

# **Personal Protective Technologies**

## **A TEDCO Technology Partnering Showcase at APG**

**Walk-ins are welcome, but payment by check only the day of Showcase**

### **DETAILED SHOWCASE AGENDA**

<b>8:00 am – 9:00 am</b>	<b>Registration and Continental Breakfast</b>
<b>9:00 am – 9:15 am</b>	<b>Opening Remarks</b>
<b>9:15 am – 9:55 am</b>	<b>Technical Session I: Testing for Protection</b>  <b>Title: <i>Industrial X-Ray Imaging</i></b> Briefer: Harold Barker (ATC) <ul style="list-style-type: none"><li>➤ X-Ray of Materials before and after testing</li><li>➤ Determining failure points and mechanisms</li></ul> <b>Title: <i>Environmental Testing Capabilities</i></b> Briefer: Judith Galloway (ATC) <ul style="list-style-type: none"><li>➤ Aberdeen Test Center capabilities for testing material properties</li><li>➤ Fungus, Hot, Cold, Humidity, Corrosion, etc.</li></ul> <b>Title: <i>Material Testing</i></b> Briefer: Chuck Klarich (ATC) <ul style="list-style-type: none"><li>➤ Aberdeen Test Center capabilities for testing material properties</li><li>➤ Chemical or Biological Protection system and clothing</li></ul> <b>Title: <i>An Objective Measure for Assessing Fogging of Respiratory Protective Mask Lenses</i></b> Briefer: Dr. Karen Coyne (ECBC) <ul style="list-style-type: none"><li>➤ Image acquisition and processing system developed that relates fogging of lenses to visual acuity</li><li>➤ Miniature cameras mounted in novel head-form that mimics thermal conditions of the human head and temperature and humidity of human breath</li><li>➤ Computer system correctly identified 100% of acuity conditions while human subjects correctly identified 95% of acuity conditions</li></ul> <b>Title: <i>Mask Fit Test System</i></b> Briefer: Jason Adamek (ECBC)

	<ul style="list-style-type: none"> <li>➤ Quantitative Mask Fit Test System based on counting naturally occurring atmospheric particles</li> <li>➤ Verify masks are properly sized</li> <li>➤ Insure minimum fit factor is obtained</li> </ul> <p><b>Title: Research Facilities for Human Performance, Protection and New Equipment Studies</b>  Briefer: Wendy Leonard (ARL)</p> <ul style="list-style-type: none"> <li>➤ Performing tasks in reproducible, realistic, dynamic environments</li> <li>➤ Mobility, portability, complex task performance</li> </ul>
9:55 am – 10:05 am	<b>TEDCO Funding Presentation</b>
10:05 am – 10:20 am	<b>Networking and Poster Session Break</b>
10:20 am – 11:00 am	<p><b>Technical Session II: Projectile and Puncture Protection</b></p> <p><b>Title: Non-Destructive Testing of Systems</b>  Briefer: Russell Yocum (ATC)</p> <ul style="list-style-type: none"> <li>➤ Inspection of a wide variety of materials and systems</li> <li>➤ Determination of workmanship</li> <li>➤ Evaluation of potential flaws using Penetration Testing, Ultrasonic Testing, Eddy Current Testing, and Magnetic Particle Testing and Visual techniques</li> </ul> <p><b>Title: Fragment Testing of Protective Equipment</b>  Briefer: Walter C. Blethen (ATC)</p> <ul style="list-style-type: none"> <li>➤ Research, development, and acquisition of Interceptor Body Armor System</li> <li>➤ Blunt Trauma Study to Validate Survivability</li> <li>➤ Research, development, and acquisition of US Marine Corps Lightweight Helmet</li> <li>➤ Ballistic test and analysis methodology for acceptance</li> </ul> <p><b>Title: Modeling and Simulations for Personal Protection</b>  Briefer: James Newill (ARL)</p> <ul style="list-style-type: none"> <li>➤ Soft Tissue Physics Research Partnerships</li> <li>➤ Ballistic and Blast Interaction with Vests and Helmets</li> <li>➤ Extremity Risk and Appendage Protection Systems</li> </ul> <p><b>Title: Human Effects Testing</b>  Briefer: Ellory Sanderson (ATC)</p> <ul style="list-style-type: none"> <li>➤ Protective Footwear</li> </ul>

