Awareness and Localization of Explosives-Related Threats (ALERT)  

ALERT is an emeritus Department of Homeland Security (DHS)  
Science and Technology (S&T) Directorate Center of Excellence  

Customs and Border Protection - Advanced Developments  
Encompassing Processes and Technologies (CBP-ADEPT) Workshop 03:  
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SPEAKER BIOGRAPHIES

Rosanna Anderson  
Department of Homeland Security, Science & Technology Directorate (DHS S&T)  

Dr. Rosanna Anderson is a Supervisory Program Manager at the Department of Homeland Security, Science & Technology Directorate (DHS S&T) working in the areas first responder capabilities, border security, and chemical/biological defense. Dr. Anderson oversees S&T’s First Responder and Disaster Resilience R&D Thrust Area, an ~$60 million research portfolio to develop capabilities to increase operational effectiveness and safety of first responders and emergency managers, as well as improve community preparedness and resiliency. Additionally, since 2018, Dr. Anderson has managed the S&T Opioid Program, in support of the counter-narcotics missions of US Customs and Border Protection and Immigration and Customs Enforcement, Homeland Security Investigations. Program foci include development of standards and detection technologies for the identification and interdiction of synthetic opioids, and analytical tools to aid in investigation of drug trafficking networks, to disrupt the flow of opioids that are being smuggled into the US. Her prior portfolio efforts concentrated on biosurveillance and biothreat detection technologies. She has a Ph.D. in Biochemistry from the Medical University of South Carolina and B.S. in Biochemistry from Clemson University.

Carl R. Crawford  
Csuptwo  

Carl Crawford is president of Csuptwo, LLC, a technology development and consulting company in the fields of medical imaging and explosive detection for Homeland Security. He has been a technical innovator in the fields of computerized imaging for more than thirty years. His technology has resulted in 90 U.S. Patents. Dr. Crawford was the Technical Vice President of Corporate Imaging Systems at Analogic Corporation, Peabody, Massachusetts, where he led the application of signal and image processing techniques for medical and security scanners. He developed the reconstruction and explosive detection algorithms for a computerized tomographic (CT) scanner deployed in airports worldwide. He was also employed at General Electric Medical Systems, Milwaukee, Wisconsin, where he invented the enabling technologies for helical scanning for medical CT scanners and physiological motion compensation for projection-based imaging systems. At Elscint, Haifa, Israel, he developed technology for cardiac CT scanners. He also has developed technology for magnetic resonance imaging (MRI), single photon emission tomography (SPECT), positron emission tomography (PET), ultrasound imaging, dual energy imaging and automated threat detection algorithms. He has a PHD in electrical engineering from Purdue University. He is a Fellow of the IEEE and a Fellow of the American Association of Physicists in Medicine (AAPM).
Cor Datema
Dynaxion

Cor Datema has a PhD in Physics from the university of Southampton (UK). He worked as a post-doc researcher at Delft University of Technology on the detection of explosives using neutrons. Next, he moved to Philips Healthcare working as a System Designer of X-ray systems. After several years in R&D he moved to various other roles within the Philips organization, from supply chain management, purchasing to product marketing, sales and consultancy. In 2013 he founded the company Recornect, a successful start-up active in the healthcare domain. In 2019 he started his second company Dynaxion with the goal to make the world a safer place by developing a new neutron-based scanning system.

Andrew Farrelly
CT Strategies

Andrew Farrelly is the CEO and Co-Founder of CT Strategies, which provides strategic services to clients seeking current and innovative insight into border management and supply chain challenges in the U.S. and around the world. Mr. Farrelly has devoted the majority of his career to the strengthening of United States security interests through an accomplished career with U.S. Customs and Border Protection (CBP). During his time with CBP, Mr. Farrelly significantly developed the operational standards and efficiency as a former Director of Targeting Programs for CBP’s National Targeting Center, as well as in his most recent role as the Chief of Staff for the Deputy Commissioner of U.S. Customs and Border Protection. As Chief of Staff to the Deputy Commissioner, Andrew Farrelly coordinated interagency efforts related to immigration reform, global supply chain security, and intelligence matters. He also served as the point of contact for all emergency situations to include potential terrorist attack threats and natural disaster responses. While serving as the Director of Targeting Programs, Mr. Farrelly oversaw the development of innovative initiatives and operational solutions that enhanced CBP’s capabilities in detecting and identifying potential threats in situations involving the necessity to facilitate the transportation of people and cargo efficiently. His efforts extended to facilitating negotiations with various foreign entities and private corporations to establish partnership programs for securing international transportation and commerce. Mr. Farrelly also led the interagency effort to establish a Risk Characterization as part of the Implementation Plan for the White House Global Supply Chain Security Strategy. In addition to the offices of the Deputy Commissioner’s Chief of Staff and as Director of Targeting Programs, Mr. Farrelly served CBP in several capacities including: Chief of Staff for the Office of Field Operations, Counselor in the Office of the Commissioner, Program Manager in the Secure Freight Initiative, and as a Liaison in the Office of Congressional Affairs.

