

October 14, 2013

**An Important note from the Principal Investigator Abolhassan ASTANEH-ASL, on the document that follows:**

This is an Abstract submitted in 2002 for organizing a session at the 2003 annual meeting of American Association for Advancement of Science. The session was accepted and successfully presented at the meeting.

Respectfully,

Abolhassan ASTANEH-ASL, Ph.D., P.E.

Professor and P.I. for the NSF Funded UC Berkeley WTC Project

# Security for Life: The Science Behind Security Technologies and Lessons Learned from 9/11

AAAS Annual Meeting 2003  
February 13-18, 2003  
Proposed 3-hour symposium

## Organizer:

Anice Anderson, University Graduate Scholar, College of Engineering & Applied Sciences; Senior Research Associate, The Institute for Manufacturing Enterprise Systems/The L. William Seidman Research Institute, Arizona State University, P.O. Box 875906, Tempe, Arizona, 85287, (602) 319-3415, Fax: (480) 965-8692. [anice.anderson@asu.edu](mailto:anice.anderson@asu.edu)

## Co-Organizer:

Abolhassan Astaneh-Asl, Professor of Civil and Environmental Engineering, University of California, Berkeley, 781 Davis Hall, Berkeley, California, 94720-1710, (510) 642-4528, [Astaneh@ce.berkeley.edu](mailto:Astaneh@ce.berkeley.edu)

## Section Discussions and Resulting Co-Chairs:

This symposium has been discussed and endorsed by the following AAAS Sections:

Section (M) – Engineering (Sponsor), Denice Denton, Section Chair

Section (P) – Industrial Science and Technology (Co-Sponsor), Dan Berg, Section Chair

Section (Y) - Biological Sciences (Co-Sponsor), Laura Gabel, Section Chair

## **Synopsis:**

Science as a way of life can flourish best when security for life exists. In the aftermath of unprecedented and tragic terrorist attacks on 9/11, it is interesting to review the scientific research underlying many of the essential technologies that improve our security and life safety. Today's complex world requires complex technologies for protection from potential threats.

This symposium will explore a range of scientific technologies in the field of security, categorized into three areas: 1) Critical Building Infrastructure Improvements, 2) Improving Aircraft Flight Safety and Airport Security, and 3) Bioterrorism protection.

This symposium will explore a variety of issues. What issues relate to the security of our nation's structures to protect them from potential threats? What have we learned from the analysis of the collapse of the World Trade Center and what improvements are we making for the future? How are science and engineering technologies enhancing aircraft flight safety through complex computer designs such as flight controls systems and tactical collision avoidance systems? How do technologies such as biometric identification systems and real time face recognition help improve security in airports, banks, law enforcement, and identity fraud? How does science and technology play an important role in fighting bioterrorism including the protection of our national mail system? How can risk assessment decision models assist us in the understanding of the interrelationships affecting security? <sup>(1)</sup> These questions will be addressed by representatives from academia, government and

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<sup>(1)</sup> The topic of "New technologies available for Internet Security and Cyber-terrorism" was considered with speakers confirmed, however, when sent out for endorsement from another section, we discovered an overlap, and we have left this session out. It could be added back into this session if the other session is not approved.

industry including the fields of engineering, biological sciences, physics, industrial sciences and technology.

Proposed Speakers:

