

MARGARET E. KOSAL
ASSOCIATE PROFESSOR
SAM NUNN SCHOOL OF INTERNATIONAL AFFAIRS
IVAN ALLEN COLLEGE
GEORGIA INSTITUTE OF TECHNOLOGY

I. EARNED DEGREES

Ph.D. Chemistry, 2001
University of Illinois at Urbana-Champaign
Dissertation:
Porphyrin Network Materials: Chemical Exploration in the Supramolecular Solid-State

B.S. Chemistry, with Honors, 1995
University of Southern California, Los Angeles CA

II. EMPLOYMENT HISTORY

Associate Professor
Sam Nunn School of International Affairs
Georgia Institute of Technology, Atlanta GA
August 2015 -

Assistant Professor
Sam Nunn School of International Affairs
Georgia Institute of Technology, Atlanta GA
August 2008 - July 2015

Senior Advisor (GS-15)
Office of the Chief of Staff of the Army
Strategic Studies Group
Headquarters Department of the Army
Department of Defense, Washington, DC
July 2012 - July 2013 (*on leave from Georgia Tech*)

Visiting Assistant Professor
Sam Nunn School of International Affairs
Ivan Allen College
Georgia Institute of Technology, Atlanta GA
August 2007 - July 2008

Science & Technology Advisor
Office of the Assistant Secretary for Nuclear, Chemical, and Biological Defense (ASD(NCB))
Office of Secretary of Defense
Department of Defense, Washington, DC
September 2005 - August 2007

MARGARET E. KOSAL, Ph.D.

Science Fellow
Center for International Security and Cooperation (CISAC)
Institute for International Studies
Stanford University
September 2004 - August 2005

Adjunct Professor
Executive Leaders Program
Center for Homeland Defense and Security
Naval Postgraduate School
January 2004 - June 2004

Post-doctoral Fellow
Center for Nonproliferation Studies, Monterey CA
Monterey Institute of International Studies
August 2003 - August 2004

Visiting Scientist
School of Chemical Sciences
University of Illinois at Urbana-Champaign, Urbana IL
June - August 2003

Visiting Scholar (*non-resident*)
Northwestern University
Feinberg School of Medicine
January 2002 - May 2003

Co-founder and Senior Scientist
ChemSensing, Inc., Urbana IL
December 2000 - May 2003

III. HONORS AND AWARDS

- Senior Adjunct Scholar to the Modern War Institute at the U.S. Military Academy (West Point)
- Grand Challenges Faculty Fellow, AY2015-2016 & AY 2016-2017
- 2015-2016 CETL Class of 1969 Teaching Scholar
- 2015 CETL/BP Junior Faculty Teaching Excellence Award
- Gold Star Award in Recognition of the Highest Level of Accomplishment in Research, Ivan Allen College of Liberal Arts, Spring 2013, Spring 2015
- Dean Griffith Teaching Recognition – “Thank a Teacher” Award, *received every year at GT*
- 2014 Georgia Tech Junior Faculty Outstanding Undergraduate Research Mentor Award
- Ivan Allen Jr. Legacy Faculty Award, 2012
- INTAGO Faculty of the Year, 2010
- Office of the Secretary of Defense Award for Excellence, 2007
- University of Illinois at Urbana-Champaign Recent Alumni Award, 2007
- President’s Volunteer Service Award, 2007
- American Association for the Advancement of Science (AAAS) Science & Technology Fellowship, 2005-2007
- American Chemical Society’s *Chemical and Engineering News* Top 2002 Supramolecular Chemistry research paper

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– Society of Porphyrins and Phthalocyanines Dissertation Research Award, 2001

IV. RESEARCH, SCHOLARSHIP, AND CREATIVE ACTIVITIES

A. PUBLISHED BOOKS, PARTS OF BOOKS, AND EDITED VOLUMES

A1. Books

Kosal, M.E. Nanotechnology for Chemical and Biological Defense, Springer Academic Publishers: New York, June 2009. (179 pages) 32 citations.

A2. Refereed Book Chapters

Kosal, M.E.; Purcell, R. H; Rommelfanger, K.S., “Ethical Issues Arising from Commercial Brain Training Programs and Big Data Brain Science,” *to appear in The Handbook of Neuroethics, editors K.S. Rommelfanger and S. Johnson, Taylor and Francis, 2017.*

Kosal, M.E. “Emerging Science and Technologies: Strategy, Security, and Governance,” *to appear in Science, Technology, and Art in International Affairs, editors R. Marlin-Bennett, J.P. Singh, and M. Carr, Routledge, 2016.*

Kosal, M.E. “Anticipating the Biological Proliferation Threat of Nanotechnology: Challenges for International Arms Control Regimes” in New Technologies and the Law of Armed Conflict, editors H. Nasu and R. McLaughlin, TMC Asser: Holland, 2014, 159-174. 3 citations.

Kosal, M.E., “Near Term Threats of Chemical Weapons Terrorism,” in Globalization and WMD Proliferation: Terrorism, Transnational Networks and International Security, Russell, J.; Wirtz, J. Routledge, 2009, 63-78. 5 citations

Kosal, M.E., “Scenarios for Anticipating Emerging Technology: Nanotechnology for Chemical and Biological Defense 2030 Workshop and Study,” in The Yearbook of Nanotechnology in Society - Volume 1: Presenting Futures, Fisher, E.; Selin, C.; Wetmore, J. eds., Springer Academic Publishers: New York, 2008, 157-173. 7 citations

Kosal, M.E. “Chemical Weapons Destruction and the Public Response,” in Towards the Elimination of the Chemical Weapons, Haru, E. and Thakur, R. eds., UN University Press, Netherlands, 2006, 118-149. 8 citations

Chou, J-H.; Kosal, M.E.; Nalwa, H.S.; Rakow, N.A; Suslick, K.S. “Applications of Porphyrins and Metalloporphyrins to Materials Chemistry,” in The Porphyrin Handbook, Kadish, K.; Smith, K.; Guillard, R., eds.; Academic Press: New York, 2000, 6, pp. 41-131. 243 citations.

A3. Other Parts of Books

Kosal, M.E. “Emerging Chemical and Biological Technologies: Security & Policy Challenges,” *to appear in The Interface of Chemical and Biological Sciences International Disarmament Efforts, editors Dorothy J. Phillips and Lori Brown, ACS Publishers, Washington, D.C., 2016.*

Kosal, M.E. articles on “Nano-Biotechnology,” (8 pages) for the Encyclopedia of Bioterrorism Defense, Zilinskas, R.A.; Katz, R/ eds.; Revised and updated chapters on

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“Anti-Material Agents” (7 pages) and “Biological Simulants,” (4 pages) Wiley: New York, 2011.

Kosal, M.E, articles on *Department of Defense; Security; Ethical Issues of Nano-Weapons;* and *Iran* for Encyclopedia of Nanoscience and Society, edited by David Guston, Sage Publishers: Thousand Oaks CA, 2010 (total 34 pages).

Kosal, M.E, Stulberg, A. article on *Russia*, Encyclopedia of Nanoscience and Society, edited by David Guston, Sage Publishers: Thousand Oaks CA, 2010 (6 pages).

Kosal, M.E., “Chemical Terrorism,” in Weapons of Mass Destruction and Terrorism, Howard, R.D. and Forest, J.F., eds. McGrawHill/Contemporary Learning Series, Inc.: New York, 2007, 581-595.

Kosal, M.E. articles on “Biological Simulants” (6 pages) and “Anti-material Agents,” (3 pages) for the Encyclopedia of Bioterrorism Defense, Wiley: New York, June 2005.

Kosal, M.E., “Bioweapons Detectors,” in Biological Weapons, Naff, C.F., ed., Greenhaven Press: New Haven, 2006, 109-117.

Cassagrande, R.; Kosal, M.E. “Detection of Bioterrorist Agents,” (9 pages) Encyclopedia of Bioterrorism Defense, Zilinskas, R.A.; Pilch, R., eds., Wiley: New York, June 2005.

B. REFEREED PUBLICATIONS AND SUBMITTED ARTICLES

B1. Published and Accepted Journal Articles

Kosal, M.E. and Huang, J.H., “Security Implications and Governance of Cognitive Neuroscience Research: Results from an Ethnographic Survey of Researchers,” *Politics and the Life Sciences*, Spring 2015, pp 93-108, <http://journals.cambridge.org/action/displayAbstract?aid=9883314>.

Kosal, M.E. “A New Role for Public Health in Bioterrorism Deterrence,” *Frontiers in Public Health*, December 2014, 2:278, pp 1-4, doi: 10.3389/fpubh.2014.00278, <http://journal.frontiersin.org/article/10.3389/fpubh.2014.00278/full>. 3 citations

Kosal, M.E. “Near-Term Threats of Chemical Weapons Terrorism,” *Strategic Insights*, July 2007, 6, 1-4. 7 citations.

Suslick, K.S.; Kosal, M.E.; et al. “Seeing Smells: Development of an Optoelectronic Nose,” *Química Nova*, 2007, 30, 677-681. 61 citations

Kosal, M.E. “Terrorism Targeting Industrial Chemical Facilities: Strategic Motivations and the Implications for U.S. Security,” *Studies in Conflict and Terrorism*, 2006, 29, 719-751. 12 citations

Kosal, M.E.; Anderson, D.A. “An Unaddressed Issue of Agricultural Terrorism – A Case Study on Feed Security,” *Journal of Animal Science*, 2004, 82, 3394-3400. 35 citations

Suslick, K.S.; Kosal, M.E.; et al. “Microporous Porphyrin Solids,” *Accounts of Chemical Research*, 2005, 38, 283-321. 385 citations

Kosal, M.E.; Chou, J-H.; Suslick, K.S. “A Calcium-Bridged Porphyrin Network,” *J. Porphyrins and Phthalocyanines*, 2002, 6, 377-383. 32 citations

Kosal, M.E.; Chou, J-H.; Wilson, S.R.; Suslick, K.S. “A Functional Zeolite Analogue Assembled From Metalloporphyrins,” *Nature Materials*, 2002, 1, 118-124. 378 citations

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Suslick, K.S.; Rakow, N.A.; Kosal, M.E.; Chou, J-H. "The Materials Chemistry of Porphyrins and Metalloporphyrins," *J. Porphyrins and Phthalocyanines*, **2000**, *4*, 407-434. *155 citations*

Kosal, M.E.; Suslick, K.S. "Microporous Porphyrin and Metalloporphyrin Materials," *Solid State Chemistry*, **2000**, *152*, 87-101. *91 citations*

Brunner, R.S.; Kosal, M.E.; Suslick, K.S.; Lamche, R.; Marti, O.; White, J.O. "Near-Field Scanning Optical Microscopy (NSOM) of Zinc-Porphyrin Crystals," *Ultramicroscopy*, **2000**, *84*, 149-155. *5 citations*

B2. Conference Presentation with Proceedings (Refereed)

Suslick, K.S.; Kosal, M.E.; McNamara, W.B.; Sen, A.; Rakow, N.A. "ChemSensing: A Colorimetric Array Detector," 9th International Symposium on Olfaction and Electronic Nose (ISOEN '02) Proceedings, D'Amico A.; DiNatale, C, eds., IEEE: Baltimore, **2003**, 46-52.