Wil van Heeswijk
European Commission

Wil van Heeswijk (B.A. in International Law) has over 27 years of service with the European Commission and currently serves as the Policy Officer in the customs Directorate-General at the European Commission in Brussels, Belgium. Wil commenced his career in Dutch customs and before his move to Brussels in 2007, he was based at the Security department of the Joint Research Centre in Ispra, Italy. Wil is responsible for security technology developments, customs control equipment and implementation of smart border and supply chain security measures, including research and innovation. Wil is the customs policy adviser to the European Union HORIZON Europe Security Research Program, the EU representative for the World Customs Organization Technical Expert Group on Non-Intrusive Inspection equipment and for the Border Monitoring Working Group.
Frank Heijmann

*Customs Administration of the Netherlands*

Frank is a senior executive, holding over 30 years of Customs experience, having an in-depth knowledge in the fields of customs legislation, international business, logistics, e-commerce and enforcement strategy. He is recognized for motivating people and creating enthusiasm and support. This has resulted into the collective developments and implementation of novel ideas and solutions that focus on the balance between trade facilitation and enforcement, with trade, governments and academia, as there are the University MSc program Customs & Supply Chain Compliance, the BSc Customs & Trade Compliance, the supply chain innovation concept The Pipeline Interface, the Innovation approach within the Customs Administration of The Netherlands, Dutch Customs’ multi-annual vision ‘Pushing Boundaries’ and academic research in various areas of the customs domain.

Natalie Heller

*Pacific Northwest National Laboratory*

Natalie Heller is a Data Scientist with the Pacific Northwest National Laboratory. Current research employs statistical methods to the field of proteomics as well as applies machine learning techniques to analyze network graph data. Research interests include operational risk-based, intel-driven decision statistics, toxin and microorganism based proteomics, and big network graph analysis. M.S. Statistical Science, University of Idaho; B.S. Mathematics, University of Idaho.

Juha Hintsa

*Cross-border Research Association Switzerland*

Dr. Juha Hintsa is the founder and CEO of Cross-border Research Association (CBRA) based in Lausanne, Switzerland and a well-known researcher, lecturer and consultant in supply chain security and global trade facilitation. Dr Hintsa holds a PhD in management from HEC University of Lausanne and M.Sc (eng.) from Helsinki University of Technology. He has participated in and/or coordinated over 30 research-technology-innovation projects and is author/co-author of some 70 publications, in supply chain security, customs, border security and trade facilitation related topics.

PEN-CP, the Pan-European Network of Customs Practitioners – EU Horizon 2020 funded Customs security practitioner project – acts as a European Customs innovation boosting network, powered by an innovation-management oriented online platform, and tailored innovation intermediary services. The project consortium consists of 13 Customs administrations - nine EU and four non-EU - supported by four research and administration partners PEN-CP focuses on accelerating innovation efforts across three core technical areas of customs interest: (i) Data and risk management; (ii) Detection technologies; and (iii) Laboratory equipment. We have a broad variety of innovation and knowledge instruments in use, including Prototype grants, Challenge competitions, Innovation awards, Annual studies and Expert reports. Our key innovation boosting principles include the following (i) User needs-driven; (ii) Seeking solutions to fill the gaps; (iii) Innovation up-scaling focused; (iv) and, following the 5 C-principles: Collaborative, Complementary, Connecting, Curious, and Creative. Our vision is to become a sustainable Customs practitioner network helping to accelerate both incremental and radical innovations for the direct benefit of Customs administrations in Europe and beyond. PEN-CP started in 2018, and with the current mandate will finish in 2024. More information at: [www.pen-cp.net](http://www.pen-cp.net); or email to [pen-cp@cross-border.org](mailto:pen-cp@cross-border.org)
Steve Korbly  
*Chief Executive Officer at RexSter Technologies*

