparing the United States and China, and on defense innovation. This is another area of potential growth and expansion.

Tai Ming Cheung

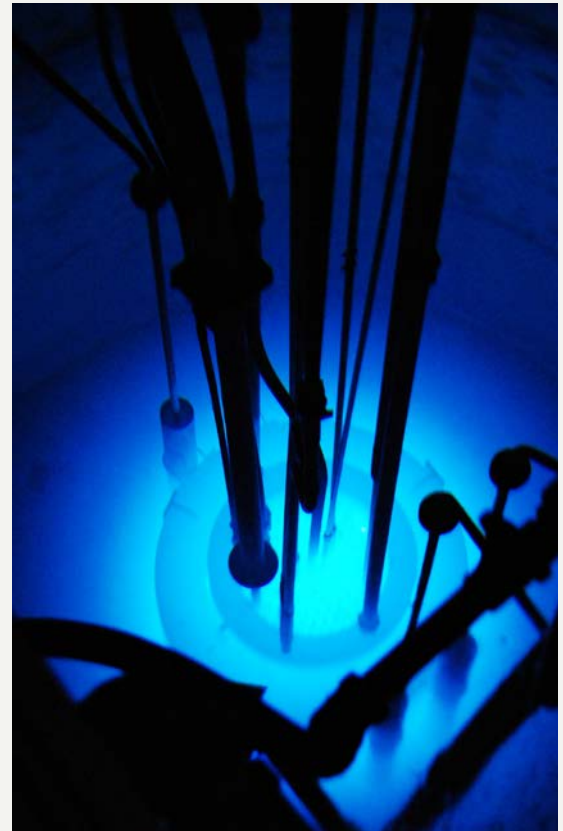


Director, IGCC





IGCC



IGCC addresses global challenges to peace and prosperity through academically rigorous, policy-relevant research, training, and outreach on international security, economic development, and the environment.

IGCC brings scholars together across social science and lab science disciplines to work on topics such as regional security, nuclear proliferation, innovation and national security, development and political violence, and climate change.



FOUNDATIONS

Founded by nuclear physicist Herbert F. York, IGCC's original emphasis on security and nuclear nonproliferation remains at its core, but its agenda has broadened with time. Today, IGCC researchers study a wide range of topics involving the security, environmental, and economic policies that shape our ability to prevent conflict and promote cooperation.

RESEARCH

Under the leadership of Director Tai Ming Cheung, IGCC's work in its core areas is balanced by the recognition that evolving threats to global stability require exploration of nontraditional connections between and across disciplines and institutions. Projects in newly emerging fields such as innovation studies, cybersecurity, and human capital are complements to projects with a more traditional security focus.

IGCC has provided ongoing leadership for preventive diplomacy in the world's most troubled regions through its Track II programs in the Middle East and Northeast Asia. In partnership with the state of California, IGCC experts help to train government officials in best practices for managing the aftermath of both manmade and natural disasters.

TRAINING

IGCC is committed to educating the next generation of international

IGCC addresses global challenges through academically rigorous, policy-relevant research.

problem-solvers and peacemakers through its research and teaching activities. Multi-week summer training programs have introduced young scholars and mid-career professionals to the policy issues surrounding such topics as nuclear weapons, biothreats, development and conflict, and the relationship between national security and technology. The institute has provided more than 500 fellowships to UC graduate students. IGCC also provides internships and employment opportunities to students.

OUTREACH

IGCC research informs national policy challenges through workshops, talks, and briefings at government agencies, organized by IGCC's Washington office at the UC Washington Center.

Public events at UC San Diego and other UC campuses provide opportunities to engage the wider community of scholars, students, and the general public.

IGCC disseminates its research findings through its website, weekly newsletters, research briefs, working papers, books, and articles in peer-reviewed journals.

IGCC'S CORE RESEARCH TEAM



Tai Ming Cheung
IGCC Director

Tai Ming Cheung is the director of IGCC and leader of IGCC's Minerva project "The Evolving Relationship Between Technology and National Security in China: Innovation, Defense Transformation, and China's Place in the Global Technology Order." Cheung is a long-time analyst of Chinese and East Asian 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 received his PhD from the War Studies Department at King's College, London University in 2006. His latest book, *Fortifying China: The Struggle to Build a Modern Defense Economy*, was published by Cornell University Press in 2009. Cheung is an associate professor in residence at the School of International Relations and Pacific Studies at UC San Diego, where he teaches courses on Asian security and Chinese security and technology.



Eli Berman
Research Director for International Security Studies

Eli Berman is a professor of economics at UC San Diego and a research associate at the National Bureau of Economic Research. His research interests include economic development and conflict, the economics of religion, labor economics, technological change, and economic demography. His latest publications are "Modest, Secure and Informed: Successful Development in Conflict Zones," (with Joseph Felter, Jacob Shapiro and Erin Troland in the *American Economic Review Papers and Proceedings*, 2013) and "Can Hearts and Minds be Bought? The Economics of Counterinsurgency in Iraq" (with Jacob Shapiro and Joseph Felter, *Journal of Political Economy*, 2011). Recent grants supporting his research have come from the Department of Defense, Department of Homeland Security, and the National Science Foundation. His book *Radical, Religious, and Violent: The New Economics of Terrorism* was published in 2009 by the MIT Press. Berman received his PhD in economics from Harvard University.