	<ul style="list-style-type: none"> <li>➤ Back Face Deformation of Body Armor/Helmets</li> <li>➤ Personal Protective Equipment</li> </ul> <p><b>Title: Shear Thickening Fluids for Personal Protection Applications</b>  Briefer: Dr. Eric Wetzel (ARL)</p> <ul style="list-style-type: none"> <li>➤ Nanoparticulate treatment of fibers change puncture, cut and tear properties of fabrics</li> <li>➤ Body armor, bomb blankets, blast fragment curtain and flexible extremity protection</li> <li>➤ Improved cloth product ruggedness and durability</li> </ul>
<b>11:00 am – 11:45 am</b>	<b>Aberdeen Technology Transfer Initiative (ATTI) Business Panel Discussion with Q&amp;A</b>
<b>11:45 am – 12:45 pm</b>	<b>Lunch and Networking Poster Session</b>
<b>12:45 pm – 1:25 pm</b>	<p><b>Technical Session III: Medical Protection</b>  <b>Title: Biological Scavengers as Protection against Nerve Agent Poisoning</b>  Briefer: Dr. Brennie Hackley (MRICD)</p> <ul style="list-style-type: none"> <li>➤ Demonstrate medical protection by prophylactic use of bio-scavenger, i.e. human protein, plasma derived, or recombinant</li> </ul> <p><b>Title: Vector Borne Disease Detection</b>  Briefer: Dr. Anthony Guterrez (CHPPM)</p> <ul style="list-style-type: none"> <li>➤ Device amplifies and detects target DNA sequences</li> <li>➤ A Rotary Thermalcycler for Field Genetic Analysis</li> <li>➤ Can precisely identify pathogens and vector host species</li> <li>➤ Processes 108 samples in 15 minutes with real-time detection</li> <li>➤ U.S. and International patents pending</li> </ul> <p><b>Title: Chemical and Biological Systems Testing</b>  Briefer: Bill Ahearn (ATC)</p> <ul style="list-style-type: none"> <li>➤ Detection and Decontamination</li> <li>➤ Detectors - False Positive, Environmental Reliability</li> <li>➤ Decontamination Systems - Reliability, Environmental Reliability</li> <li>➤ Decontamination Solution</li> </ul> <p><b>Title: Medical Diagnostics for Chemical Incidents</b>  Briefer: Dr. Brennie Hackley (MRICD)</p> <ul style="list-style-type: none"> <li>➤ Handling procedures for biological samples via the Internet</li> <li>➤ Diagnostic resources available to state and local governments in emergencies</li> </ul> <p><b>Title: Genetic Markers</b>  Briefer: TBD (ECBC)</p> <ul style="list-style-type: none"> <li>➤ Indication of exposure</li> </ul>

	<ul style="list-style-type: none"> <li>➤ Determination of personal health and readiness</li> </ul> <p><b>Title: Training for Medical Emergencies</b>  Briefer: Dr. Brennie Hackley (MRICD)</p> <ul style="list-style-type: none"> <li>➤ Training for Hospital Management</li> <li>➤ Partnerships for first responder training programs</li> <li>➤ Training available at APG, off-site, and distance learning</li> </ul>
<b>1:25 pm – 1:35 pm</b>	<b>ECBC/APG Presentation</b>
<b>1:35 pm – 1:45 pm</b>	<b>APG Partner Presentation: University of Pittsburgh</b>
<b>1:45 pm – 2:30 pm</b>	<b>Closing Networking Poster Session</b>

**Special Thanks To These Cosponsors:**

- APG Science and Technology Board
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- Economic Alliance of Greater Baltimore
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