Suslick, K.S.; Kosal, M.E.; Rakow, N.A.; Sen, A. "Smell-Seeing: A New Approach to Artificial Olfaction," Eurodeur-Airodeur 2001 Proceedings, Paris, **2002**.

B3. Other Refereed Material

Sergio Bonin, Piers D. Millett, Margaret E. Kosal, and Alexey V. Feofanov, "Security Implications of Synthetic Biology and Nanobiotechnology: A Risk and Response Assessment of Advances in Biotechnology," United Nations Interregional Crime and Justice Research Institute (UNICRI), 2011 (*101 pages*).

B4. Submitted and In Preparation Journal Articles

Jordan, J.; Kosal, M.E., and Rubin, L. "Strategic Illogic of Counterterrorism," *under review at Washington Quarterly*.

Kosal, M.E., and McGrath, J. "Terrorist Attacks on U.S. Energy Infrastructure," *to be submitted to Terrorism and Political Violence*.

Kosal, M.E. and Preston, T. "Biology, Big Data, and Security," *to be submitted to Bulletin of Atomic Scientists*.

Kosal, M.E. and Bird, L. " Hamas, Hezbollah, and the Pursuit of WMD Terrorism," *to be submitted to Studies in Conflict and Terrorism*.

Kosal, M.E. "Gap Analysis and Recommendations to Improve Preparedness for a Chemical Attack Involving Organophosphate Compounds," *to be submitted at Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science*.

C. OTHER PUBLICATIONS

Kosal, M.E., "Regulating Genetic Research and Applications," *Issues in Science and Technology*, Summer 2016, pp. 9-10, <http://issues.org/32-4/forum-31/>. *1 citation*

Kosal, M.E., "Military Applications of Nanotechnology: Implications for Strategic Security I," Final Report to the Project on Advanced Systems and Concepts for Countering Weapons of Mass Destruction (PASCC), Center on Contemporary Conflict, Naval Postgraduate

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School, under Grant No. N00244-12-1-0050, January 2015. (90 pages)

<https://calhoun.nps.edu/handle/10945/45129?show=full>

Contributor: FBI-UN-AAAS Working Group Report “National and Transnational Security Implications of Big Data in the Life Sciences” 08 November 2014, Washington, D.C. (91 pages.) http://www.aaas.org/sites/default/files/AAAS-FBI-UNICRI_Big_Data_Report_111014.pdf

Kosal, M.E., “The War We Won’t Expect. What’s Scarier: Unknown Technologies Used to Wage War in the Future, or the Lack of Tools and Policy to Anticipate Them?” *Georgia Tech Alumni Magazine*, May 2014, 90, p 106, <http://gtalumnimag.com/2014/06/the-war-we-wont-expect/>

Kosal, M.E. “The Suspected Syrian Chemical Attacks: What Now?” *Bulletin of Atomic Scientists*, 22 August 2013, <http://thebulletin.org/suspected-syrian-chemical-attacks-what-now>

Cheatham, A.G.; Degen, E.J.; Kosal, M.E.; Pauls, J.E.; and Reese, J.Y., “Testing Assumptions about the Role of Land Power in 2030: Design and Employ the Force,” Chief of Staff of the Army, Strategic Studies Group I, June 2013, Washington, D.C. (153 pages). Kosal was lead author for portions on “Counter-WMD Strategy, Policy, and Effects;” “Evolving, New, and Emerging Technology;” and Recommendations “Own the Counter-WMD Mission,” which accounts for ~25% of the document.

Kosal, M.E. “Verification for the 21st Century: Summary and Recommendations,” paper presented at the 7th Biological Weapons Convention Review Conference, 13 December 2011, Geneva Switzerland (3 pages).

Kosal, M.E., “The Role of Biological Verification as Part of 21st Century International Security Strategy: Scope and Structural Challenges to Effective Verification and the BWC” BioWeapons Prevention Project (BWPP)’s Biological Weapons Convention RevCon Project, 7 September 2011. (7 pages) (<http://www.bwpp.org/revcon-verification.html>)

Kosal, M.E. “The Security Implications of Nanotechnology,” *Bulletin of Atomic Scientists*, July/August 2010, 66, 58-69. 14 citations.

Kosal, M.E., *invited review* of The Making of the Digital World by J.K. Rennstitch, Palgrave MacMillan, *International Studies Review*, June 2009, 11, 365-367.

Kosal, M.E., *invited review* of Chemical Warfare Agents: Chemistry, Pharmacology, Toxicology, and Therapeutics, by James A. Romano, Jr., Brian J. Lukey, and Harry Salem (editors), CRC Taylor & Francis, *International Journal of Toxicology*, March/April 2009, 28, 132-135.

Kosal, M.E. and K.J. Dennison, *Toward a Strategic Vision in Basic Sciences for Chemical and Biological Defense*, DTRA-CB/ISTO, December 2008 (67 pages).

Kosal, M.E., “Chemical Terrorism: Review of US Policies to Implement Recommendations of the 9-11 Commission,” September 2008, Washington, D.C. (30 pages).

Kosal, M.E. review of Bioviolence: Preventing Biological Terror and Crime by B. Kellman, Cambridge University Press, *Review of Policy Research* (RPR), September 2008, 25, 492-495.

Kosal, M.E. and Huang, J.Y. “The Security Implications of the Neurosciences,” *Bulletin of Atomic Scientists*, July 2008. <http://thebulletin.org/security-impact-neurosciences>. 22 citations.

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Ackerman, G.P.; Kosal, M.E, et. al; “Assessing Terrorist Motivations for Attacking Critical Infrastructure,” UCRL-TR-227068, LLNL, January 2007 (273 pages), <https://e-reports-ext.llnl.gov/pdf/341566.pdf> 15 citations

Kosal, M.E. “Art or Bioterrorism? Implications of the Kurtz Case for Research Science and for Limiting Terrorist Threats,” *INESAP Bulletin*, December 2004, 24, 85-91.

Kosal, M.E. “Is Small Scary? Nanotechnology Research in an Age of Terrorism,” *Bulletin of Atomic Scientists*, September/October 2004, 60, 38-64. 5 citations.

Kosal, M.E, and Baker, M., “Osmium Tetroxide – A New Chemical Terrorism Weapon?” *CNS Research Story*, 13 April 2004. 6 citations.

Kosal, M.E. “The Basics of Chemical and Biological Weapons Detectors,” *CNS Research Story*, 24 November 2003. 17 citations.

Kosal, M.E. “The U.S. Response to WMD Beyond Iraq: the First CWC Review Conference and the NPT Preparatory Conference,” *The Public I*, June 2003, 9.

Bremer Mærli, M.; Kosal, M.E. “A More Troubling Nuclear Threat: Unsecured Fissile Material,” *The Public I*, January 2003, 1, 16.

Kosal, M.E.; Brunner, R.S.; Suslick, K.S.; White, J.O. “Unusual Fluorescence Behavior of Zinc Porphyrin Crystals as Characterized by NSOM,” *Frederick Seitz Materials Research Laboratory Department of Energy (DOE) Report*, Urbana IL, June 1998, 11-14.

D. PRESENTATIONS

D1. Keynote

“Strategy, Technology, and Governance: Security Challenges of Emerging Technologies for the 21st Century,” *Nanotechnology for Security & Defense (NanoSD 2014)* International Conference, 23-26 September 2014, Ávila, Spain.

“The Impact of Technology Trends on Security: Uncertainty, Complexity, and Interdependence,” *School of International Futures (SOIF)*, 11-14 August 2014, Wilton Park, UK.

“Threats, Opportunities and Strategic Gaps in 21st Century CBRN Defense” at the *Joint Civil & DoD CBRN Symposium on Chemical, Biological, Radiological, and Nuclear (CBRN) Defense*, 11-12 March 2013, Alexandria VA.

“Nanotechnology, Biotechnology, and the Cognitive Neurosciences,” at the Australian Centre for Military and Security Law *Symposium on New Technologies and the Law of Weaponry*, Australian National (ANU) College of Law, Canberra, Australia, 3-4 September 2012.

“Nanotechnology and Diffusion of Innovation: National Security Challenges for the 21st Century” *Nanotechnology for Defense (NT4D)*, 6-10 August 2012, Summerlin NV.

“Nanotechnology and International Security,” *First International Nanotechnology Congress*, 11 June 2010, Quito Ecuador.

“Global Nanotechnology Threats: Science, Technology, and Policy for Reducing the Threat of Proliferation, Crime, and Terrorism,” *United Nations Interregional Crime and Justice Research Institute (UNICRI) Experts Workshop on Synthetic Biology and Nanobiotechnology Risks and Responses*, 24-25 March 2010, Turin, Italy.

MARGARET E. KOSAL, Ph.D.

“Nanotechnology and Defense,” *Symposium on Emerging Technologies, Military Operations, and National Security*, the Consortium on Emerging Technologies, Military Operations, and National Security (CETMONS), 5-6 February 2010. Phoenix AZ.

“Deterrence, Policy, and Strategic Security Implications of Synthetic Smallpox,” at the *Over the Horizon Workshop on Synthetic Smallpox*, 29-30 June 2009, Alexandria VA.

