

Robotic and Automotive Technologies for the Marketplace

An Aberdeen Proving Ground (APG) Technology Partnering Showcase

Featuring presentations from: Aberdeen Testing Center (ATC), Army Materiel Systems Analysis Agency (AMSAA), Army Research Laboratory (ARL), Developmental Test Command (DTC), and Edgewood Chemical Biological Center (ECBC)

Thursday, June 3, 2004

7:30 a.m.- 3:15 p.m.

(*Optional facility tour from 1:15 p.m . to 3:15 p.m . Pre-registration is required.)

Detailed Agenda

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|-------------|--|------------------------------|
| 7:30 | Registration and Breakfast | |
| 8:30 | Welcome and Administrative Remarks | Dr. David Brown |
| 8:40 | TEDCO Remarks | Dr. Phillip Singerman |
| 8:50 | Case Study: APG Helps Urban Transit Bus Company | Mr. Skip Connon |
| 9:00 | Technical Session I | Dr. David Brown |

Automotive and Robotic Technology and Testing

- **Success of SLAT armor in Iraq/
Future Combat Systems and Unmanned Vehicles, Dr. David Brown (DTC)**
 - **ATC Automotive Test Facilities/Capabilities, Mr. Craig Turner (ATC)**
 - **Stations of Robotic Monitoring (STORM)**
 - **Laboratory, Mr. Raymond Mastnjak (ECBC)**
 - **Mobile, on-site analysis**
 - **Robotic-based sample preparation**
 - **High-throughput bio-analysis by PCR, ECL, culture and immunoassay**
 - **Rapid analysis of biological threat agents, pathogens, and toxins**
 - **Robots in Unstructured Outdoor Environments, Mr. Chuck Shoemaker**
 - **Perception, Intelligent Control, and Human Robot Interface**
 - **Air and Ground data Synthesis**
 - **Networked Autonomous Systems, Dr. Drew Wilkerson (ARL)**
 - **Ground and air networks enabling autonomous behaviors**
 - **Bounding over watch and chemical reconnaissance missions**
 - **Cognitive Robotics, Mr. Troy Kelley (ARL)**
 - **Traditional AI Techniques for robotics are not effective with dynamic situations**
 - **Developmental psychology techniques can be used to teach robotic behaviors**
 - **Improved C4ISR, medical evacuation and load carrying assistance**
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| 9:55 | Technology Transfer | Mr. Blake Sajonia |
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10:00 Networking Break

10:30 Technical Session II

Dr. David Brown

Automotive Materials, Technology and Data Analysis

- **Improved Elastomer Materials, Mr. Charles Pergantis (ARL)**
 - Capabilities to formulate, characterize, evaluate and produce experimental elastomers
 - Patented hydrogenated nitrile butadiene rubber (HNBR) for heavy vehicle ground pad
 - A new HNBR has improved durability and abrasion resistance and high thermal stability
- **High Reliability Vehicles through Physics of Failure, Dr. David Mortin (AMSAA)**
- **Prognostics for Automotive Systems, Dr. Tom Stadterman (AMSAA)**
- **Standoff Chemical Agent Detector (SCAD) Suspension Optimization , Mr. Bill Frazer (ATC)**
 - Optimizing Vehicle Performance
- **Chemical Analysis of Petroleum, Oils, Lubricants, and Fuels, Ms. Gwen McKinney (ATC)**
- **Propulsion Technology, Mr. Kevin Radil**
 - Oil-free turbocharger foil bearing technology
 - Gear technology for vehicle drive trains
 - Friction and wear testing of piston ring and cylinder liner materials

11:10 TEDCO Technology Transfer Funding Initiatives

Dr. Steve Fritz

11:20 Lunch/Networking

12:30 Technical Session III

Dr. David Brown

Instrumentation

- **Embedded Instrumentation for Real World Engineering Data**
 - (Volvo, ADMAS), Mr. Gino Matrippolito (ATC)
- **Improved Field Data Collector (IFDC), Mr. Matt Goss (ATC)**
- **Advanced Design and Manufacturing...from Concept to Product, Mr. Mark S. Schlein (ECBC)**
 - Rapid virtual prototyping
 - Robotics and Unmanned technologies
 - Computer Aided Manufacturing
 - Tool and Mold Making
 - Concept, Development, Product Improvement, Reverse Engineering, Integration, Test/Evaluation

1:05 Break

1:15 Tours and Demonstrations (pre-registration will be required): Tours and Demonstrations: There will be 2 buses. Tours are limited to 80 attendees. Tours and demonstrations are limited to U.S. Citizens only.

Stops

- **Roadway Simulator – ATC**
- **Munson Test Course, with Accelerated Corrosion Facility (vehicle demo)**
- **Assault Breacher Vehicle (ABV) – ATC**
- **Tactical Environment Simulation Facility (TESF). Stop at Robotics Course en route – ATC/ARL**
- **Vibration Facility - ATC**

3:15 Adjourn