Joshua Graff Zivin
Research Director for International Environmental and Health Policy

Joshua Graff Zivin is professor of economics at UC San Diego, where he holds faculty positions in the School of International Relations and Pacific Studies and the Department of Economics. He is also a research associate at the National Bureau of Economic Research. In 2004–2005, he served as senior economist for health and the environment on the White House Council of Economic Advisers. Prior to joining UC San Diego in 2008, he was an associate professor of economics at Columbia University, where he directed the PhD program in sustainable development. Graff Zivin has published numerous articles on a wide range of topics in top economic, policy, and medical journals. His research focuses on health, environment, and development economics, frequently at their areas of intersection. He received his PhD in agricultural and resource economics from UC Berkeley.

PUBLICATION HIGHLIGHTS

BOOKS

Tai Ming Cheung, ed., *Forging China's Military Might: A New Framework for Assessing Science, Technology, and the Role of Innovation* (Baltimore, MD: Johns Hopkins University Press, 2013).

PAPERS/REPORTS/MONOGRAPHS

Eli Berman, Joseph H. Felter, Jacob N. Shapiro, and Erin Troland, "Modest, Secure and Informed: Successful Development in Conflict Zones," *American Economic Review: Papers and Proceedings*. Longer version as NBER Working Paper 18674.

Eli Berman, Joseph H. Felter, Ethan Kapstein, and Erin Troland. "Predation, Taxation, Investment, and Violence: Evidence from the Philippines," NBER Working Paper 19266, August 2013.

Oliver Bräuner, "Is Europe Feeding the Dragon? EU Transfers of Militarily Relevant Technologies to China," *Journal of East Asian Studies* 13, No. 3 (Sept.–Dec. 2013): 457–82.

Michael Callen, Mohammad Isaqzadeh, James D. Long, and Charles Sprenger, "Violent Trauma and Risk Preference: Artefactual and Experimental Evidence from Afghanistan," *American Economic Review*.

Tai Ming Cheung and Bates Gill, "Trade Versus Security: How Countries Balance Technology Transfers with China," *Journal of East Asian Studies* 13, No. 3 (Sept.–Dec. 2013): 443–56.

Daniel Egel, "Tribal Heterogeneity and the Allocation of Development Resources: Evidence from Yemen," *Journal of Development Economics* 101 (March 2013): 228–32.

Yoram Evron, "Between Beijing and Washington: Israel's Technology Transfers to China," *Journal of East Asian Studies* 13, No. 3 (Sept.–Dec. 2013): 503–28.

Erik Gartzke, "The Myth of Cyberwar: Bringing War in Cyberspace Back Down to Earth," *International Security* 38, No. 2 (2013): 41–73.

Jon R. Lindsay, "Stuxnet and the Limits of Cyber Warfare," *Security Studies* 22, No. 3 (2013): 365–404.

Jon R. Lindsay, "Reinventing the Revolution: Technological Visions, Counterinsurgent Criticism, and the Rise of Special Operations," *Journal of Strategic Studies* 36, No. 3 (2013): 422–53.

Tomoo Marukawa, "Japan's High-Technology Trade with China and Its Export Control," *Journal of East Asian Studies* 13, No. 3 (Sept.–Dec. 2013): 483–501.

POLICY BRIEFS

SITC-NWC Policy Briefs: Rich Region, Strong States: The Political Economy of Security in Asia, April 2013

This series of nine briefs comes from the second SITC collaboration with the Naval War College and examines the contemporary features and drivers of the political economy of security in the Asia-Pacific region. Some of the key issues explored include the economic underpinnings of regional military power (examining the defense burden and consequences for economic growth) and the military-security underpinnings of the economic dynamics in Asia. The briefs are available at igcc.ucsd.edu/SITC.

Research Briefs from the Dialogue on Comparing U.S. and Chinese Approaches to Science, Technology, and Innovation Policy (STI) Decision-making, December 2013

The fourteen briefs summarize the proceedings of a dialogue sponsored by IGCC and the Chinese Academy of Science and Technology Development. They provide both Chinese and American insights into how STI policy is made and implemented in the United States and China. The briefs are available at igcc.ucsd.edu/SITC.

2012-13 IGCC FUNDING AWARDEES

IGCC Dissertation Fellows

Shareefa Al-Adwani

Political Science, UC Davis
Proposal Title: Autocratic and Democratic Cooperation within Regional International Organizations (IOs)

Konstantin Ash

Political Science, UC San Diego
Proposal Title: Sub-National Group Allegiance After Civil War Initiation

Cameran Ashraf

Geography, UC Los Angeles
Proposal Title: International Cybersecurity and the Legal-Territorial Paradox

Arturo Jiminez-Bacardi

Political Science, UC Irvine
Proposal Title: Speaking Law to War: International Law, Legal Advisers, and Bureaucratic Contestation in Times of War

Joonbum Bae

Political Science, UC Irvine
Proposal Title: Engaging Autocrats: How the Politics Within Authoritarian Regimes Matter for Foreign Policy

Benjamin Cox

Anthropology, UC Irvine
Proposal Title: Building Universal Jurisdiction in Kenya: Securing the High Seas Against Piracy in the Somali Basin

Diego Esparaza

Political Science, UC Riverside
Proposal Title: Police Malfeasance in Latin America

Anthony Fontes

Geography, UC Berkeley
Proposal Title: Making the Marero: The Evolution of Transnational Gangs