“Transformational Science for Defense,” NanoNexus Conference and Competition, Oak Ridge National Laboratory, 3 April 2007, Oak Ridge TN.

“Smell-Seeing: A New Approach to Artificial Olfaction,” *Eurodeur-Airodeur*, 19 June 2001, Paris, France.

D2. Invited

“Deterring Bioterrorism,” *to be given at the Modern War Institute’s War Studies Conference, “Reassessing Deterrence in the 21st Century,” 13-15 November, U.S. Military Academy at West Point NY.*

“Terrorism and the Middle East: the Threat of Weapons of Mass Destruction,” *to be given at Brenau University, 2 November 2016, Brasolton GA.*

“Bioterrorism & Biodefense,” *to be given at Department of Political Science, Augusta University, 25 October 2016, Augusta GA.*

“Strategic Stability and Emerging Biotechnologies,” *to be given at Symposium on Export Control of Emerging Biotechnologies, Monterey Institute of International Studies (MIIS), 19 October 2016, Monterey CA.*

“From Beakers to Bombs: At the Intersection of National Security and Technology,” at *Symposium on the Science and Life of the Suslick Group*, University of Illinois at Urbana-Champaign, 13 August 2016, Urbana IL.

“Threat Forecasting, Technology Watching, and Horizon Scanning,” at the Defense Threat Reduction Agency’s (DTRA) 2015 Chemical and Biological Defense Science and Technology Conference, 13 May 2015, St. Louis MO.

“Emerging Technologies and Diffusion of Innovation: Security Challenges for the 21st Century,” at the *American Chemical Society (ACS) National Meeting*, 22 March 2015, Denver CO.

“Big Data Analytics, the Life Sciences, & Transnational Security Threats” at *Open Source and Big Data Methodologies for Nonproliferation Workshop*, 27 January 2015, Vienna, Austria.

“The Impact of Technology Trends on Security: Uncertainty, Complexity, and Interdependence,” International Development Doctoral Program of the Political Science, International Development and International Affairs Department, University of Southern Mississippi, 16 October 2014, Long Beach, MS.

“Emerging Technologies and National Security,” *American Association for the Advancement of Science (AAAS) Annual Forum on Science and Technology Policy*, 1-2 May 2014, Washington, D.C.

“Opportunities and Threats at the Intersection of Technology and National Security,” 6th Annual *World Affairs Council of Atlanta Young Leaders Conference*, 1 February 2014, Atlanta GA.

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“Nanotechnology: Is Small Scary?” History, Technology, and Society Speaker Series, 30 September 2013, Georgia Tech, Atlanta GA.

“From Chemistry to National Security,” United States Air Force Academy, 20 April 2012, Colorado Springs CO.

“Science Diplomacy in the Global Information Age,” (*invited panel participant*) International Studies Association (ISA) Annual Meeting, 1-4 April 2012, San Diego CA.

“CBRN Security Culture at Academic Institutions: How to Balance Academic Freedoms with Needs for Security,” at *In Search of Universal and Sustainable CBRN Security Culture Workshop*, Center for International Trade and Security (CITS), University of Georgia, 6 February 2012, Athens GA.

“From Chemistry to International Security (aka from beakers to bombs),” Tennessee Tech University, 4 October 2011, Cookeville TN.

“The Future of WMD: Updated,” at *Johnny Appleseed VII: Combating WMD for Military Educators*, USAF Counterproliferation Center, 28 June 2011, Atlanta GA.

“Brain Wars: The Security Challenges of Applications of Advanced Cognitive and Neurosciences for Weapons and Military Uses,” at *Brain Waves: Neuroscience, Conflict and Security*, The Royal Society (UK), 12 May 2011, London, UK. Cited in The Royal Society (UK) report *Brain Waves: Neuroscience, Conflict and Security*, February 2012, <https://royalsociety.org/policy/projects/brain-waves/conflict-security/>

“Nanotechnology for Biological Defense: Detection, Protection, Decontamination, and Medical Countermeasures,” at United Nations Experts’ Workshop on *Synthetic Biology and Nanobiotechnology Risks and Responses Assessment*, 28 June 2010, Palais des Nations, Geneva, Switzerland.

“International Policy and Governance Challenges of Nanotechnology and Emerging Technologies,” Bilkent University, 17 May 2010, Ankara, Turkey.

“Nanotechnology for Chemical and Biological Defense: Policy, Programs, and Threat Anticipation,” Center for Nanotechnology in Society and Consortium for Science, Policy & Outcomes, Arizona State University, 4 February 2010, Tempe AZ.

“Bionanotechnology and Security: Is Small Scary?” at *International Conference on Emerging and Disruptive Technologies*, 14-15 September 2009, Singapore. (*16 page paper presented*).

“Nanotechnology and Security: Dual Use Issues in Emerging Science,” American Chemical Society’s International Programs Symposium, 9-11 April 2009, Washington, D.C.

“Al Qa’eda and Unconventional Weapons” at the *Global Futures Forum*, Department of National Security Affairs, Naval Postgraduate School, 24 September 2008, Monterey CA.

“Chemical and Biological Weapons: Proliferation Issues and Threats” Summer Nonproliferation Institute’s *Preparing the Next Generation for Teaching, Research, and Public Service in Nonproliferation Policy*, University of Georgia, 11 August 2008 Athens GA.

“Biotechnology and Nanotechnology: Considering the International Security Implications of Emerging Sciences,” at *Conference on Science and Global Security*, Massachusetts Institute of Technology, 24 July 2008, Boston MA.

“The Future of WMD,” at *Johnny Appleseed IV: Combating WMD for Military Educators*, USAF Counterproliferation Center, 25 July 2008, Atlanta GA.

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“Al Qaeda and Unconventional Weapons,” at *Tomorrow’s Proliferation Pathways: Weak States, Rogues, and Non-States*, School of Policy and International Affairs, University of Maine, 17-18 July 2008, Belfast ME.

“Terrorism Targeting Industrial Chemical Facilities: Strategic Motivations and Implications for U.S. Security,” School of Public and International Affairs, George Mason University, 26 November 2007, Fairfax VA.

“Emerging Technologies and Future Proliferation Threats in a Globalized World,” Arms Control, Disarmament and International Security (ACDIS) Program and Center for Nanoscale Science and Technology, University of Illinois at Urbana-Champaign, 25 October 2007, Champaign IL.

“Nanotechnology for Biochemical Sensors” at *Government Microelectronics and Critical Technology (GOMACTech) Conference*, 17 March 2008, Las Vegas NV.

“Strategic Research Directions in Chemical and Biological Defense,” *Transformational Countermeasures Technology Initiative Symposia*, 12 July 2007, Arlington VA.

“The DoD Chemical and Biological Defense 2030 Workshop and Study – Results and Recommendations,” *Nanoelectronic Devices for Defense and Security Symposia*, 21 June 2007, Arlington VA.

“DoD Chemical and Biological Defense Program Nanotechnology Initiative,” *Emerging Contaminants Nanotechnology Forum*, 14 June 2007, Arlington VA.

“Will There Be an A.Q. Khan of Nanotechnology?” at the *Symposia on Biosecurity and Training for the Federal Workforce*, 8 May 2007, Baltimore MD.

“Weapons of Mass Destruction: Science & Technology to Respond to Global Proliferation Threats” and “From Scientist to International Security (*aka from beakers to bombs*),” Ripon College, 26-27 April 2007, Ripon WI.

“Innovations Technology for Nonproliferation and Arms Control Through Nanotechnology,” *New Proliferation Challenges Conference*, Nonproliferation and Arms Control Technology Working Group (NPAC TWG), 28 March 2007, McLean VA.

“Biosecurity and Nanotechnology” DC Biosecurity Group, Center for Science, Technology, and Security Policy (CSTSP), American Association for the Advancement of Science (AAAS), 1 March 2007, Washington, D.C.

Bovay Lecture on History and Ethics in Engineering, “Security and the Very Small,” School of Electrical Engineering and Computer Science and the Peace Studies Program, Cornell University, 11 October 2006, Ithaca NY.

“Chemical and Biological Weapons Detectors: Beyond Detection to Attribution,” Draper Laboratory, 1 April 2005, Cambridge MA.

“New Roles for Biological and Chemical Agent Detectors in International Security,” Sandia National Laboratory International Programs, 21 February 2005, Albuquerque NM.

“Preventing a Bioterrorist Attack,” *Biology and Security National Symposium*, Student Pugwash, 11-14 July 2004, George Washington University, Washington, D.C.

“The Technical Challenges of Biological and Chemical Weapons Verification,” *Conference on Public Policy and Biological Threats*, University of California Institute on Global Conflict and Cooperation (IGCC), University of California at San Diego (UCSD), 22 July 2004, La Jolla CA.

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“From Sarin to Ice Cream: Chemical Terrorism in the 21st Century,” *Consortia Seminar on Terrorism and Chemical and Nuclear Weapons*, Norwegian Defence Research Establishment (NDRE) and Norwegian Institute of International Affairs (NUPI), 14 June 2004, Oslo, Norway.

“Colorimetric Sensor Arrays as End-of-Service-Life Indicators,” *End-of-Service-Life Indicators for Mask Filters Workshop*, Army Research Office and U.S. Army Soldier Biological Chemical Command, October 2002, Panama City FL.

Society of Porphyrins and Phthalocyanines Dissertation Award Lecture, “PIZA-1: A Functional Zeolite Analogue Assembled From Metalloporphyrins,” 2nd *International Conference on Porphyrins and Phthalocyanines*, June 2002, Kyoto, Japan.

D3. Briefings to Congressional Committees, Other Policymakers/Policy Fora, or Track II Discussions

Briefing in conjunction with public release of FBI-UN-AAAS Working Group Report “National and Transnational Security Implications of Big Data in the Life Sciences” 11 December 2014, Washington, D.C.

Briefing to the Organisation for the Prohibition of Chemical Weapons (OPCW) on “Nanotechnology – Emerging Applications for the Protection against Chemical Warfare Agents,” 9 November 2009, The Hague, The Netherlands.