1. Dr. Abolhassan Astaneh-Asl, Professor, Department of Civil and Environmental Engineering, University of California Berkeley, 781 Davis Hall, Berkeley, California, 94720-1710, (510) 642-4528, [Astaneh@ce.berkeley.edu](mailto:Astaneh@ce.berkeley.edu). As Principal Investigator on “Protection of Buildings Against Terrorist Attacks and Lessons Learned from the Collapse of World Trade Center Towers”, funded by NSF, this discussion will be of interest to many attendees who are interested to learn of the new changes that are being incorporated in structural designs to make our buildings structurally safer. Fire safety issues will also be discussed. (confirmed)
  2. Dr. David McCallen, Director, Center for Complex Distributed Systems, Lawrence Livermore National Laboratory, Livermore, California 94550, (925) 423-1219. [mccallen2@llnl.gov](mailto:mccallen2@llnl.gov). The nature of terrorist threats often requires a multidisciplinary approach which relies on both physics and engineering tools for solving extremely complex, coupled, thermal-fluid-structure interaction problems. This talk “Technologies for Assessing and Addressing the Terrorist Threat to Infrastructure” will provide examples of how modern computational tools are being used to develop quantitative assessment of damage from potential attacks and to devise economical solutions to reduce the threat to major facilities. (confirmed)
  3. Ben McLeod, Director, Aviation, Safety and Security Solutions, Honeywell International, 15001 N.E. 35<sup>th</sup> Street, Redmond, Washington 98073-9701, (425) 885-8515. [ben.mcleod@honeywell.com](mailto:ben.mcleod@honeywell.com). Honeywell officials met with the Federal Aviation Administration and Department of Transportation, provided briefings to airlines and airframe manufacturers, and announced specific projects designed to better ensure the safety of all of us when we fly. Some of the critical requirements of today’s aviation environment include enhancing airport security, preventing unauthorized entry onto aircraft, alerting authorities of attempted takeovers, and providing better real-time and post-event incident analysis. This talk on “Aircraft and Airport Security: Making Flying Safer” will address these and other topics. (confirmed)
  4. Margaret Gilligan, Deputy Associate Administrator, Federal Aviation Administration, 800 Independence Avenue, S.W., Washington, DC 20591, (202) 267-3131. “FAA Activities to Enhance and Promote Airline Travel Safety” will be of interest to air travelers worldwide. As Deputy of the FAA’s Regulation and Certification complex, Ms. Gilligan assists in providing oversight and direction for: the certification, production approval, and continued airworthiness of aircraft; the certification of pilots, mechanics, and others in safety-related positions; the certification of all operations and maintenance enterprises in domestic civil aviation; development of regulations; and the certification and safety oversight of some 7,300 U.S. commercial airlines and air operators. These programs have a direct impact on every facet of domestic and international civil aviation and are the heart of the Nation’s aviation safety efforts. (Highly probable confirmation or appropriate substitute from same group)
  5. Dr. Carole A. Heilman, Director, Division of Microbiology and Infectious Diseases, National Institute of Allergy and Infectious Diseases, National Institute of Health, Room 3142, 6700-B Rockledge Drive, Bethesda, Maryland 20892, (301) 496-1884 [cheilman@niaid.nih.gov](mailto:cheilman@niaid.nih.gov) The recent deliberate exposure of civilians to the anthrax bacterium uncovered an unmet need for
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tests to rapidly diagnose, vaccines and other immunotherapies to prevent, and drugs and biologics to cure diseases caused by agents of bioterrorism. NIAID and other federal health agencies are evaluating and accelerating measures to protect the population from the health consequences of future attacks. “The Science of Fighting Bioterrorism” will address the measures developed to counter effects of bioterrorism. (Highly probable confirmation or appropriate substitute from same group)

6. Dr. Bert Coursey, Chief, Ionizing Radiation Division, Physics Laboratory, Homeland Security, NIST, Bldg. 245, Rm C229, 100 Bureau Drive, Stop 8460, Gaithersburg, MD 20899-8460, (301) 975-5584, [bert.coursey@nist.gov](mailto:bert.coursey@nist.gov) NIST in the Technology Administration of the Department of Commerce is responding to requests from the White House to provide measurements and standards to all the federal agencies working on “Homeland Security”. In response to the anthrax attack on the US mail system, the Postal Service selected electron-beam irradiation as the only proven technology for decontaminating mail. Since October, NIST has been leading a Technical Task Force from the Office of Science and Technology Policy in assisting the Postal Service in the rapid, large-scale cleanup of the contaminated mail. This interdisciplinary task required a coordinated effort involving microbiologists, radiation chemists, radiation physicists and mechanical and industrial engineers. Dr. Coursey will share with us his story “Science and Technology Behind Protecting Our Mail” (confirmed)
7. Dr. Elisabeth Paté-Cornell, Professor and Chair, Department of Management Science and Engineering, Terman Engineering Building, Room 348, Stanford University, Stanford, California, 94305-4026, (650) 723-3823, [mep@leland.stanford.edu](mailto:mep@leland.stanford.edu) Dr. Pate-Cornell’s recent work with the Department of Defense and the White House has focused on mathematical modeling allowing the management of programmatic risks for the development of safety-critical systems. “Modeling Risk Management for Mitigation of Terrorist Activities” will provide a balance to the discussions of the interrelated topics in this session. (confirmed)
8. Dr. Joseph Atick, Chairman and CEO, Visionics Corporation. Dr. Atick directed the Neural Cybernetics Group at the Institute for Advanced Study in Princeton, and the Computational Neuroscience Laboratory at Rockefeller University. Dr. Atick will provide an overview of biometric identification technologies and systems for airport security titled “Biometrics- the Science of Identification” (Discussed and may use as substitute)
9. Dr. Nong Ye, Director, Information and Systems Assurance Laboratory, Professor, Industrial Engineering, P.O. Box 875906, Arizona State University, Tempe, Arizona 85287. [nong.ye@asu.edu](mailto:nong.ye@asu.edu) “Technologies for Protecting Information Infrastructure” (*Confirmed, but we recognize possible overlap with other session, however, may use as substitute if needed*)
10. Michael Vatis, Director, Institute for Security Technology Studies, Dartmouth. National Infrastructure Protection Center at the FBI. “Protecting Critical Infrastructures Against Cyber-Terrorism. The NIPC is charged with leading the Federal Government's efforts to detect, prevent, investigate, and respond to “cyber” attacks on the nation's "critical infrastructures," including telecommunications, energy, banking and finance, transportation, and government operations. (*Discussed, but we recognize possible overlap*)

**Time Requested:**

This symposium committee requests a three-hour session.