Joseph Gardner

Political Science, UC Berkeley
Proposal Title: The Politics of Kidnapping: Explaining Mutual Restraint in Terrorist and Guerilla Conflicts

Anita Kellogg

Political Science, UCLA
Proposal Title: Economic Interdependence and the Kantian Peace: Determining Whether and How Global Linkages Reduce Interstate Conflict

Freyja Knapp

Environmental Science and Policy, UC Berkeley
Proposal Title: Constructing the Sustainable Mine: Global Electronic Waste Recycling

Chad Nelson

Political Science, UCLA
Proposal Title: Revolutionary Waves: The International Effects of Threatened Domestic Order

Weiye Shi

Political Science, UC San Diego
Proposal Title: Risky Business: Implications of China's Outward Direct Investments on Global Security

Beiji Tang

Political Science, UC Irvine
Proposal Title: Internationalization's Discontents: Domestic Coalitions and the Fate of China's Peaceful Rise

IGCC International Nuclear Security Dissertation Fellows

Funded by the National Nuclear Security Administration (NNSA) via the Nuclear Science and Security Consortium (NSSC)

Jeffrey Kaplow

Political Science, UC San Diego
Proposal Title: State Compliance and the Track Record of International Institutions

Henry Maar

History, UC Santa Barbara
Proposal Title: The Challenge of Peace: The Reagan Administration and Antinuclear Dissent in 1980s America

Aaron Shreve

Political Science, UC Davis
Proposal Title: The Role of Status Inconsistency in Nuclear Proliferation

IGCC Faculty Grants

Dr. Aila Matanock

Political Science, UC Berkeley
Project Title: International Institutions Intervening by Invitation: Proposal for a Project on Governance Delegation Agreements

Dr. Aashish Mehta

Global Studies, UC Santa Barbara

Dr. Luciano Kay

Center for Nanotechnology in Society, UC Santa Barbara

Project Title: Hiding in Plain Sight: Mapping the Global Race for National Security Technologies

Dr. Nathan Monroe

Political Science, UC Merced

Dr. Courtenay Conrad

Political Science, UC Merced

Project Title: Agenda Setting in International Organizations

Nuclear Campus Programming and Educational Grants

Dr. Bethany Goldblum

Nuclear Engineering, UC Berkeley
Project Title: An Educational Program to Address the Role of Nuclear Forensics in Counterterrorism Policy

COOPERATION WITH THE NATIONAL LABS

IGCC has a long history of collaboration with the Lawrence Livermore (LLNL) and Los Alamos (LANL) National Laboratories. Laboratory scientists and engineers draw on the expertise of UC social scientists to provide insight into the international, institutional, behavioral, and historical context for their own technical studies. IGCC benefits from the science and technical expertise of its lab partners, particularly in the areas of nuclear security and cybersecurity.

IGCC serves as a channel for the labs to access the social science expertise on the campuses, and for the UC community to make important scholarly connections with the labs. The connection with graduate training is especially strong. Many alumnae of IGCC's Public Policy and Nuclear Threats training program were interns at LLNL or LANL during their years of graduate study. In addition, IGCC, LLNL, and LANL were awarded a \$1.2 million UC Office of the President grant in 2012 to provide graduate fellowships. The first round of Herbert F. York Global Security Dissertation Fellowships was awarded in June 2013 to UC PhD candidates conducting social science research on topics such as nuclear nonproliferation, terrorism, regional security, international security institutions, climate change and security, and international health risks.

Building on last year's visit to UC San Diego by Principal Associate Director of Global Security Bruce Warner and LLNL Director Penrose Albright, LLNL hosted a symposium for the Herb York Global Security Fellows in November. The symposium included four panels: 1) nontraditional security issues; 2) laws of war and 21st century security threats; 3) democracy, trade, and major power relations; and 4) emerging security threats and the environment. Each was moderated by a UC faculty member and a laboratory scientist, and students received valuable feedback on their research design (and in some cases, their preliminary findings) from the moderators, the other fellows, and social scientists from the lab. LANL will host next year's symposium.

IGCC researchers and scientists from LLNL will come together at the lab in January 2014 to share findings related to the project Assessing China's Efforts to Become a Global Leader in High-Performance Computing (HPC). The key accomplishments the project to date are a research overview of China's high performance computing ecosystem, starting with the development of a key organization, research, and technology database, and the development of a UC-China research network. Project researchers went to Changsha, China, for the International HPC Forum organized by China's National University of Defense Technology (NUDT), and also met with Chinese HPC specialists from both academia and the private sector, including representatives from Inspur, Sugon, senior academics from NUDT, and representatives from Hunan's Academy of Social Sciences.

Scientists from LANL will be part of the research team for the new IGCC project on cross-domain deterrence, which gets underway in 2014.



Panelist Bruce Warner (LLNL) at the 3rd Annual Herbert York Memorial Dinner.

2013 Events

Third Annual Herb York Memorial Lecture

Driving Technological Surprise: DARPA's Mission in a Changing World

Speaker: Dr. Arati Prabhakar, director of DARPA
La Jolla, California
October 30

How Strong Is the U.S. Innovation System for National Security?