Dr. Stephen Korbly is currently the CEO for RexSter Technologies, a provider of next generation X-ray contract sterilization services. He is the former Chief Executive Officer at Passport Systems where he managed two products: 1) a scanner based on several new technologies for the inspection of air, land and sea cargo, and 2) a system of networked radiation detectors. He has seen the cargo inspection system go from the feasibility stage through government testing and deployment at the Port of Boston. Dr. Korbly is an experienced project leader/manager who has delivered various projects on time and within budget from the beginning requirements to development, testing, and product rollout phases. In addition to being an experienced practitioner of experimental physics, Dr. Korbly has extensive experience in developing new technologies and managing a diverse set of people and technical requirements. He received his Ph.D. from the Massachusetts Institute of Technology (MIT) in plasma physics with a concentration in accelerator physics, and his AB in physics from Princeton University.

Gregory Kleynerman  
*Red Flag Cargo Security Systems*

Gregory Kleynerman is the co-founder and VP of Engineering for Red Flag Cargo Security Systems. He advised on Customs and Border Protection initiative, Operation Safe Commerce III and provides security consulting for major railroads and Fortune 500 companies, specifically, achieving and retaining the highest C-TPAT compliance, loss and risk mitigation, and cargo security best practices. Under Gregory’s leadership, Red Flag has become an established and highly recognized company in the cargo security arena, setting a new standard for ISO 17712 compliant seals. Gregory was an integral part of developing Red Flag’s proprietary web-based software, which has been recognized as one of the most premier in the cargo security industry. The software performs trace, filter, and real-time notification responsibilities from origin to final destination via integrated mobile software and high security seals. Gregory is also the inventor on Red Flag’s 3 patents relating to their Milwaukee, Wisconsin manufactured seals.

Giulio Maria Mancini  
*European Commission*

Giulio Maria Mancini is a Policy Officer coordinating EU border and external security innovation policy, in the Unit on “Innovation and Security Research” of the Directorate-General Migration and Home Affairs of the European Commission. Previously he was Project Officer on security research and Programme Manager for the Union actions of the Asylum, Migration and Integration Fund of the European Union. Before working for the European Commission, Giulio worked in the engineering programme of the International Biological and Chemical Threat Reduction department within the Centre on Global Security and Cooperation of Sandia National Laboratories of the Department of Energy of the United States, and as Programme Manager on Science and Technology for Non-Proliferation in the non-governmental sector in Italy, mainly carrying out projects on international scientific cooperation for security, risk management and capacity building for the prevention of chemical and biological security threats. He has a PhD in Peace Studies from the University of Bradford in the UK.
Harry E. Martz

*Lawrence Livermore National Laboratory*

Harry Martz is the Director for Non-destructive Characterization Institute and a distinguished member of the technical staff at Lawrence Livermore National Laboratory. He is also Principal Investigator (PI) on Department of Homeland Security, Science and Technology, Homemade Explosives Identification, Detection and Mitigation (HEIDM) program. Harry joined the Laboratory to develop the area of X-ray imaging and proton energy loss computed tomography for the non-destructive inspection of materials, components, and assemblies. He received his M.S. and Ph.D. in Nuclear Physics/Inorganic Chemistry from Florida State University, and his B.S. in Chemistry from Siena College. Harry has applied CT to inspect one-millimeter sized laser targets, automobile and aircraft components, reactor-fuel tubes, new production reactor target particles, high explosives, explosive shape charges, dinosaur eggs, concrete and for non-destructive radioactive assay of waste drum contents. Recent R&D efforts include CT imaging for conventional and homemade explosives detection in luggage and radiographic imaging of cargo to detect special nuclear materials and radiological dispersal devices.