Briefing to the Third Army/US Army Central (ARCENT) on “Nanotechnology for Chemical and Biological Defense,” 23 October 2009, Ft McPherson GA.

Briefing to Senate Homeland Security Committee on “Nanotechnology for Revolutionary Chemical and Biological Defense and Homeland Security,” as part of NBER’s *Science for the Good: the R&D Agenda for the New Administration and Congress*, 2 March 2009, Washington, D.C.

Briefing to Professional Staff of the Commission on the Prevention of WMD Proliferation and Terrorism on “Reducing the Terrorist Threat from Improvised Through Advanced Chemical and Biological Agents,” 5 September 2008, Arlington VA.

Briefing to National Intelligence Council (NIC) on “Scientific & Technology Challenges to Realize Revolutionary Breakthroughs in Nanotechnology,” 17 November 2008, McLean VA.

Briefing to National Security Agency/Central Security Service on “Emerging Technology, Terrorism, and US Defense,” 7 November 2008, Fort Gordon GA.

Chaired and organized “Symposium Toward a Strategic Vision for Chemical and Biological Defense,” 7-8 August 2008, Atlanta GA.

Briefing to Director of National Intelligence (DNI) Biological Sciences Experts Group (BSEG) on “Bionanotechnology Threat Assessment,” 25 April 2007, Washington, D.C.

“Emerging Technology for the DoD’s Chemical and Biological Defense Program,” *Joint Senior Leaders Course (O-5 through General Officers and Senior Civilians)*, 27 July 2007, Fort Leonard Wood MO.

Briefing to the FBI’s Bay Area Terrorism Working Group (BATWinG) on “WMD Terrorism Threat Assessment: Emerging Trends in Improvisation,” 23 May 2005, Oakland, CA.

Briefing to the CIA’s Center for Weapons Intelligence, Nonproliferation and Arms Control (WINPAC) on “Feed Security: an Unaddressed Agricultural Terrorism Risk,” 24 March 2005, Langley VA.

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Briefing to the DOE National Nuclear Security Agency Office of Nonproliferation Research and Development (NNSA NA-22) on “From Radical Islamists to Homegrown Terrorists: Shifting Trends in Chemical Terrorism,” 23 March 2004, Washington, D.C.

D4. Submitted

“Emerging Science and Technologies: Diplomacy, Security, and Governance,” *to be given at the Society for the Study of Nanoscience and Emerging Technologies (S.NET) Conference 2016, 12-15 October 2016, Bergen Norway.*

“PYSOPs/MISO, C-WMD, and the Human Domain: Toward a Theory of Institutional Politics and Naming the Military,” and “Emerging Science and Technologies: Diplomacy, Security, and Governance” International Studies Association (ISA) Annual Meeting, 16-19 February 2016, Atlanta GA.

“Terrorist Attacks on U.S. Electricity Infrastructure,” (co-author Jenna McGrath) Energy Policy Research Conference, 8 September 2016, Santa Fe NM.

“Biological Weapons Nonproliferation for the 21st Century: A Shift of Responsibility from Nation-states to Individual Researchers?” Association for Politics and the Life Sciences (APLS) Annual Conference, 23-24 October 2015, Madison WI.

“Biology, Big Data, and International Security: Assessing Global Risks from Converging Technologies,” Society for the Study of Nanoscience and Emerging Technologies (S.NET) Conference 2015, 18-21 October 2015, Montreal Canada.

“Biology, Big Data, and International Security,” to be given at Atlanta Conference on Science, Technology, and Innovation Policy, 17-19 September 2015, Atlanta GA.

“Big Data, Social Media, & Chem-Bio Events,” at the Defense Threat Reduction Agency’s (DTRA) 2015 Chemical and Biological Defense Science and Technology Conference, 12 May 2015, St. Louis MO.

“Biology, Big Data, and International Security,” (w/Thomas Preston) International Studies Association (ISA) Annual Meeting, 18-21 February 2015, New Orleans LA.

“Security Implications of Cognitive Neuroscience Research: Results from an Ethnographic Survey of Researchers,” *Association for Politics and the Life Sciences (APLS) Annual Conference, 17-18 October 2014, Emory University, Atlanta GA.*

“Nanotechnology and International Security: The Russian Federation,” (*62 page paper presented*) and “The Counter-WMD Strategy-Operations Gap,” (*23 page paper presented*) International Studies Association (ISA) Annual Meeting, 26-29 March 2014, Toronto, Canada.

“Russian Nanotechnology: Innovation & Security” and “Strategy, Technology, and Governance: Shifting Responsibility from Nation-states to Individuals,” Society for the Study of Nanoscience and Emerging Technologies (S.NET) Conference, Northeastern University, 27-29 October 2013, Boston MA.

“Strategy, Technology, and Governance: Shift of Responsibility from Nation-states to Individuals,” Atlanta Conference on Science and Innovation Policy, 27 September 2013, Atlanta GA.

“Weapons of Mass Destruction and Nuclear Trafficking in Emerging Media” (*w/Adam Thigpen; 25 page paper presented*) and “Strategy, Technology, and Governance: Shift of Responsibility from Nation-states to Individuals,” (*27 page paper presented*) International Studies Association (ISA) Annual Meeting, 3-6 April 2013, San Francisco CA.

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“Biological Weapons Nonproliferation for the 21st Century,” (*17 page paper presented*) International Studies Association (ISA) Annual Meeting, 1-4 April 2012, San Diego CA.

“Bridging Science and Security: Challenges to Nanotechnology Threat Anticipation” and “The Security Implications of Cognitive Neuroscience Research,” Society for the Study of Nanoscience and Emerging Technologies (S.NET) Conference, 7-10 November 2011, Tempe AZ.

“Hammas, Hezbollah, and the Pursuit of WMD Terrorism,” (*w/Lucia Bird; 37 page paper presented*) and “Security Implications of Cognitive Neuroscience Research,” (*w/Jonathan Huang; 33 page paper presented*) International Security Studies Section of ISA and the International Security and Arms Control Section of APSA (ISSS/ISAC) Annual Conference, 14 October 2011, Irvine CA.

Chaired and Organized Workshop on “Nanotechnology, Security, & US-EU Approaches to Governance” 7-8 April 2011, Atlanta GA. Spoke on “Strategic Approaches to Regulating Biosecurity Risks of Nanotechnology by the European Union,” April 2011, Atlanta GA. (*24 page paper presented*)

“The Role of Discourse in the Contested Commons of Radical Islam & WMD Terrorism” (*w/Shawn Finnell; 38 page paper presented*) and “Weapons of Mass Destruction in Gaming: Strategic versus Tactical Use in Call of Duty: Modern Warfare II (COD) and Massive Action Game (MAG),” (*w/Sapphire Liu & Jared Fry; 21 page paper presented*) International Studies Association (ISA) Annual Meeting, 16-19 March 2011, Montreal, Canada.

“The Role of Discourse in the Contested Common of Radical Islam & WMD Terrorism,” (*w/Shawn Finnell; 45 page paper presented*) International Security Studies Section of ISA and the International Security and Arms Control Section of APSA (ISSS/ISAC) Annual Conference, 14-16 October 2010, Providence RI.

“Will There be an AQ Khan of Nanotechnology? Anticipating Biological Proliferation Threats from a Revolutionary Technology,” Society for the Study of Nanoscience and Emerging Technologies (S.NET) Conference, 29 September - 2 October 2010, Darmstadt, Germany.

“Nanotechnology for Detection of and Medical Countermeasures Against Biological Warfare Agents: Policy and Programmatics,” *2nd Annual Georgia Nanotechnology in Infectious Diseases Symposium*, Emory University, 1 April 2010, Atlanta GA.

“Strategic Significance of Emerging Technologies in Asia,” Director of National Intelligence Centers of Academic Excellence Colloquium on National Security, 24 February 2010, Atlanta GA.

“Probing the Strategic Significance of Nanotechnology in Iran,” (*w/Amira Mouna; 16 page paper presented*) and “Bioterrorism Deterrence: Polio and the Threat of Biological Terrorism,” (*w/Katherine Lange; 23 page paper presented*) International Studies Association (ISA) Annual Meeting, 16-20 February 2010, New Orleans LA.

“Bioterrorism Deterrence: the Role of Public Health in Security,” (*w/Ana Terron; 16 page paper presented*) Atlanta Conference on Science, Technology, and Innovation Policy, 3 October 2009, Atlanta GA.

“Predicting Nuclear Proliferation: Toward a Unified Field Theory,” *Transforming the Nuclear Weapons Complex (NWC) to Address 21st Century Security Threats Forum*, Georgia Institute of Technology, 30 March 2009, Atlanta GA. (*25 page paper presented.*)

MARGARET E. KOSAL, Ph.D.

“Will There be an AQ Khan of Nanotechnology? Anticipating Biological Proliferation Threats from a Revolutionary Technology,” (23 page paper presented) International Studies Association (ISA) Annual Meeting, 15-18 February 2009, New York NY.

“Emerging Chemical and Biological Terrorism Threats,” Chemical & Biological Terrorism Defense Gordon Research Conference (GRC), 18-23 January 2009, Galveston TX.

“Assessing the Potential International Security Threats of Nanotechnology,” Atlanta Conference on Science, Technology, and Innovation Policy, 19 October 2007, Atlanta GA.

“Science and Technology Initiatives within the Defense Department’s Chemical and Biological Defense Program,” *Sackler Colloquium on Nanomaterials in Biology and Medicine: Promises and Perils*, National Academy of Sciences (NAS) 10 April 2007, Washington, D.C.

“Nanotechnology in International Security,” International Security Studies Section of ISA and the International Security and Arms Control Section of APSA (ISSS/ISAC) Annual Conference, 27 October 2006, Tucson AZ.

“Nanobiotechnology for Defense,” *The Future of Nano-Bio Technology: Imagine the Possibilities*, NVTC Nanotechnology & BioMedTech Committees, 14 February 2006, McLean VA.

“Revolutionary Innovation in Chemical and Biological Defense,” *7th Targeted Nanodelivery: Enabling Targeted Therapies and Non-Invasive Imaging Conference*, 13 October 2006, Baltimore MD.