Panelists: Arati Prabhakar, Peter Cowhey, Al Pisano, Bruce Warner
La Jolla, California
October 30

Herb York Global Security Fellows Symposium

Lawrence Livermore National Laboratory
Livermore, California
November 6

INNOVATION AND TECHNOLOGY IN CHINA

2013 Events

China's Defense Science, Technology, and Innovation System: Current State and Development Prospects over the Next Decade

UC Washington Center
Washington, D.C.
January 14–15

China's New Navy—and Asia's New Naval Arms Race?

Speaker: Bernard Cole
La Jolla, California
January 30

Assessing the State of China's Defense Science, Technology, and Innovation Capabilities Pacific Operational Science and Technology Conference

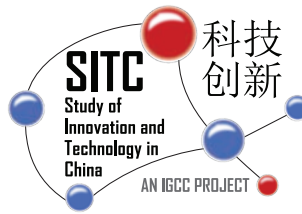
Honolulu, Hawaii
March 7

Workshop on Assessing the State of China's National and Defense Science, Technology, and Innovation Capabilities

U.S. Pacific Command
Honolulu, Hawaii
March 11–12

Briefing: How China Is Trying to Foster Innovation in Various Defense Sectors

Paris, France
April 8



SITC researchers seek to understand the approaches, challenges, and prospects for success in China's quest for technological transformation.

The Project on the Study of Innovation and Technology in China (SITC), led by IGCC Director Tai Ming Cheung, examines China's drive to become a world-class technological power, especially in the defense and dual-use sectors, and seeks to understand the implications for the United States and the rest of the world. One of the central research problems is to identify, understand, and measure the key sources of innovation, broadly defined, and the barriers that will shape China's technological development trajectory.

To address this overarching question, the project looks in detail at a number of areas from the roles and relationship between the state and market, China's place in the global technology order, governance regimes and incentive mechanisms, and the different elements of the innovation ecosystem to the inter-relationship of the civilian and defense economies. A relational database supports quantitative and network analysis of data from the project.

The project is organized into six research topics: annual assessments of the reform and modernization of critical sectors in China's defense and dual-use science, technology, and innovation (STI) base; comparison of China's approach to technology development, defense industrialization, and forging of a dual-use base with peer competitors and latecomers; analysis of the political economy of China's defense science and technology (S&T) and technological rise; China's technological development and implications for U.S. and international technology trade policies; the structures, processes, and leadership of the Chinese civilian and defense S&T systems; and historical influences on contemporary Chinese grand strategic thinking on S&T.

2013

The SITC project conducted numerous conferences and workshops in 2013. In July a conference was held examining the structure, process, and performance of China's defense research, development, and acquisition system involving 38 scholars and analysts from around the world. In August two conferences were held, the first being a dialogue comparing U.S. and Chinese approaches to science, technology, and innovation policy decision making involving 42 participants from the U.S. and Chinese governments and members of academia. A second conference brought together numerous academics from around the world to compare the defense innovation systems of the United States, China, Russia, and India. Finally, in October a conference on the historical influences on China's science and technology policy



China's Defense Science, Technology, and Industrial Base conference

was held in which leading Chinese historians provided their views on the development of science and technology in China from the early dynasties to the present.

In addition to these conferences, the annual Summer Training Workshop on the Relationship Between National Security and Technology in China provided training for 26 participants from academia, government, military, and industry. A particularly noteworthy feature of these workshops was the extensive presence of international attendees from Canada, India, New Zealand, Singapore, South Korea, and Taiwan.

SITC investigators also gave briefings to senior leadership at the Department of Defense (DoD), the Defense Advanced Research Projects Agency (DARPA), Pacific Fleet, and the national security community. These were intended to provide DoD decision-makers access to the latest academic research on key developments and trends in the Chinese national and defense STI systems and their possible effects on the United States.

2014

The fifth training workshop will take place in August in conjunction with a conference examining recent developments in China's defense industry.

Contact

Kevin Pollpeter (kpollpeter@ucsd.edu)



Participants in the 2013 Summer Training Workshop on the Relationship Between National Security and Technology in China



IGCC Director Tai Ming Cheung in discussion at the 2013 training workshop.

Briefing: China's Innovation Policies and High-Technology Trade and Investment with Major Partners

Berlin, Germany
April 9

Fourth Summer Training Workshop on the Relationship Between National Security and Technology in China

La Jolla, California
July 21–August 3

Understanding the Structure, Process, and Performance of the Chinese Defense Research, Development, and Acquisition System

La Jolla, California
July 29–30

Comparing U.S. and Chinese Approaches to Science, Technology, and Innovation Policy Decision-making

La Jolla, California
August 1–2

The Historical Influence of Contemporary Chinese Grand Strategic Thinking on Science and Technology

La Jolla, California
Oct. 17–18

INTERNATIONAL COOPERATION ON CYBERSECURITY

2013 Events

Evolving Legal Frameworks for
Protecting Internet Privacy in China
Speaker: Jinghong Xu
La Jolla, California
February 12

IGCC and partners are exploring emerging threats in cyberspace and security strategies to address them.

The rise of cyberspace has created a number of challenging problems for global security. These include the proliferation of cyber weapons to state and non-state actors; systemic vulnerabilities in the infrastructure of globalization and military power; friction between private sector actors who manage the Internet and public sector actors who are supposed to defend them; mismatch between the pace of policy formation and the pace of technological change; coordination failures among government agencies responsible for national security, law enforcement, and industrial policy; and major normative disagreements about how the Internet should be managed domestically and internationally.