Christopher J. Mocella

*U.S. Customs and Border Protection*

Under U.S. Customs and Border Protection (CBP), Chris Mocella is the Assistant Director for Operations within the Interdiction Technology Branch (ITB) of Laboratories and Scientific Services (LSS). LSS is the scientific, technical, and forensic wing of CBP, and ITB is the engineering and test-and-evaluation group handling Rapid Technology Assessments (RTA) of systems and technologies that could provide solutions to CBP’s mission need. Chris joined CBP in 2006 as a Duty Scientist for the 24/7 Teleforensics Center. Prior to that, Chris studied the chemistry of energetic materials and pyrotechnics under Dr. John Conkling at Washington College in Chestertown, MD, and is the primary author on *The Chemistry of Pyrotechnics, 3rd Edition* (CRC Press).

Laura Parker

*Department of Homeland Security*

Laura Parker is the Senior Advisor for Sensors in the Science and Technology Directorate at the Department of Homeland Security. She is also the Program Manager for the ALERT Center of Excellence, a DHS-sponsored consortium of universities led by Northeastern University to perform research that address explosive threats. Laura, most recently, was the Program Manager for the Next Generation Explosives Trace Detection Program focused on developing advanced explosives trace detectors for use at checkpoints and other DHS operational environments. Laura has worked on a variety of research projects focused on explosives screening technologies to include algorithm and hardware development and interfacing with DHS components such as Transportation Security Administration, Customs and Border Protection, US Secret Service, the US Coast Guard and other government agencies. Previously, Laura worked as a contractor providing technical and programmatic support of chemical and biological defense and explosives programs for several Department of Defense (DoD) offices. She also performed research in several US Navy laboratories in the field of energetic materials. She obtained her Ph.D. in chemistry from the Pennsylvania State University.
Jay Payne

*Rapiscan*

Jay Payne is a Vice President with Rapiscan AS&E, located in Billerica Massachusetts. He is responsible for managing US Government accounts. Jay has been in the security industry, working with CBP since 1997, on various development and production programs for large scale X-Ray systems. Jay retired from the Air Force as a Space Operations Officer having worked various space launch and space surveillance programs.

John Penswater

*U.S. Customs & Border Protection*

Chief John Penswater started his federal career in 1992 with the United States Customs Service (USCS) in the Port of Philadelphia with roles in narcotics interdiction, outbound currency enforcement and export enforcement operations. In 2000, Chief Penswater served at the USCS EXODUS Command Center in Washington, DC, coordinating the agency’s sensitive technology and arms export enforcement efforts. In the aftermath of the September 11, 2001, attacks, Chief Penswater was tasked to lead the development of a national cargo anti-terrorist targeting unit within the Office of Border Security/National Targeting Center. In 2003, Chief Penswater assumed responsibility of the agency’s anti-terrorism basic and advanced training programs at the Customs and Border Protection (CBP) Field Operations Academy in Glynco, GA. In 2009, Chief Penswater returned to the Port of Philadelphia as the Supervisor of the Port’s Anti-Terrorism Contraband Enforcement Team (A-TCET) and in 2012, he supervised passenger processing operations in the Port of New York/Newark. In 2013, Chief Penswater was promoted to CBP’s New York Field Office where he had programmatic oversight of the of trade and cargo security operations at both the Ports of JFK and New York/Newark. In 2015, Chief Penswater was promoted to Branch Chief and returned to the Port of New York/Newark. There he managed passenger processing operations and then seaport enforcement operations, where he led daily operations of the maritime A-TCET, outbound enforcement, non-intrusive inspections, radiation detection and canine enforcement operations. Since March 2020, Chief Penswater has been on detail to CBP Headquarters in Washington, DC, to lead the Seaport Innovation Project under the Office of Field Operations, Cargo and Conveyance Security.

Zhenyun Qian

*Northeastern University*

Dr. Zhenyun Qian is a Co-founder and Head of Technology of Zepsor Technologies, a start-up company that aims to bring to market zero standby power sensors for various IoT applications including presence detection, fire monitoring, building automation and digital agriculture. Dr. Qian invented zero-power infrared sensors with his colleagues in 2017 and made critical contributions to the development of first prototypes of the sensor. He has been leading the research and development tasks in the company related to human presence sensing and flame detection based on the proprietary sensor technology. The company was awarded with TechConnect 2019 Innovation Award for its zero-power flame detector technology. Dr. Qian is also a Research Assistant Professor with the Electrical and Computer Engineering Department at Northeastern University. His research interests include piezoelectric MEMS resonators, 2D materials enhanced NEMS devices, zero-power environmental sensors, and wireless sensor systems. He has published more than 70 papers and holds several device patents/applications in the field of MEMS/NEMS.
Carey Rappaport