“Transforming Defense Science & Technology: the Case for Nanotechnology,” *Defense Policy Fellows Briefing*, American Association for Advancement of Science (AAAS), 23 March 2005, Washington, D.C.

“Shifting Trends in Chemical Terrorism: from Radical Islamists to Homegrown Terrorists,” Chemical and Biological Terrorism Defense Gordon Research Conference (GRC), 31 January - 3 February 2005, Buellton CA.

“Chemical Terrorism in the 21st Century,” American Chemical Society (ACS) Western Regional Meeting, 28 October 2004, Sacramento CA.

“Whither More Biosafety Level Four Labs? U.S. Civilian Biodefense Initiatives,” 15th Annual International Summer Symposium of Science and World Affairs, July-August 2003, Moscow, Russia.

“Vapor Sensing Using Nanotechnology,” *Nanotechnology Industry Workshop*, Center for Nanoscale Science and Technology, May 2003, Urbana IL.

“SmellSeeing: a New Tool for Detection of Volatile Chemicals,” 17th International Forum on Process Analytical Chemistry & 11th International On-Site Analysis Conference, January 2003, Scottsdale AZ.

“Rapid Colorimetric Evaluation of Bacterial Metabolites,” 9th International Symposium on Olfaction and Electronic Nose (ISOEN '02), October 2002, Rome, Italy.

“Colorimetric Sensors for Rapid Detection of Chemical and Biological Warfare Agents,” 14th Annual International Summer Symposium of Science and World Affairs, July 2002, Urbana IL.

“SmellSeeing: A Colorimetric Electronic Nose,” 2nd International Conference on Porphyrins and Phthalocyanines, June 2002, Kyoto, Japan.

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“A Colorimetric Electronic Nose: ‘SmellSeeing’,” *Symposium on Sensors for Biological Research and Medicine*, NIH National Institute of Biomedical Imaging and Bioengineering BECON, June 2002, Bethesda MD.

“Smell-Seeing: a New Tool for Identification of Volatile Organic Compounds,” Pitt-Con, March 2002, New Orleans LA.

“Bis-Pocket Porphyrin Liquid Crystals: Entries in Molecular Switches & Non-Fullerene Nanotubes,” Frederick Seitz Materials Research Laboratory DOE Program Review, June 2000, Urbana IL.

“Characterization of Porphyrin Materials by NSOM and AFM,” 217th American Chemical Society (ACS) National Meeting, March 1999, Anaheim CA.

“Novel Calcium Porphyrin Carboxylate Materials,” Tetrapyrrole Gordon Research Conference (GRC) *poster*, October 1998, Santa Barbara CA.

“Porphyrin Carboxylate Network Solids,” IXth Midwest Organic Solid State Chemistry Symposium, June 1998, Manhattan KS.

“Porphyrin Polyanion Salts as Building Blocks for Network Solids,” 214th American Chemical Society (ACS) National Meeting, September 1997, Las Vegas NV.

E. GRANTS AND CONTRACTS

E1. AS PRINCIPAL INVESTIGATOR

Title: Georgia Tech U.S. Army War College Senior Service College Fellowships on (1) Science, Technology, & the Future of Armed Conflict & (2) Army Counter Weapons of Mass Destruction Strategy & Functions”

Funder: HQDA, US Army, DoD

Total Dollar Amount: \$119,400

Role: PI

Collaborators: None

Period of Contract: 8/1/2015 – 7/31/2018

Share: 100%

Title: Understanding the Strategic Significance of Military Applications of Nanotechnology

Funder: Project on Advanced Systems and Concepts for Combatting (WMD PASCC), US Navy, Department of Defense

Total Dollar Amount: \$125,743

Role: PI

Collaborators: None

Period of Contract: 5/1/2012 – 8/30/2013

Share: 100%

Title: Educating a Biotechnology Policy & Security Workforce

Funder: Georgia Tech FIRE Fund for Transformative Research and Education

Total Dollar Amount: \$34,000

Role: PI

Collaborators: Robert Butera (co-PI)

Period of Contract: 3/14/2011 – 6/13/2013

Share: 80%

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Title: Toward a Strategic Vision in Emerging Basic Sciences
Funder: Army Research Office, DoD
Total Dollar Amount: \$91,000
Role: PI
Collaborators: None
Period of Contract: 7/1/2008 – 6/30/2010
Share: 100%

Title: Unified Field Theory of Proliferation: Toward a Meta-Theory Predicting Nuclear Expansion
Funder: SAIC
Total Dollar Amount: \$25,000
Role: PI
Collaborators: None
Period of Contract: 8/1/2008 – 12/31/2008
Share: 100%

Title: Nanotechnology Threat Anticipation: Building a Technical Framework for Assessing Offensive versus Defensive Technology Pathways
Funder: Office of the Director of National Intelligence's Intelligence Advanced Research Projects Activity (IARPA)
Total Dollar Amount: \$10,084
Role: PI
Collaborators: None
Period of Contract: 11/1/2007 – 2/28/2008
Share: 100%

Title: Waiting for a 'Clear Signal' Technical Considerations for Effective Policy to Implement Chemical and Biological Detectors for First Responders and Law Enforcement
Award #2004-IJCX-0050
Funder: U.S. National Institute of Justice (NIJ), Department of Justice
Total Dollar Amount: \$283,589
Role: PI
Collaborators: None
Period of Contract: 9/1/2004 – 12/31/2005
Share: 100% (*declined in order to accept Stanford fellowship*)

Title: Monitoring of Trace Toxic Air Pollutants, SBIR Award #68D03014
Funder: U.S. Environmental Protection Agency (EPA)
Total Dollar Amount: \$69,750
Role: PI
Collaborators: Avijit Sen (co-PI)
Period of Contract: 4/2003 – 9/2003
Share: 50%

Title: Detection of Potential Chemical Agents of Terrorist Use in Aqueous Solutions, SBIR Award #0232524
Funder: U.S. Food and Drug Administration (FDA)
Total Dollar Amount: \$87,000
Role: PI
Collaborators: None
Period of Contract: 1/2000 – 6/2003

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Share: 100%

Title: Development of Colorimetric Sensor Array for the Detection of Chemical Agents in Liquids (Water, Water/Ethanol): Feasibility Phase, Award #F63375
Funder: U.S. Food and Drug Administration (FDA) Center for Food Safety and Nutrition (CFSAN) Contract
Total Dollar Amount: \$17,000.
Role: PI

Collaborators: None
Period of Contract: 11/2002 – 3/2003
Share: 100%

Title: Real-Time Detection of Nitroaromatic Explosives, SBIR Award #DMII 0215088
Funder: National Science Foundation (NSF)
Total Dollar Amount: \$99,000
Role: PI
Collaborators: None
Period of Contract: 7/2002 – 2/2003
Share: 100%

E2. AS CO-PRINCIPAL INVESTIGATOR

Title: Multidisciplinary Modeling of Socio-economic Influence on Adversarial Intent to Acquire, Proliferate and Use Chemical, Biological, Radiological and Nuclear Weapons
Funder: Defense Threat Reduction Agency (DTRA), DoD
Total Dollar Amount: \$689,497
Role: Co-PI
Collaborators: Profs C.S. Deo (PI-Mechanical Engineering) and S. Dhongde (co-PI, then-Rochester Institute of Tech-Economics; now GT-Economics)
Period of Contract: 4/1/2009 – 3/31/2013
Share: 26% (\$181,196)

Title: Colorimetric Gas Sensor for Medical, Consumer and Industrial Applications
Funder: Illinois Tech Challenge, State of Illinois
Total Dollar Amount: \$291,125
Role: co-PI
Collaborators: William McNamara (PI) and Avijit Sen (co-PI)
Period of Contract: 9/2002 – 8/2005
Share: 30% (\$87,390)

E3. AS SENIOR PERSONNEL OR CONTRIBUTOR

Developing Australia's Legal Response to Military and Security Applications of Nanotechnology, Australian Research Council, PIs: Hitoshi Nasu (PI) and Tom A. Faunce (co-PI), Australian National University College of Law, 2011-2013, Total funded \$95,680 (Australian \$). Kosal portion: \$7,500.

Materials Science and Engineering Experience for Undergrads, GT-MSE National Science Foundation (NSF) Summer Research Experience for Undergrads; 2009-2012. Kosal portion: \$6,250.

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Georgia Tech European Union Center of Excellence, Transatlantic Partnerships and Challenges of the Nanotechnology Revolution, Vicki Birchfield (PI). 2007-2009. Kosal portion: 10,820€.

E4. UNDER REVIEW

Title: Emerging Life Sciences: New Challenges to Strategic Stability
Funder: USAFA Project on Advanced Systems and Concepts for Countering Weapons of Mass Destruction, DTRA
Total Dollar Amount: \$150,000
Role: PI
Period of Contract: 1/2017 – 1/2018
Share: 100%

Title: Dialogue Conceptualizing the Strategic Significance of the Cognitive Neurosciences & Artificial Intelligence for Mass Effects Weapons
Funder: USAFA Project on Advanced Systems and Concepts for Countering Weapons of Mass Destruction, DTRA
Total Dollar Amount: \$225,000
Role: PI
Period of Contract: 1/2017 – 1/2018
Share: 100%

F. OTHER SCHOLARLY ACCOMPLISHMENTS

Suslick, K.S.; Kosal, M.E.; Rakow, N.A.; Sen, A. “Colorimetric Artificial Nose Having an Array of Dyes and Method of Artificial Olfaction,” U.S. Patent No 7,261,857 B2 (2007). 16 citations.