In short, technological complexity has amplified political complexity. This, in turn, has complicated political analysis. Because cybersecurity problems cross many jurisdictional and intellectual borders, a basic challenge is simply to develop useful theoretical concepts to analyze them. Empirical assessment of cyber threats and national policies is also important.

2013

The manuscript of *China and Cybersecurity: Political, Economic, and Strategic Dimensions*, edited by Jon Lindsay, Tai Ming Cheung, and Derek Reveron, has been submitted and is currently under consideration by a major university press. This volume, the first collection of scholarship focusing in depth on this urgent contemporary issue, is an outgrowth of two conferences IGCC held in 2012 in collaboration with the US Naval War College. Contributors include expert scholars, scientists, and policy analysts from the United States, United Kingdom, Canada, and China.

Contact

Jon Lindsay (jrlindsay@ucsd.edu)

Jinghong Xu presenting
on internet privacy in China.



CROSS-DOMAIN DETERRENCE

Deterring complex threats in an increasingly fragmented international order

Deterrence as a strategy and doctrine was convincingly and effectively deployed by the United States during the Cold War. Today, in addition to traditional nuclear threats from other states, governments must also consider potentially serious risks created by dependence on space, cyberspace, financial, and other global infrastructures. The technological complexity of these interconnected threats, and the political complexity of the actors who pose and face them, generates tremendous uncertainty. This in turn undermines the simple logic of traditional deterrence frameworks, as well as the credibility of such efforts.

“Cross domain deterrence” (CDD) is the problem of countering threats in one arena (such as space or cyberspace) by relying on different types of capabilities (such as sea power or nuclear weapons, or even non-military tools such as market access) where deterrence may be more effective. CDD may not be new—indeed, states have mixed different tools of coercion since antiquity—but the complexity of the contemporary threat landscape makes it more important than ever to understand its logic. CDD poses both opportunities and challenges that necessitate, and will benefit from, a major evolution in thinking (and practice) about how deterrence operates.

IGCC has been awarded a five-year grant, funded by the U.S. Department of Defense Minerva Initiative, to develop a deeper understanding of CDD. *Deterring Complex Threats: The Effects of Asymmetry, Interdependence, and Multi-polarity on International Strategy* features collaboration between researchers at UC San Diego, UC Berkeley, and the Lawrence Livermore (LLNL) and Los Alamos National Laboratories (LANL). Through qualitative research, analytic modeling, and computational simulation, this program seeks to explain how increasing technological and political complexity affects coercive strategy. Researchers will address questions such as:

1. How does asymmetric access to nuclear weapons, counter-space operations, and cyberspace capabilities shape threats and the use of force?
2. How does political-economic and technological interdependence affect strategic calculations and a willingness to fight or compromise?
3. How does the proliferation of diverse types of weapons to a growing number of actors shape the nature of deterrence or alter its scope?

Answers to such questions promise to advance the social science of national security and inform policy for tackling emerging cross-domain threats.

Contact

Jon R. Lindsay (jrlindsay@ucsd.edu)

DEVELOPMENT AND CONFLICT RESEARCH

2013 Events

Transforming Security Research Workshop

Arlington, VA
February 26–28

Empirical Studies of Conflict 2013 Annual Research Meeting

UC Washington Center
Washington, D.C.
May 10–11



Medications used for livestock services in Pakistan.

[Understanding the political economy of terrorism and insurgency has immediate implications for development in the world's trouble spots.](#)

The Development and Conflict Research (DACOR) project, led by IGCC Research Director Eli Berman, implements a broad program of theoretical, empirical, and field research on terrorism, insurgency, governance, and development in key locations around the world. DACOR is multidisciplinary, bringing together economists, political scientists, military personnel, and development practitioners. Partners include faculty at Princeton, Stanford, UCLA, and UC Berkeley.

2013

In prior years DACOR researchers achieved the program's first major goal: to elucidate and empirically test the theory that economic and political development can help stabilize a conflict or post-conflict zone. Project researchers are currently working to refine that theory by understanding the role of improved governance in stabilization in locations such as Afghanistan, Pakistan, and the Philippines. In 2013 the program organized workshops, hosted visiting scholars, and conducted field research to further the research agenda.

As part of theory development efforts the program hosted visiting scholar Gerard Padró i Miquel for three weeks in Spring 2013. Padró i Miquel, a professor of economics at the London School of Economics, assisted in compiling an omnibus theory of development and conflict. His visit was also used to tie this theory to the existing literature on subnational conflict and political economy, on which he is an expert.

On the empirical front, postdoctoral scholar Aila Matanock, now an assistant professor at UC Berkeley, traveled to Guatemala and El Salvador to establish contacts for a project examining whether governance delegation agreements may be a mechanism for overcoming corrupt security sectors in post-conflict states.

Postdoctoral scholar Michael Callen, now an assistant professor at UCLA, traveled to Afghanistan and Pakistan with graduate students to continue research programs with local partners, meet with government officials and local NGOs, conduct surveys, and gather data. These projects assess how technology might improve governance in poorly governed spaces. One team is evaluating whether the use of cell phones can reduce corruption and improve outcomes in two settings, rural health clinics and rural livestock, both in Pakistan. Another is assessing the implementation of mobile salary payments and mobile savings accounts in Afghanistan as a development tool. These innovative projects, if successful, will provide practical advice to governments and development practitioners on how to improve the lives of citizens in contested areas.