Northeastern University

Carey M. Rappaport received five degrees from the Massachusetts Institute of Technology: the SB in Mathematics, the SB, SM, and EE in Electrical Engineering in June 1982, and the PhD in Electrical Engineering in June 1987. He is married to Ann W. Morgenthaler, and has two children, Sarah and Brian. Prof. Rappaport joined the faculty at Northeastern University in Boston, MA in 1987. He has been Professor of Electrical and Computer Engineering since July 2000. In 2011, he was appointed College of Engineering Distinguished Professor. He was Principal Investigator of an ARO-sponsored Multidisciplinary University Research Initiative on Humanitarian Demining, Co-Principal Investigator and Associate Director of the NSF-sponsored Engineering Research Center for Subsurface Sensing and Imaging Systems (CenSSIS), and Co-Principal Investigator and Deputy Director of the DHS-sponsored Awareness and Localization of Explosive Related Threats (ALERT) Center of Excellence. Prof. Rappaport has authored over 425 technical journal and conference papers in the areas of microwave antenna design, electromagnetic wave propagation and scattering computation, and bioelectromagnetics, and has received two reflector antenna patents, two biomedical device patents and three subsurface sensing device patents. He was awarded the IEEE Antenna and Propagation Society's H.A. Wheeler Award for best applications paper, as a student in 1986. He is a member of Sigma Xi and Eta Kappa Nu professional honorary societies.

Matteo Rinaldi

Northeastern University

Matteo Rinaldi is a Full Professor in the Electrical and Computer Engineering department at Northeastern University and the Director of Northeastern SMART, a university research center that, by fostering partnership between university, industry and government stakeholders, aims to conceive and pilot disruptive technological innovation in devices and systems capable of addressing fundamental technology gaps in several fields including the Internet of Things (IoT), 5G, Quantum Engineering, Digital Agriculture, Robotics and Healthcare. Dr. Rinaldi received his Ph.D. degree in Electrical and Systems Engineering from the University of Pennsylvania in December 2010. He worked as a Postdoctoral Researcher at the University of Pennsylvania in 2011 and he joined the Electrical and Computer Engineering department at Northeastern University as an Assistant Professor in January 2012. Dr. Rinaldi’s group has been actively working on experimental research topics and practical applications to ultra-low power MEMS/NEMS sensors (infrared, magnetic, chemical and biological), plasmonic micro and nano electromechanical devices, medical micro systems and implantable micro devices for intra-body networks, reconfigurable radio frequency devices and systems, phase change material switches, 2D material enabled micro and nano mechanical devices.

The research in Dr. Rinaldi’s group is supported by several Federal grants (including DARPA, ARPA-E, NSF, DHS), the Bill and Melinda Gates Foundation and the Keck Foundation with funding of $16+ million since 2012.

Dr. Rinaldi has co-authored more than 150 publications in the aforementioned research areas and also holds 11 patents and more than 10 device patent applications in the field of MEMS/NEMS.

Prof. Rinaldi is the founder and CEO of Zepsor Technologies, a start-up company that aims to bring to market zero standby power sensors for various internet of things applications including distributed wireless fire monitoring systems, battery-less infrared sensor tags for occupancy sensing and distributed wireless monitoring systems of plant health parameters for digital agriculture.

Prof. Rinaldi is also the owner of Smart MicroTech Consulting LLC, a company that routinely provides consulting services to government agencies, large companies and startups in the broad areas of Micro and Nano Technologies, Internet of Things, Wireless Communication devices and systems, Radio Frequency Devices and Systems and Sensors.
Cameron Ritchie

*Leidos*

Cameron Ritchie is a recognized leader in the global security industry, having worked for some of the most innovative companies in the field. Cameron joined GE Homeland Protection in 2005 as the Manager, EDS Center of Excellence. He then moved on to the role of VP, Engineering and CTO for Morpho Detection, and then VP, Americas Engineering for Smiths Detection. He is currently the Chief Global Engineering and Technology Officer for Leidos Security Detection and Automation. At GE he was responsible for completely revitalizing the company’s explosive detection systems (EDS) offerings and merging medical technologies with security systems. At Morpho Detection, he owned the entire product portfolio consisting of EDS, explosives trace detection, X-ray diffraction, mass spectrometry, and quadrupole resonance. At Smiths, he added expertise in the high energy cargo and vehicle scanning markets. At Leidos, he is responsible for all product and technology development. Cameron has deep experience with product development, technology strategy, team leadership, customer relations, executive management, and people development. He holds a Ph.D. in Bioengineering and a Bachelors in Mechanical Engineering from the University of Washington.

