



Homeland Security

Working Together: Research & Development Partnerships in Homeland Security



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The Seaport Hotel and World Trade Center
Boston, Massachusetts, USA

SESSION 2: CRITICAL INFRASTRUCTURE PROTECTION

City View, World Trade Center

Critical Infrastructure Protection

[Adaptive Network Countermeasures: A Dynamic System for Deception and Network Protection](#)

Jamie Van Randwyk, Sandia National Laboratories

[Addressing the Insider Threat from Unauthorized Area Networks](#)

Eamon Doherty, Farleigh Dickinson University

[An Advanced Risk Modeling System \(ARMS\) for Critical Infrastructure](#)

Edward V. Badolato, The Shaw Group

[Anticipatory Theory-based Information Processing Framework for a Wireless Sensor Network to Assure the Nation's Critical Energy Infrastructure](#)

Teja Kuruganti, Oak Ridge National Laboratory

[Application of Advanced Technologies for Early Warning and Decision Making for Threat and Vulnerability Assessment](#)

David B. Keever, SAIC

[Application of Video Technologies and Patterns Recognition in Safeguards](#)

Ajay Jain, Excom Inc.

[Audio-Visual Communication-Monitoring System for Enhanced Situational Awareness](#)

Durand Begault, NASA Ames Research Center

[Authenticating Video Surveillance Systems Using Watermarked Video Objectives](#)

Petar Horvatic, IMEDIA

[Automation of Scene Understanding for the U.S. Coast Guard Hawkeye Port and Coastal Surveillance System](#)

David Armstrong, U.S. Coast Guard Research and Development Center

[Building a National Emergency Computing Network](#)

Gregory Newby, Arctic Region Supercomputing Center

[Cost Model for Building Protection](#)

Charles Call, MesoSystems

[Critical Infrastructure Assessments and Testing Standards, Methods and Practices](#)

Rob Hoffman, Idaho National Laboratory

[Critical Infrastructure Protection Leveraging Air Platform and Sensor Technologies at the Johns Hopkins University Applied Physics Laboratory](#)

Surjit Badesha, Johns Hopkins University Applied Physics Laboratory

[Critical Transportation Infrastructure Monitoring, Assessment and Protection](#)

Bill Roper, George Mason University

[The Cyber Defense Technology Experimental Research Network](#)

Terry Benzel, University of Southern California

Cyber Situational Awareness Toolkit

Paul O'Rourke, Lucent Technologies

[Cyber Threat-Source Taxonomy – A Common Expression for Wide-Spread Concerns](#)

Gary R. Stoneburner, Johns Hopkins University Applied Physics Laboratory

[A Data Model and Architecture for Critical Infrastructure Protection](#)

Anoop Singhal, George Mason University

[Decision Technologies for the Protection of Critical Infrastructure](#)

William Wallace, Rensselaer Polytechnic Institute

[Defending Against Internet Host Fingerprinting – Towards an Outermost Barrier of Cyberspace Security](#)

G. Q. Shu

[Design Optimization of Logistics and Information Networks](#)

Ananth Krishnamurthy, Rensselaer Polytechnic Institute

[Design and Performance Considerations for Emergency Water Treatment Units](#)

John Whitley, US EPA and Gene Fax, The Cadmus Group

[A Design for a Secure Sensor-Communications Network](#)

Nirmala Shenoy, Jon Schull and Cao Xiaojun, Rochester Institute of Technology

[Designing Infrastructure for New Goals and Constraints](#)

Gordon Thompson, Clark University

[Developing a Comprehensive Intrusion Detection Strategy for Critical Infrastructure Protection](#)

Rob Hoffman Idaho National Laboratory

Development of an Autonomous Lidar Instrument for Use on a UAV Platform in Support of Homeland Security

Matthew McGill, NASA-Goddard Space Flight Center

[Development of the Inter-Agency Modeling and Atmospheric Assessment Center](#)

Gayle Sugiyama, Lawrence Livermore National Laboratory

[Development of Low Energy Integrated CMOS Circuits and Systems for Distributed Sensor Networks](#)

Sameer Sonkusale, Tufts University

[Diagnostic Tools to Estimate Consequences of Terrorism Attacks Against Critical Infrastructure](#)

Rae Zimmerman and Carlos Restrepo, New York University

[Dynamic Integration and Use of Distributed and Heterogeneous Databases](#)

Wayne Bethea, Johns Hopkins University Applied Physics Laboratory

Dynamic Surveillance and Detection by Optimized Self-Configuring Sensor Networks

Humberto E. Garcia, Idaho National Laboratory

[EGAD: A Unique Anomaly Detection Framework for Protecting Critical Infrastructure Against Cyber Attacks](#)

Robert Ross, BAE Systems

[The Effectiveness of Generative Attacks on a Handwriting Biometrics](#)

Dan Lopresti, Lehigh University

[Embedded System Security](#)

Wayne Burseson, University of Massachusetts Amherst

[Emergency Operations Center Design to Support Rapid Response and Recovery](#)

Laura Militello, University of Dayton Research Institute

[Emergency Responder Intelligent Interaction Environment](#)

Michael Orr, Lockheed Martin

[Enterprise Architectures for Container Security](#)

Soon Ae Chun, Rutgers University

[Evacuating Large Cities and Buildings Efficiently](#)

Costas Busch, Rensselaer Polytechnic Institute

[Evaluating the Security of the North American Power Grid](#)

Bernard Lesieutre, Lawrence Berkeley National Laboratory

[Harnessing Wireless Telephony to Enhance Homeland Security](#)

Carol McDonough, University of Massachusetts Lowell

[Have You Really Erased Your Sensitive Files? Magnetic Fingerprinting and Information Storage](#)