As part of DACOR's contribution to the broader research community, Berman organized and co-facilitated a February 2013 workshop on

Transforming Security Research at the National Science Foundation headquarters in Arlington, Virginia. The workshop gathered an all-star team of researchers across countries and disciplines to explore how to best design future research in a rapidly changing security environment. It was jointly hosted by three major funders: the Department of Defense Minerva Research Initiative, the National Science Foundation, and the UK Research Councils. Participants discussed developments and new directions in security-related research within social and behavioral science, and identified breakthroughs and barriers to advancement in this evolving field, particularly longer-term transformational opportunities.

2014

In 2014, DACOR research will become more specific, investigating the design and implementation of particular interventions that allow human development goals to be met in conflict and post-conflict environments. In that context researchers are developing and testing models complementary to the “Heart and Minds” framework.

As one example, Berman and Joseph H. Felter of Stanford will examine the effect of the expansion of state control in the Philippines on human welfare outcomes, including malnutrition rates.

Contact

Katherine Levy (levyk@ucsd.edu)



Pakistani veterinary officers being trained to use a smartphone application to track their livestock services.

ENVIRONMENT AND HEALTH IN A GLOBAL CONTEXT

2013 Events

Water Issues in Climate Change

La Jolla, California
April 3–5

A Multidisciplinary Workshop to Address Ecosystem-Level Impacts of Fisheries Bycatch on Marine Megafauna Biodiversity Conservation through Mitigation, Policy, Economic Instruments, and Technical Change

Gland, Switzerland
September 10–13

IGCC's research on international environmental policy and health issues acknowledges their inherently transboundary nature.

Over the years, the focus of IGCC's environmental policy program has expanded to include the health/environment nexus while acknowledging the importance of global health as a concern in its own right. Led by Research Director Joshua Graff Zivin, the program's current research covers transboundary fisheries management, pollution and environmental health, and a range of issues related to climate change.

2013

In April, IGCC, the Potsdam Institute for Climate Impact Research (PIK), and the London-based Grantham Institute for Climate Change launched a new international climate impact research and policy network with the first of a series of three symposia. Water Issues in Climate Change provided an opportunity for the public to engage with scholars with expertise on the technical and policy aspects of climate change issues and the water cycle and featured a keynote address by former California State Senator Christine Kehoe. The second symposium will be held in Germany and hosted by PIK in 2014. Ongoing work on sustainable tuna fisheries has addressed: 1) the causes of overcapacity and how to control it; 2) rights-based management and allocation; 3) effective monitoring, compliance, and enforcement tools; and 4) the design of international agreements to ensure sustainable global fish stocks while providing fair access to the fisheries. The latest meeting of the group in September in Gland, Switzerland, convened academics, policymakers, and industry participants to focus on managing unintended catch in international fisheries.

2014

In May, IGCC will host the second meeting of the Health and Human Capital Working Group, which will focus on Latin America. The next fisheries workshop will take place in Barcelona, Spain, and will focus on transferring fishery capacity from developed to developing countries.

In addition, with support from the UC Office of the President, IGCC and the School of International Relations and Pacific Studies at UC San Diego will hold an interdisciplinary conference on the impacts of climate on disease vectors. Researchers will start by taking stock of the state of knowledge around models linking ecology and disease and hope to articulate a research agenda that will address gaps in our understanding of the biological dynamics of various diseases.

Contact

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Christine Kehoe, keynote speaker,
Water Issues in Climate Change Conference.

THE MIDDLE EAST REGIONAL SECURITY PROGRAM

Participants engage the Middle East's most critical issues, enabling communication where there might otherwise be only misunderstanding.

IGCC and the UCLA Center for Middle East Development (CMED) jointly conduct research and provide educational programs on matters of political, economic, and diplomatic development in the Middle East. Guided by UCLA Professor Steven Spiegel, IGCC's Middle East programs explore issues of regional security and enable conflict resolution. Through conferences, task forces, publications and other programming, CMED explores key subjects for the region, including Arab-Israeli issues, Gulf security, Mediterranean security, regional business and economics, technological cooperation, regional strategic cooperation, and democratic culture and media.

The project convenes an annual public conference, supported by the Qatari government, on key economic topics in the Middle East. The 2013 conference focused on the economic effect of Islamic governance, the Middle East's pivot to Asia, youth employment and entrepreneurship, and new ideas for fostering regional stability through investment, NGOs and the media.

The project also produces a peer-reviewed book series, published by Routledge Press. The latest addition to the series is *Non-State Actors in the Middle East: Factors for Peace and Democracy*, edited by Galia Golan and Walid Salem (Routledge, 2013).

Contact

Mani Jad (mjad@international.ucla.edu)

2013 Events

**Enriching the Middle East's
Economic Future VIII**
May 20–22, 2013
Doha, Qatar



Steven Spiegel, UCLA professor, speaking at the 12th annual Doha Forum, Doha, Qatar

THE NORTHEAST ASIA COOPERATION DIALOGUE

2013 Events

**Northeast Asia Maritime Safety
Cooperation Project**
Beijing, China
July 16–17



THE NORTHEAST ASIA
COOPERATION DIALOGUE

**IGCC has led the way in
seeking to reduce the risk
of conflict in Northeast
Asia through the Track II
process.**

IGCC's Northeast Asia Cooperation Dialogue (NEACD) was created in 1993 to build an institutional mechanism for dialogue and communication in Northeast Asia and to minimize tension and foster cooperation in the region. Officials and academics from the six NEACD countries (China, Russia, North and South Korea, Japan, and the United States) have enthusiastically participated in its annual meetings. Founded and led by IGCC Director Emeritus Susan Shirk, NEACD seeks to reduce the risk of military conflict in the region and to lay the groundwork for an official multilateral process in Northeast Asia.