V. TEACHING

A. COURSES TAUGHT

Fall, 2016	INTA 8000	Sci, Tech & Intl Affairs I <i>Sam Nunn Security Program Seminar</i>	10 students
Fall, 2016	ECE 2811, 2812, 3811, 3812, 4811, & 4812-VV9	<i>VIP Undergrad Research Program on 21st Century Security Challenges</i>	16 students
Spring, 2016	INTA 2042	Intro to Global WMD	101 students
Spring, 2016	INTA 8001	Sci, Tech & Intl Affairs II <i>Sam Nunn Security Program Seminar</i>	14 students
Fall, 2015	INTA 8000	Sci, Tech & Intl Affairs I <i>Sam Nunn Security Program Seminar</i>	14 students
Spring, 2015	INTA 4500-A	21 st Century Security Challenges <i>Senior Capstone</i>	14 students
Spring, 2015	INTA 8001	Sci, Tech & Intl Affairs II <i>Sam Nunn Security Program Seminar</i>	9 students
Fall, 2014	INTA 4803	Counterinsurgency & Small Wars	16 students
Fall, 2014	INTA 8000	Sci, Tech & Intl Affairs I <i>Sam Nunn Security Program Seminar</i>	13 students

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Summer, 2014	INTA 4050	International Affairs & Tech Policy	12 students
Spring, 2014	INTA 4500-B	21 st Century Security Challenges <i>Senior Capstone</i>	12 students
Spring, 2014	INTA 8001	Sci, Tech & Intl Affairs II <i>Sam Nunn Security Program Seminar</i>	8 students
Fall, 2013	INTA 2040	Sci,Tech & Int'l Affairs	111 students
Fall, 2011	INTA 2040	Sci,Tech & Int'l Affairs	45 students
Spring, 2011	INTA 2040	Sci,Tech & Int'l Affairs	79 students
Spring, 2011	INTA 3101/8803-K	Challenge of Terrorism	49 students
Fall, 2010	INTA 4500-B	Counterinsurgency & Small Wars <i>Senior Capstone</i>	18 students
Fall, 2010	INTA 8803-K	21 st Century Deterrence	8 students
Spring, 2010	INTA 2040	Sci,Tech & Int'l Affairs	82 students
Spring, 2010	INTA 8803-K	Problems of Proliferation	5 students
Fall, 2009	INTA 2040	Sci,Tech & Int'l Affairs	91 students
Fall, 2009	INTA 8803-K	Counterinsurgency & Small Wars	17 students
Spring, 2009	INTA 2040	Sci,Tech & Int'l Affairs	93 students
Fall, 2008	INTA 2040	Sci,Tech & Int'l Affairs	38 students
Spring, 2008	INTA 2040	Sci,Tech & Int'l Affairs	91 students
Fall, 2007	INTA 4803/8803-K	Emerging Tech & Security	4 students

B. INDIVIDUAL STUDENT GUIDANCE

B1. Postdoctoral Fellow

- Dr. KJ Dennison, “Biodefense Practice, Beliefs, and Perceptions by Life Sciences,” Fall 2007 - Fall 2008

B2. Ph.D. Students

- Ms. Rockie Rodriquez, “Logistics and Support to International Public Health Emergencies,” Fall 2014 –
- Ms. Taylor Smith, “The Security Implications of Emerging Technology,” Fall 2013 – Spring 2016, qualifying exams passed October 2014
- Mr. Jonathan Huang, “Cognitive Sciences, Theory, and Institutions,” Spring 2008-present, qualifying exams passed February 2010

B3. M.S. Students

- Mr. Robert Scaife, “Technology and Military Strategy: the Case of Night Vision Goggles,” Fall 2015.
- Ms. Elizabeth Cupido, “Nanotechnology and Security,” Spring 2012. *Supported student to present jointly authored paper work on “Nanotechnology and Diffusion of Innovation: National Security Challenges for the 21st Century” at the 10th Annual NanoTechnology for Defense Conference (NT4D), 6-10 August 2012, Summerlin, Nevada.*
- Ms. Tiffany DeLeon, “Terrorism and WMDs in Latin America,” Spring 2011, Fall 2011. *Supported student to present work on “WMD Terrorism in Latin America,” at the 2011 Defense Threat Reduction Agency (DTRA) Basic Research Technical Review Conference 20 July August 2011, Springfield, VA*
- Mr. Anthony Boyles, “Defense Technology Policy,” Spring 2011
- Mr. Christopher Vucich, “Terrorism and Insurgency in Africa” Spring 2010, Summer 2010, Fall 2010. *Supported student to present work on “Al-Qa’eda & WMD: AQIM Plague Breakout and the UK Ricin Plot,” at the 2010 Defense Threat Reduction*

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Agency (DTRA) Basic Research Technical Review Conference 18 August 2010, Springfield, VA

- Mr. Bryan Murphy, “Law Enforcement and Governance: the Role for Counterinsurgency Theory” Summer 2010
- Ms. Shawn Finnell, “Radical Islam & WMD Discourse” Spring 2010 Summer 2010. *Supported student to present work on “Al Qa’eda & WMD: Analysis of Chlorine Bombs in Iraq and the “Mubtakkar” Plot,” at the 2010 Defense Threat Reduction Agency (DTRA) Basic Research Technical Review Conference 18 August 2010, Springfield, VA.*
- Ms. Jessica Gibson, “Bioterrorism Preparedness Training and Assessment Exercises for Local Public Health Agencies,” Fall 2008

B4. Undergraduates Students

- Ms. Mallory Bryan, “International Security and Art,” Fall 2016 (*Dean’s Internship Program*)
- Ms. Ashley Tofil, “North Korea’s CBW Threat,” Fall 2016
- Mr. David C. Alman, “Implications of Electronic and Cyber Warfare on National Strategy,” Spring 2016, Fall 2016
- Ms. Sara Morrell, “How Culture Impacts Military Tactics and Command Structure,” Fall 2015, Spring 2016, Fall 2016
- Mr. Joshua Jacob, “Iran, Rogue States, and Nuclear Power,” Spring 2014, Fall 2014
- Ms. Anna Hunter, “Arms Race of the 21st Century: Nuclear Weapons Free Zones and US Pivot to Asia,” Spring 2014
- Mr. Danny Thai, “Military Deterrence Analysis: Military Reductions & National Security,” Spring 2014
- Mr. Andrew Wirt, “The Norms of WMD (Dis)Use,” Spring 2014
- Mr. Gillen Heisler, “Deterring the Dragon: AirSea Battle and Military Modernization,” Fall 2013
- Ms. Shaudie Fassih, “State Collapse and International Responses to Regimes with Nuclear Programs (DPRK & Iran),” Spring 2012, Spring 2013, Fall 2013, Spring 2014
- Ms. Sapphire Liu, “Digital Gaming and WMD Defense” Fall 2010, Spring 2011, Fall 2011, Spring 2012. *SAIC Undergraduate Scholarship recipient for research in Spring 2011. Supporting student to present jointly authored paper work on “Security and Gaming: The Portrayal of Acquisition & Use of Nuclear and Chemical Weapons” at the Popular Culture and World Politics v. 5.0, 9-11 November 2012, Hobart and William Smith Colleges, Geneva, New York.*
- Mr. Adam Thigpen, “Security and Gaming” Summer 2011, Fall 2011, Spring 2012. *Outstanding oral presentation awardee from the Ivan Allen College at the Georgia Tech 2012 Undergraduate Research Symposium. Supported student to present jointly authored paper work on “Digital Gaming and Weapons of Mass Destruction: Adherence to International Laws and Treaties,” at the Popular Culture Association/American Culture Association National Conference in Washington, D.C., 27-30 March 2013.*
- Mr. Ryan Forman, “Al Qa’eda & Unconventional Weapons” Fall 2011, Spring 2012
- Mr. Chris Tanner, “Nanotechnology and Security: Strategic Significance of Nanotechnology in China,” Spring 2012. *Supported student to present jointly authored paper work on “Nanotechnology and Composite Materials: Chinese Defense-Related Research and Development” at the 10th Annual NanoTechnology for Defense Conference (NT4D), 6-10 August 2012, Summerlin, Nevada.*
- Ms. Danielle Sharpe, “Deterring BioTerrorism: Re-Emerging Infectious Disease and Deterrence Theory,” Spring 2012

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- Ms. Lucy Tucker, Bionanotechnology & Proliferation: Challenges at the Intersection of Technology and International Security,” Spring 2012
- Ms. Lucia Bird, “ Hamas, Hezbollah, and WMD’s” Fall 2010, Spring 2011, Fall 2011. *Supported student to present work on “State Support of Terrorism and WMD Use,” at the 2011 Defense Threat Reduction Agency (DTRA) Basic Research Technical Review Conference 20 July August 2011, Springfield, VA. Selected to present at “Cadet/Student Conference on Terrorism, Insurgency and Asymmetric Conflicts,” Combating Terrorism Center, United States Military Academy at West Point, March 2012.*
- Ms. Sarah Grace Parr, “Nuclear Proliferation & International Conflict” Fall 2010, Spring 2011, Fall 2011
- Ms. Patti Murphy, “The Security Implications of Advanced Neuroscience, Pharmaceuticals, and the Cognitive Sciences” Summer 2010, Fall 2010, Spring 2011, Fall 2011. *Presidential Undergraduate Research Award (PURA) recipient for Fall 2011*
- Mr. Graham Sweeney, “Nanotechnology and Security: Russia” Summer 2010, Fall 2010, Fall 2011, *SAIC Undergraduate Scholarship recipient for research in Summer 2010*
- Ms. Kamna Bohra, “Biological Weapons Verification” Summer 2011, Fall 2011
- Ms. Chirley Quillian, “21st Century Security Challenges,” Fall 2011
- Ms. Rebecca Hong, “Military Nanotechnology” Fall 2011
- Mr. Eric Matson, “Deterring Bioterrorism” Fall 2011
- Mr. Connor Pigott, “Nanotechnology & International Security: Russia” Fall 2011
- Ms. Anika Polson, “Radical Islam and WMD Terrorism” Fall 2011
- Ms. Yao Ying “Biotech in Gaming” Fall 2011
- Mr. Sahan Jayasumana “Emerging Technology and Terrorism” Summer 2011
- Mr. Wesley Griggs, “Iran and WMD Proliferation” Fall 2010, Spring 2011
- Mr. Jared Fry, “WMD in Gaming” Spring 2010, Summer 2010, Fall 2010, Spring 2011, *Presidential Undergraduate Research Award (PURA) recipient for Spring 2011*
- Mr. RJ Paulisick, “Nano and Nuclear Technology: The Implications of an Emerging Technology on Nuclear Energy and Nuclear Weapons” Fall 2010
- Mr. Vincent Chan, “Nanotechnology and Security: Strategic Significance of Nanotechnology in China” Summer 2010
- Mr. Adam Weiss, “Nanotechnology Policy and Security: Israel” Spring 2010
- Ms. Katherine Lange “Deterring Bioterrorism: Re-Emerging Infectious Disease and Deterrence Theory” Summer 2009, Fall 2009, & Spring 2010. *Presidential Undergraduate Research Award (PURA) recipient & outstanding poster presentation awardee from the Ivan Allen College at the Georgia Tech 2010 Undergraduate Research Symposium*
- Ms. Amira Mouna, “Bionanotechnology and Security” Spring 2009, Summer 2009, Fall 2009. *SAIC Undergraduate research award recipient*
- Mr. Ted Danowitz, “Nanotechnology and Security: Strategic Significance of Nanotechnology in China” Summer 2009, Fall 2009 *Outstanding oral presentation awardee from the Ivan Allen College at the Georgia Tech 2010 Undergraduate Research Symposium*
- Ms. Katherine Murphy, “Regulation of Nanotechnology in Europe and US” Fall 2009
- Mr. Mitchell Watkins, “Al Qa’eda and Unconventional Weapons” Summer 2009, Fall 2009
- Ms. Rasha Nahab, “Biotechnology Policy and the Life Sciences” Summer 2009
- Ms. Ana Terron, “Deterring Bioterrorism: Re-Emerging Infectious Disease and Deterrence Theory” Spring 2009