Michael B. Silevitch

*Northeastern University*

Michael B. Silevitch is currently the Robert D. Black Professor of Engineering at Northeastern University in Boston, an elected life fellow of the IEEE, the Director of the Homeland Security Center of Excellence for Awareness and Localization of Explosives Related Threats (ALERT), and the Director of the Bernard M. Gordon Center for Subsurface Sensing and Imaging Systems (Gordon-CenSSIS), a graduated National Science Foundation Engineering Research Center (ERC). His training has encompassed both physics and electrical engineering disciplines. An author/co-author of over 65 journal papers, his research interests include laboratory and space plasma dynamics, nonlinear statistical mechanics, and K-12 science and mathematics curriculum implementation. Prof. Silevitch is also the creator of the Gordon Engineering Leadership (GEL) Program at Northeastern University, a graduate curriculum offered through the College of Engineering, with the mission of creating an elite cadre of engineering leaders. He and the current GEL Director, Simon Pitts, were awarded the 2015 Bernard M. Gordon Prize for Engineering Education by the National Academy of Engineering (NAE).

James Small

*Department of Homeland Security*

Mr. James “Jim” Small is the DHS Science & Technology (S&T) Portfolio Manager who represents CBP’s Air & Marine Operations, and U. S. Border Patrol R&D. Mr. Small is a systems engineer and retired military officer with over 29 years combined service in both the U.S. Army and U.S. Coast Guard, serving as a special missions aviator, acquisition program manager and most recently as the deputy head of R&D for the Coast Guard.
David Taylor
Department of Homeland Security

Mr. David Taylor is the Portfolio Manager for CBP Office of Field Operations and Office of Trade for Port of Entry (POE) at DHS S&T. He is a specialist in Cargo Security and has participated in the National Strategy for Global Supply Chain Security and the Quadrennial Homeland Security Review, while pursuing transformative research and development activities that support a vision for US POEs of the future. Mr. Taylor has over thirty years of program management experience, managing various government programs at Department of Defense (DOD), Intel Community. He is a graduate of the Harvard Kennedy School of Government, the US Naval War College, and Maine Maritime Academy.

Archie Williams
U.S. Customs and Border Protection

Mr. Archie Williams has over 25 years of experience in leadership, acquisition, and program management. He is a highly skilled program manager with a proven record of producing outstanding results. During his career, he has managed diverse portfolios ranging from $400 million to $6 Billion in value.

Mr. Williams joined the U.S. Customs and Border Protection (CBP) in March 2019. In his current role, he is the Acquisition Program Director for the Non-Intrusive Inspection Systems Program within the CBP Office of Field Operations. In this role, he is responsible for the cost, schedule, and technical performance of a multi-billion-dollar acquisition program that plays a critical role in preventing illegal contraband from entering the United States at ports of entry. Mr. Williams is also enrolled in the DHS Senior Executive Service Candidate Development Program.

Prior to joining CBP, Mr. Williams was a Senior Program Manager with the Federal Emergency Management Agency (FEMA) where he managed aspects of the Risk Mapping, Assessment, and Planning Program (Risk MAP), FEMA’s multi-billion-dollar Level 1 program. In this role, he was the strategic business planner responsible for the development and implementation of a national five-year strategic plan for the Risk MAP Program.

Prior to joining the Federal service, Mr. Williams served as an Acquisition Officer in the United States Army. During a military career spanning over 20 years, he held several acquisition leadership and staff positions. He retired from active service in 2016.

Mr. Williams earned his undergraduate degree from Chicago State University (BS- Education). He also earned a Master of Business Administration Degree from the Naval Postgraduate School in Monterey, CA.

He and his wife, Cassandra, are the proud parents of two daughters—Arianna (14) and Lauren (8). He is a native of Chicago, IL.