2013

As a direct result of NEACD discussions and the Northeast Asia Maritime Safety Cooperation Project, which was founded in Dalian, China in 2012, a bilateral session took place July 16–17, 2013, in Beijing. The session was organized by IGCC and the China Institute of International Studies (CIIS). The primary objective of the dialogue was to engage with the new Chinese Coast Guard created by the merger of four civilian maritime agencies. Chinese officials from the new Coast Guard and the China Maritime Safety Administration (the one maritime agency that has not been merged into the new Coast Guard) and several maritime specialists from CIIS and the Chinese Academy of Social Science met with retired and current U.S. Coast Guard officers and academic maritime experts in a fruitful dialogue on the missions, management, and operations of Chinese and American maritime agencies.

A grant of \$500,000 from the Carnegie Corporation will fund NEACD's annual meetings through 2016.

2014

The twenty-fourth NEACD meeting will be held in Vladivostock, Russia, in April.

Contact

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Northeast Asia Cooperation Dialogue 23

THE TOTALLY UNPREPARED PROGRAM



With the support of the California Governor's Office of Emergency Services and the California Safety Seismic Commission, IGCC raises public awareness about earthquake risks and preparedness activities.

Focusing on a public with low levels of disaster preparedness that often tunes out traditional messaging approaches, Totally Unprepared (TU) effectively engages people to help themselves, their families, and communities become more prepared for earthquakes in California.

2013

A series of outreach efforts, increased public relations and partner recruitment, and digital outreach, including website refinement and the promotion of the Red Cross Earthquake Mobile Application, focused on bringing the message to populations traditionally at greater risk during emergencies. Existing public media partners, the Red Cross, and specialized media organizations such as New America Media and statewide local print and broadcast outlets increased TU's reach to traditionally unprepared Californians, helping them to become more ready for earthquakes, fires, and other emergencies.

In collaboration with Natomas Charter School and Challenger Middle School, TU piloted an earthquake preparedness project involving the construction and testing of gingerbread houses on a homemade shake table. Aside from school outreach, partner engagement resulted in three organizations crosslinking their website to TU; three news outlets highlighting the TU campaign; ten community outreach events; and five partners including public, educational and government access television (PEG-TV) presenting the "Totally Unprepared" and "Will it Shake?" series. The TU website drew over 47,000 visitors, and TU's YouTube videos pulled more than 12,000 views.

2014

IGCC and the Red Cross are partnering to develop and launch enhanced health and disaster preparedness capabilities in underserved California neighborhoods. Using a combination of proven Red Cross training programs, innovative on-line and directly delivered content/activities, and engaging print and broadcast media developed by IGCC, we will aim to enhance the relevant skills and local community cohesion needed for better preparedness and health.

Contact

Connie Chan (cvc001@ucsd.edu)

2013 Events

Totally Unprepared Roundtable

Moderator: Sandy Close
(New American Media)
San Francisco, California
April 17

Totally Unprepared Roundtable

Moderator: Sandy Close
(New American Media)
San Diego, California
August 28



Jodi Takei-Peterie, Challenger Middle School 7th grade science and 6th grade wheel MESA class teacher, demonstrates earthquake damage using gingerbread houses.



Connie Chan representing Totally Unprepared.

PUBLIC POLICY AND NUCLEAR THREATS

2013 Events

PPNT Winter Conference
UC Washington Center
Washington, D.C.
March 22–23

Public Policy and Nuclear Threats
2013 Boot Camp
La Jolla, California
August 4–18



Participants in the 2013 summer Public Policy and Nuclear Threats Boot Camp.

PUBLIC POLICY AND NUCLEAR THREATS

TRAINING THE NEXT GENERATION

IGCC provides a new generation of specialists with the science and policy background needed to handle nuclear issues inside and outside of government and the national laboratories.

Established in 2004 with the support of the National Science Foundation, the Public Policy and Nuclear Threats (PPNT) program is innovative both in its structure and in the impressive combination of participating experts and fellows. The program gives students an intensive immersion into the technical and policy dimensions of nuclear weapons and proliferation challenges. Its foundation is the summer training “boot camp,” where fellows learn from top policy and academic experts. PPNT provides a multidisciplinary policy classroom for both lab science and social science students and professionals, and boasts a network of over 200 alumni, many of whom come together at the annual winter conference.

IGCC is also a member of the Nuclear Science and Security Consortium (NSSC), a network coordinating coursework and experience from student to scientist to identify and educate laboratory-integrated nuclear experts.

2013

The ninth summer boot camp at UC San Diego provided participants with formal and informal discussions with senior nuclear policy mentors such as PPNT's expert-in-residence Ambassador Linton Brooks and speakers such as former Deputy Assistant Secretary of Defense Brad Roberts, Scott Sagan from the Center for International Security and Cooperation, Olli Heinonen of the Belfer Center, and Laura Rockwood from the International Atomic Energy Agency. The national labs were represented by scientists from the Idaho, Pacific Northwest, Lawrence Livermore, and Los Alamos National Laboratories.