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- Ms. Nikita Basandra, “Bionanotechnology and Security: Strategic Significance of Bionanotechnology in Iran” Spring 2009
- Mr. Kemp Anderson “Al Qa’eda and Unconventional Weapons” Spring 2009
- Ms. Sophia Ahmed, “Pakistan & the Role of International Institutions for Security” Fall 2008, Spring 2009
- Ms. Katherine Ruth Landers, “Emerging Biotechnologies and International Security” Fall 2008

B5. Service on Thesis and Dissertation Committees

- Ms. Jenna McGrath, “Public Policy to Address Security Vulnerabilities in the Energy Sector,” School of Public Policy, Georgia Tech, Fall 2015 – present.
- Ms. Yujia He, “Re-control the Market for Strategic Power: China’s Reregulation of Its Rare Earth Industry,” Fall 2011 - present, qualifying exams passed April 2011
- Ms. Rongrong Liu, “A Microcosm Of the Global Nonproliferation Governance: A Study on the Role of Industries in Chemical Nonproliferation Regimes,” School of Public and International Affairs, University of Georgia, Fall 2013 – present.
- Major Christine Buchner, “The American Cyborg: How Biotechnology Aims to Enhance the American Soldier,” Master of Arts in Security Studies (Defense Decision-Making, and Planning and Strategic Studies), Naval Postgraduate School, Monterey CA, 2014.

B6. Mentorship of Visiting Scholars

- None

C. OTHER TEACHING ACTIVITIES

- Director, Sam Nunn Security Program, July 2015 – present
- GT VIP Program Faculty, 2016 -
- Associate Director, Sam Nunn Security Program, January 2014 - July 2015
- Founded the Nunn School Security Journal Club. Lead monthly workshop for INTA graduate students in which two recent papers from leading international relations journals are discussed, 2011-2014.

New Courses Developed:

- INTA 4500-A: “21st Century Security Challenges” Spring 2014
- INTA 2042: “Intro to Global WMD Issues,” Spring 2016
- INTA 8803-K: “Deterrence in the 21st Century” Fall 2010
- INTA 8803-K: “Counterinsurgency and Small Wars” Fall 2009
- INTA 4803-K/8803-K: “Emerging Technologies and Security” Fall 2007
- Developed and lead “Workshop on Technology, Policy, and Entrepreneurship,” Materials Science and Engineering Department Summer Research Experience for Undergrads (REU), July 2009, July 2010, July 2011, July 2012

Redesigned Courses:

- INTA 8000/8001: “Science, Technology, and International Affairs” I & II, Fall 2015
- INTA 4050: “International Affairs and Tech Policy” Summer 2014
- INTA 3103: “Challenge of Terrorism” Spring 2011
- INTA 3102: “Problems of Proliferation” Spring 2010
- Accompanying Faculty, Georgia Tech Southeast Asia Study Abroad, May-June 2014

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- Accompanying Faculty, Georgia Tech East Asia Study Abroad, May-July 2012
- Visiting Professor, IAEN, Quito Ecuador, “Threats to Security, Technology, and Information Society,” Master’s program on Security and Defense, Instituto Altos Estudios Nacionales (IAEN, National Institute of Advanced Studies), Quito Ecuador, Summer 2010 (36 students)
- Faculty, UCSD Public Policy and Biological Threats Program, Summer 2004.

VI. SERVICE

A. PROFESSIONAL CONTRIBUTIONS

- **Editor-in-Chief**
Politics and the Life Sciences, 2017-2021
- **Editorial Board Member**
Studies in Conflict & Terrorism, 2007 – present
Journal of Strategic Security, 2009 – present
Journal of Defense Management, 2011 – present
Global Security: Health Science and Policy, 2015 –
- **Professional Associations**
American Chemical Society (ACS), American Association for the Advancement of Science (AAAS), International Studies Association (ISA), Women in International Security (WIIS), Association for Politics in the Life Sciences, Inter-University Seminar on Armed Forces and Society
- **Scholarly Reviewer**
World Medical & Health Policy; Biomaterials; Journal of American Chemical Society (JACS); Sustainability; Strategic Security; Biosensors; Terrorism & Political Violence; Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science; Strategic Studies, Yearbook of Nanotechnology; Wiley, University of Chicago Press, Georgetown University Press, Harvard University Press, Princeton University Press, Routledge, Stanford University Press, and the University of Oxford Press.
- **Technical and Programmatic Reviewer**
University of Miami Collaborative Institutional Training Initiative (CITI Program) on Dual Use Research of Concern (DURC)
National Science Foundation, Proposal Review Panelists
Engineering Directorate, Small Business Innovative Research (SBIR) Program Phase I:
March 2010, August 2010, September 2011, April 2013, September 2013, August 2014, March 2015, September 2015
Engineering Directorate, Small Business Innovative Research (SBIR) Program Phase II:
November 2014
Science, Technology, and Society (STS) Program: April 2014
Australian Research Council, 2011 – 2013
Shota Rustaveli National Science Foundation (Georgia’s NSF), 2011 – 2013, 2015
AAAS Annual Conference, Public Policy Symposia, 2012, 2013, 2015
AAAS Research Competitiveness Program, 2010, 2011
AAAS Science and Technology Policy Fellowship Program Applicants, 2007 – 2015
AAAS CSTSP BMENA Scientific Exchange (part of Cooperative Threat Reduction Programmatic activities), 2013
DoD Chemical and Biological Defense Physical S&T Research Program, 2007, 2008, 2011

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Defense Threat Reduction Agency (DTRA) Basic Research Program, 2007, 2008, 2009, 2011
Program Review Committee, 2010 NanoTechnology for Defense Conference, 2010
Ethical, Legal, and Social Implications (ELSI) of Nanotechnology Program, National Science
Foundation (NSF), Winter 2007

Materials for Forensic Sensing S&T Program Assessment Team, Office of Naval Research,
Fall 2006

– **Discussant and Chairing at Professional & Scholarly Conferences**

Chair panel on “Mass Violence,” *Association for Politics and the Life Sciences (APLS)*
Annual Conference, 23-24 October 2015, Madison WI.

Chair panel “Scientific and Social Assessment of Emerging Technologies for a Sustainable
Society” the Society for the Study of Nanoscience and Emerging Technologies (S.NET)
Conference 2015, 18-21 October 2015, Montreal Canada.

Chair panel on “Weapons: Procurement, Trade and Implications for Security Governance,”
and discussant panel on “International Organizations In Conflicts,” International Studies
Association (ISA) Annual Meeting, 18-21 February 2015, New Orleans LA.

Discussant and chair for panel on “Resources, Governance, and Globalization;” discussant for
panel on “Technology and the Changing Face of War;” and for panel on “Technology,
Security, and Drones;” at International Studies Association (ISA) Annual Meeting, 26-29
March 2014, Toronto, Canada.

Chair for panel on “Governing Nanotechnology in a Globalized World: Strategic
Assessments of a Disruptive Technology” at Society for the Study of Nanoscience and
Emerging Technologies (S.NET), Northeastern University, 27-19 October 2013, Boston MA.

Discussant and chair for panel on “Differential Rates of Technology and Norm Diffusion:
The Case of the Chemical and Biological Weapons Prohibition Regimes Colleagues;” chair
for panel on “Guns, Butter and Strategy: Trade-offs and Technological Diffusion;” chair for
panel on “Drone Wars: Implications of a New Military Technology” at International Studies
Association (ISA) Annual Meeting, 3-6 April 2013, San Francisco CA.

Discussant for panels on “Cybersecurity” and on “Nuclear Policy in Comparative
Perspective,” and chair for panel on “Nuclear Policy in Comparative Perspective” at
International Studies Association (ISA) Annual Meeting, 1-4 April 2012, San Diego CA.

Chair and discussant for panel on “Biosecurity and Neuroscience,” at the International
Security Studies Section of ISA and the International Security and Arms Control Section of
APSA (ISSS/ISAC) Annual Conference, 14 October 2011, Irvine CA.

Discussant for panels on “Remote Control? The Ethics of Distance in Military Conflicts” and
on “Analyzing the Foreign Policy of Nonproliferation” and chair for panels on
“Communicating in Crisis and Conflict” and on “Danger and Diplomacy on the Korean
Peninsula,” International Studies Association (ISA) Annual Meeting, 16-19 March 2011,
Montreal.

Chair and discussant for panel on “Emerging Assessments,” Society for the Study of
Nanoscience and Emerging Technologies (S.NET), 29 September - 2 October 2010,
Darmstadt, Germany.

Discussant for panel on “Space Weapons,” International Studies Association (ISA) Annual
Meeting, 16-20 February 2010, New Orleans LA.

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Discussant for panels on “The Politics of High Technology” and on “Cyber-Terrorism, National Security, and International Communication,” International Studies Association (ISA) Annual Meeting, 15-18 February 2009, New York, NY.