Kai Liu, University of California – Davis

[A High Data Rate, Adaptable Wireless Architecture for Sensor Systems](#)

William P. D'Amico, Johns Hopkins University Applied Physics Laboratory

Nada Golmie, NIST

[Implementation of Long-life Sensor Networks for Environmental Monitoring for Bio-chemical Defense](#)

Na Wang, Tufts University

[The Importance of the X.805 Security Framework: Securing the Electric Utilities Control and Data Network](#)

Uma Chandrashekar, Bell Labs

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Tomasz Arciszewski, George Mason University

[Infrared CARS: A Novel Sensor for Chemical, Biological and Nuclear Detection](#)

Roger K. Richards, Oak Ridge National Laboratory

[Innovative Model for Simplifying Information Security Risk Analysis](#)

Sanjay Goel, State University of New York at Albany

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Curtis Lisle, Silicon Graphics

[Maintaining Situational Awareness with Autonomous Airborne Observation Platforms](#)

Michael Freed, NASA Ames Research Center

[MEMS Sensors for the Detection of Hazardous Conditions and Material Under Critical Scenarios](#)

Paul Greenberg, NASA Glenn Research Center

[A Model for Exploratory Data Analysis](#)

K. M. George, Oklahoma State University

[Monitoring Message Streams](#)

Paul Kantor, Rutgers University

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Liang Cheng, Lehigh University

[A Multi-level Secure Network Infosec System Resistant to Insider Intrusion Providing Retroactive Denial of Data](#)

Access
Stephen Leibholz, TechLabs

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Matthew Ennis, Lumidigm, Inc.

[Network Applications of Polarization-based Intrusion Detection Systems](#)
Pramode Verma, University of Oklahoma – Tulsa

[Network, Architecture and Protocols for National Critical Infrastructure Protection](#)
Z. J. Liu, The Ohio State University

Network Extrusion Prevention: Addressing Insider Threats
William T. Haase, Fidelis Security Systems, Inc.

[A New Broadcast Cryptography Scheme with Applications to Secure and Authenticate DTV Broadcasting for Emergency Alert](#)
B. Vishal, The Ohio State University

[Next Generation of Fingerprint Sensors](#)
Geppy Parziale, TBS North America, Inc.

A Novel Architecture for Next Generation Wireless Communications Systems
Patrick E. White, Stevens Institute of Technology

[Optimization of Distributed Security Sensor Systems](#)
George Markowsky, University of Maine

[Optimum Data Objects for Secure Software](#)
Ed Lowry, Advanced Information Microstructures

Physics-based Methods for Bulk Currency Detection
Timothy J. Roney, Idaho National Laboratory

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Calvert L. Bowen, III and Ryan W. Thomas, Virginia Tech

[A Pre-hospital Patient Care System with Wireless Sensors for Vital Sign Monitoring and Patient Location Tracking](#)
Steve Moulton, Boston University

[Proactive Security: From Evolutionary Approaches to Cellular Automata](#)
Rafal Kicingier, George Mason University

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Venkat Devarakonda, BlazeTech Corp.

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Ross Stapleton-Gray, Skaion Corporation

[A Real-time, Small Footprint Microwave Imaging System Based on a Planar RF Lens](#)
Zachi Baharav, Agilent Technologies

[Relational Database Modeling to Manage Distributed Sensors for Perimeter Security](#)
Robert Fricke, TIAX LLC

Reducing Risk Posed by Hazardous Materials Shipments Sub-Atmospheric Pressure Storage and Delivery for Hazardous Gas
Peter Van Buskirk, ATMI, Inc.

[Road to the Blinky Lights – Anatomy of a SCADA Attack](#)
Rob Hoffman, Idaho National Laboratory

[SCADA System Vulnerability Analysis](#)

Kelvin T. Erickson, University of Missouri-Rolla

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Alex Zhaoyu Liu, University of North Carolina at Charlotte

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Tomasz Arciszewski, George Mason University

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[Simulation and Modeling Capabilities for Waterway and Port Security](#)

Dinah McComas, US Army Engineer Research and Development Center

[A Single Engine Approach in Face-Fingerprint Biometrics](#)

Andrzej Rucinski, University of New Hampshire

[Smart Sensor Interface Standards for Homeland Security Applications](#)

Kang Lee, NIST

[Space-Based Technologies for Tank Leakage Detection](#)

Vitaliy Firsov, Yuzhnoye SDO

[Standardized Interfaces and Web Enablement for Sensor Networks](#)

Kang Lee, NIST

[Structural Health Monitoring of Critical Transportation and Civil Infrastructure](#)

Mike Masquelier, Motorola Labs

[Synthetic Environment for Measured Response Against High-Consequence Terrorist Events](#)

Tejas Bhatt, Purdue Homeland Security Institute

[Team Situation Awareness: Display Technologies in Support of Maritime Domain Awareness](#)

Clint Jenkin, U.S. Coast Guard RDC and University of New Hampshire

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Michael Orosz, University of Southern California

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Sam Gorton, Skaion Corporation

[The Transition of Military Technology for Law Enforcement](#)

Tom Marenic, Dolphin Technology, Inc.

[Transportation System Security Readiness Assessment System](#)

Rekha Pillai, Oak Ridge National Laboratory

[Ultra Low Power Photomultiplier Tube Circuit for Continuous Monitoring of High Energy Particles or](#)

Fluorescence Events

Paul Dentinger, Sandia National Laboratories

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Charles Swope and John Preston, Motorola

[Use of Terrorism Catastrophe Risk Modeling to Manage Terrorism Exposure in the Insurance Industry](#)

Jack Seaquist, AIR Worldwide Corporation

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Dan Kroll, Senior Scientist, Hach HST