The annual PPNT conference, which gives D.C. policy professionals the opportunity to learn from fellows' research, was held in March at the UC Washington Center. The conference had panels on “Ambiguity at the Threshold,” “Impact of Signaling in Nuclear Policy,” “Monitoring and Forensics in the 21st Century,” and “Nuclear Governance.”

2014

The summer boot camp at UC San Diego will be held in July 2014.

Contact

IGCC Campus Programs (igcc-cp@ucsd.edu)

IGCC IN WASHINGTON, D.C.



The IGCC Washington Forum

IGCC brings new research to inform U.S. policy debates through workshops and talks at the UC Washington Center and briefings at government agencies.

IGCC's Washington office, based at the University of California Washington Center (UCDC), develops programs and projects to promote closer links with the policy community and to advance new international affairs research and educational opportunities for UC faculty, graduate students, and undergraduates. Joseph McGhee, IGCC's representative in Washington, also helps set up briefings and events for UC faculty interested in presenting their research to the policy community.

The office provides active liaison and support for IGCC's contacts in Congress and federal agencies, including the Departments of Defense and State, the Department of Energy and its National Nuclear Security Administration, the Defense Threat Reduction Agency, the Nuclear Regulatory Commission, the Domestic Nuclear Detection Office, the National Institutes of Health, the National Defense University, and numerous foreign embassies, academic institutions, and think tanks in the Washington area.

2013

IGCC hosted several workshops, policy briefings, and book discussions by UC faculty and researchers through its IGCC Washington Forum, as well as the PPNT winter conference in March and the annual Development and Conflict Research (DACOR) funder meeting in May.

IGCC's Washington office also continued its support for UC undergraduate programs, providing counseling for resident undergraduates interested in foreign policy careers and recruiting speakers for UCDC's speaker program.

2014

In late January, IGCC will hold a conference on Chinese defense science, technology, and innovation under the leadership of Xi Jinping. A full schedule of policy briefings highlighting the work of University of California researchers is also planned.

Contact

Joseph R. McGhee (joseph.mcghee@ucdc.edu)

2013 Events

Safe and Peaceful Use: Nuclear Safety and Safeguards Workshop

Moderator: Charles Ferguson
(Federation of American Scientists)
UC Washington Center
Washington, D.C.
April 10

The Citadel: The Constitutional Delusions and Democratic Dysfunction of the 60-Vote Senate

Speaker: Daniel Wirls (UC Santa Cruz)
UC Washington Center
Washington, D.C.
May 16

CUBA!

Speaker: Richard Feinberg (UC San Diego)
UC Washington Center
Washington, D.C.
June 21



UC Washington Center

SUPPORT FOR IGCC

HIGHLIGHTS

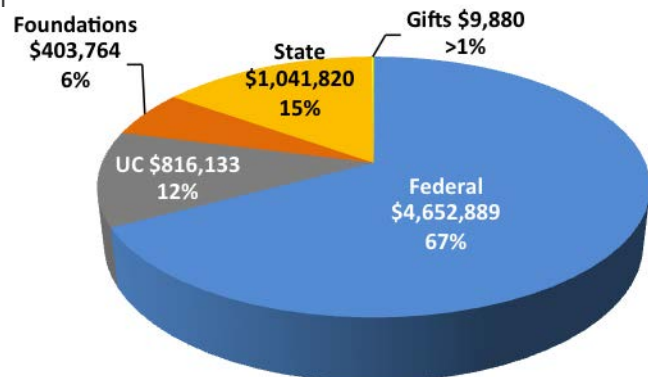
2013 was another successful fundraising year for IGCC. From July 1, 2012, to June 30, 2013, IGCC received \$6,098,473 in extramural funding, which represents an increase of 172 percent over the previous year; and \$816,133 in UC intramural funds. Extramural grants grew in each category—federal, state, and foundation. Notable grants came from the University of California Office of the President, the Near East South Asia/Center for Strategic Studies, and the Department of Defense, Army Research Office to support the Northeast Asia security and maritime research and policy programs. Federal grants totaled \$4,652,889, a more than 150 percent increase over the previous year. Foundation grants totaled \$403,764. State grants totaled \$1,041,820, which is more than triple the previous year.

SUPPORT FROM DONORS

From July 1, 2012, to June 30, 2013, IGCC received \$9,880 in gifts. The largest gift, \$9,380, went to the Innovation Fund for Development and Conflict Research (DACOR) research. During this same time period, the York Fund gained \$500.

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NEW GRANTS

California Seismic Safety Commission
Department of Defense Minerva Initiative
DOE National Nuclear Security Administration
Ford Foundation
Massachusetts Institute of Technology
National Science Foundation
University of California Office of the President Lab Fee Competition
University of Chicago

CONTINUING GRANTS

California Emergency Management Administration
Carnegie Corporation of New York
DOE National Nuclear Security Administration
Domestic Nuclear Detection Office via Los Alamos National Laboratory
Department of Defense Minerva Initiative
John D. and Catherine T. MacArthur Foundation
National Science Foundation
Near East South Asia/Center for Strategic Studies
University of California Office of the President
Multi-Campus Research Program Initiative

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