– **Other Activities**

Department of Homeland Security (DHS), Chem-Bio Weapons Horizon Scanning Project, Subject Matter Expert, 2016

Organizer, ISA Working Group on “Strategic Foresight & International Relations for the 21st Century,” ISA Annual Convention 2016, Atlanta GA (w/Catherina Tully, Barry Hughes, & Robert Jervis)

Appointed DoD Homeland Defense & Security Information Analysis Center SME, 2014 –
– “Featured Subject Matter Expert” for Summer-Fall 2015,

https://www.hdiac.org/focus_areas/wmd

– Community on-line Discussion Leader, 7-20 September 2015

DoD Executive Secretary, Nonproliferation and Arms Control Technology Working Group (NPAC TWG), 2005 – 2007 (*reporting to National Security Council*)

DoD CBDP Representative to the National Nanotechnology Initiative (NNI) Nanoscale Science and Engineering Technology (NSET) Subcommittee, 2005 – 2007

Member, Defense Intelligence Agency (DIA) WMD Integrated Product Team (IPT), 2005 – 2007

B. PUBLIC SERVICE

- *Panelist & Speaker*, “Women’s Leadership in the Cyber World: Emerging Issues and Trends in Cybersecurity,” Women in Leadership Distinguished Scholars Series, 22 October 2015, Atlanta GA, <http://www.iac.gatech.edu/news-events/stories/462001>
- *Invited Moderator and Discussion Leader*, Department of Defense (DoD) Homeland Defense and Security Information Analysis Center (HDIAC) online forum discussion on implications of 9/11 attacks on security and civil liberties, 07 September 2015, https://www.hdiac.org/weekly_question/4
- *Invited Member*, FBI-AAAS Big Data, the Life Sciences, and National Security Working Group, Serving on committee on “Governance, including technical, legal (international and domestic), and community approaches,” January-December 2014
- Georgia Tech Representative to Southeastern Center for Emerging Biologic Threats (SECEBT), 2009 – 2012
- Advised, NanoAssociation for Natural Resources and Energy Security, NANRES, 2011 – 2012
- Advised Counterinsurgency Director, Cost Assessment and Program Evaluation, Office of the Secretary of Defense, 2010
- Associate National Intelligence Council, 2008 – 2011
- Advised Arab Materials Science & Nanotechnology Network (AMSNN), 2009
- Advised Science and Technology Policy Institute (an FFRDC affiliated with the Institute for Defense Analysis) on nanotechnology for defense and security, 2009
- *Invited Participant* on international roundtable on “The Military Application of Neuroscience” hosted by the *Bulletin of Atomic Scientists*, August-October 2008
- *Invited Member*, US Government Panel on Synthetic Nucleic Acid Screening Framework, hosted by the NIH, 2008

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- Special Technical Advisor on nanotechnology for DIA/Directorate of Analysis, China Forces Branch, 2007 – 2009
- Chemical and Biological Incident Response Force (CBIRF) Tech Board, Naval Surface Warfare Center (NSWC) Indian Head, MD, 2006 – 2008
- DC Biosecurity Group, sponsored by the AAAS Center for Science Technology and Security Policy (CSTSP), 2005 – present
- FBI’s Interstate Chemical Terrorism Working Group, 2003 – 2005
- VIP Observer and Controller to TOP OFF-3 national full scale exercise (*chemical, biological and vehicle borne improvised explosive device (VBIED) terrorism incidents*), New London CT and Washington, D.C., 4-8 April 2005

C. COMMUNITY SERVICE

- Speaker, “Defense Technology,” Great Decisions Forum, Foreign Policy Association coordinated through Georgia State University, 24 March 2014, Atlanta GA.
- Kosal, M.E., “Girls and Women in Science: A 20-Year Perspective” Institute for Mathematics & Computer Science (IMACS) Magazine, 15 September 2011 (*4 pages*).
- Guest speaker, “Al Qa’eda and WMD Terrorism” at Columbus Georgia Tech Alumni Network, 20 March 2012, Columbus GA.
- Atlanta Police Department Civilian Police Academy (Class #15), September - December 2009, Graduation February 2010, Atlanta City Hall
- Volunteer Judge, US Army *Cybermission* (science, math, and technology competition for secondary school-age US Army dependents), 2008 – 2015
- Champaign City Public Works Advisory Board, 2002 – 2003
- Champaign County Tech Community Development Board, 2001 – 2003

D. INSTITUTE CONTRIBUTIONS

- Director, Georgia Institute of Technology Army War College Senior Service Fellows Program, July 2015 -
- Faculty Advisor, BOPSOP, Undergraduate Student Organization
- CETL/BP Junior Faculty Teaching Excellence Award Selection Committee, 2016
- Georgia Tech Federal Jackets Fellowship Selection Committee, 2016
- Georgia Tech Energy on the Hill Internship Program Selection Committee, 2016
- Georgia Tech, Sexual Violence Prevention Alliance (SVPA), Faculty Representative, 2015 -
- Ivan Allen College Writing Group Convener, Summer 2015
- Georgia Tech, Welfare and Safety Committee, Standing Committee of the Faculty Senate AY 2009 – 2012 and AY 2013 – 2015 (Chair 2011 – 2012, 2013 – 2014)
- Faculty Associate, GT Grand Challenges Freshman Program, Fall 2013 –
- Faculty Partner for Hopkins Freshman Residence Hall, 2008 – 2011
- Reader and Judge, IAC GTRIC Paper Competition, 2013, 2014, 2015, 2016
- Reviewer, IAC Small Grants for Research and Internal Research Proposals, 2011, 2012, 2014
- INTA Awards Committee (Chair AY 2014-2015), 2014 – present
- INTA Undergraduate Curricula Committee, 2013 – present
- INTA IR & Theory PhD Qualification Exam Committee, 2010 – 2012, 2015 Chair 2013 – 2014
- INTA Steering Committee, 2008 – 2012
- INTA Faculty Search Committee – IR Security specialist, AY2014-2015, AY2015-2016

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- INTA Faculty Search Committee – European Union specialist, AY2009-2010, AY2010-2011
- Reviewer, Sigma Xi Undergraduate Research Award Committee, 2010
- Organized and moderated, ICLAST panel on “The Liberal Arts, Technology, and National Security” 26 February 2016, IAC Georgia Tech.
- Speaker on panel discussion “Iran’s Nuclear Deal: Triumph of Diplomacy or Dangerous Precedent?” 9 September 2015, CISTP-INTA Georgia Tech.
- Invited panelist on “Careers at the Science/Policy Interface” at the Georgia Tech Graduate Student Government Association and Center for the Enhancement of Teaching and Learning (CETL) Career, Research, and Innovation Development Conference (CRIDC), 5 March 2015.
- Speaker, INTA Hour on “Trends in WMD Terrorism: Radical Islamists, Sovereign Citizens, and Rogue Ophthalmologists,” 5 February 2015.
- Speaker, IAC Advance Lunch/Discussion on “Productive Faculty Outcomes: Success with Multiple Roles,” 5 November 2014.
- Speaker on panel discussion “US Government Responses to the Ebola Outbreak in West Africa,” 6 October 2014, SIR Undergrad Honor Society, Nunn School, Georgia Tech.
- Speaker, “Global Health Security: Detering Bioterrorism, Infectious Disease, Development, & the Public Health-Military Nexus,” Innovation and Collaboration in Liberal Arts, Science, and Technology (ICLAST) Lecture Series, organized by School of Literature, Media, and Communication (LMC), 3 October 2014, Georgia Tech.
- Moderator and dialogue participant, discussion with Professor Abbas Milani, Stanford University, on Iran’s nuclear program, 14 April 2014, Georgia Tech.
- Speaker, Faculty Research Panel, 125th Anniversary Founders Day, “Security and Technology,” 13 March 2014, Atlanta GA.
- Speaker, Policy@Tech Speakers Series, “Strategy, Technology, & the US Military: Observations at the Academia-Policy Nexus,” 26 February 2014, Georgia Tech.
- Speaker, IAC Advance Lunch/Discussion on “Writing Research Proposals for External Funding: Keys for Success,” 17 October 2013
- Speaker, Nunn School Fall 2013 Seminar Series, “Strategy, Technology, and the Future of US Ground Forces,” 27 August 2013, Atlanta GA.
- Speaker on panel discussion “Obama’s Syrian Dilemma: Explicating the Challenges Confronting the US and Global Communities,” 16 September 2013, CISTP-INTA Georgia Tech.
- Speaker, Policy@Tech Speakers Series, “BioDefense Transformation: from the Green Line to the Transformational Medical Technologies Initiative,” 24 January 2012, Atlanta GA.
- Speaker, Georgia Tech Center for the Study of Women, Science and Technology (WST) Learning Community Dinner, 28 November 2011 on “From Science to International Security (aka from beakers to bombs).”
- Speaker, IAC Advance Lunch/Discussion on “Livability and Productivity: Enhancing the GT Environment for Faculty - Views from IAC Faculty,” 25 October 2011
- “Nanotechnology for Chemical and Biological Defense: Policy, Programmatic, and Threat Anticipation,” Nano@Tech Seminar Series, Marcus Nanotechnology Building, 27 October 2009, Atlanta GA.
- Speaker, Georgia Tech Model United Nations Conference, “S&T, Security, and Risk in the 21st Century,” 17 October 2011, Atlanta GA.
- Speaker, Nuclear and Radiological Engineering Symposia, “Predicting Nuclear Proliferation: Theory, Policy, and Role for Engineers,” Woodruff School of Engineering, Georgia Institute of Technology, 23 April 2009, Atlanta GA.

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- Invited Participant in “Leadership Lunch Series” on “The Spectrum of Career Opportunities for PhD Scientists” sponsored by the Center on Materials and Devices for Information Technology and Research and the School of Chemistry and Biochemistry, 6 October 2008.
- Speaker, CISTP Colloquium on Chemical and Biological Weapons, “The Shifting Faces of Chemical Weapons: Improvised Chemical Terrorism,” 6 November 2007, Atlanta GA.
- Speaker, INTA Undergrad Students Organization (IASO), “Weapons of Mass Destruction: Science and Technology to Respond to Global Proliferation Threats,” 11 October 2007, Atlanta GA.