

NAVY INNOVATION FOR COMMERCIAL DEVELOPMENT  
 Featuring Presentations from the Naval Surface Warfare Center  
 Indian Head

**DETAILED AGENDA**

8:30 am – 9:15 am	<b>Continental Breakfast and Registration</b>
9:15 am – 9:30 am	<b>Welcome and Opening Remarks</b> Joseph Shannon, Director, Customer Advocate Office, IHDIV/NSWC Renee Winsky, Interim Executive Director, Maryland Technology Development Corporation Julie Coons, President, Tech Council of Maryland
9:30 am – 9:45 am	<b>Laboratory Overview and Procurement</b> Captain Joseph Giaquinto, Commander, IHDIV/NSWC
9:45 am – 10:00 am	<b>Commercial Success Using Technology Transfer Tools and Indian Head Division Technologies</b> Dr. J. Scott Deiter, Office of Research and Technology Applications Representative, IHDIV/NSWC
10:00 am – 10:15 am	<b>Success Story:</b> <b>JOINT MODULAR INTERMODAL CONTAINER TECHNOLOGY</b> Benjamin Gibbs, CEO, Baltimore Shipping Technologies
10:15 am – 10:45 am	<b>Break and Networking</b>
10:45 am – 11:45 am	<b>Technical Presentations:</b> <b>SENSORS</b>  <b>Micro Fabricated Inertial Shock Bandpass Filter</b> Dr. Daniel Jean <ul style="list-style-type: none"> <li>• Spring-mass system that responds to shock within desired shock level or duration</li> <li>• Can be conveniently embedded on a product</li> <li>• Mechanically filters high and low frequency noise</li> </ul> <b>MEMS Multidirectional Shock Sensor</b> Dr. Daniel Jean <ul style="list-style-type: none"> <li>• Consists of spring-mass system that moves in any direction within a single plane</li> <li>• Purely mechanical; no batteries needed</li> <li>• Detects rough product use and handling during shipping</li> </ul> <b>MEMS Multidirectional Shock Sensor With Multiple Masses</b> Eddy Chen <ul style="list-style-type: none"> <li>• Purely mechanical threshold device</li> <li>• Small - &lt;5 by 5mm for a single sensor</li> <li>• Latching system stores shock event</li> </ul> <b>Multiple Shock Sensing Device</b> Wade Babcock <ul style="list-style-type: none"> <li>• Mechanically senses magnitude of successive shocks</li> <li>• Handles multiple events – yet inexpensive</li> <li>• No power or electronics needed for operation</li> </ul> <b>MEMS Timer Using Sequential Unlocking and Re-locking Nested</b>

	<p><b>Masses</b>          Dr. Daniel Jean</p> <ul style="list-style-type: none"> <li>• Masses cycle when acceleration is applied above designed threshold</li> <li>• Batch fabricated for low cost</li> <li>• Easily integrated into electronics to check switch closure</li> </ul> <p><b>Micro Fabricated Falling Leaf Inertial Delay Mechanism</b>          Gabe Smith</p> <ul style="list-style-type: none"> <li>• Masses move sequentially when proper acceleration applied</li> <li>• Uses for fall alert device</li> <li>• Package surveillance during delivery/storage</li> <li>• Un-powered wheel speed (spin) indicator to detect unsafe speeds</li> </ul> <p><b>Security-Gate Access Technical Evaluation</b>          Jennifer Fortner</p> <ul style="list-style-type: none"> <li>• Integrated facial verification biometrics and RFID system</li> <li>• Enhances driver and vehicle ID while maintaining smooth traffic flow</li> <li>• System built with open architecture for easy integration and updates</li> </ul> <p><b>High Output Differential Pressure Flow Sensor</b>          Dr. Michael Deeds</p> <ul style="list-style-type: none"> <li>• Utilizes low-cost batch fabricated MEMS pressure sensor</li> <li>• Mounts flush to vessel surface; not prone to damage</li> <li>• Performs well in air or fluid media</li> </ul> <p><b>Launched Remote Sensor Projectile</b>          Leonard Lipton</p> <ul style="list-style-type: none"> <li>• Size of shotgun shell, launched from shotgun</li> <li>• May contain microphone, chemical sensor, etc.</li> <li>• Uses in hostage, mishap, or hostile surveillance situations</li> <li>• Valuable tool for law enforcement, private security firms</li> </ul> <p><b>Integrated Maritime Portable Acoustic Scoring &amp; Simulator</b>          Billy McClure</p> <ul style="list-style-type: none"> <li>• Buoy system, battery operated, deploying sensors in temporary situations</li> <li>• Capable of using hydrophones, chemical/bio sensors on buoys</li> <li>• Useful at sea, ports, intrusions to ships, piers, dams</li> </ul> <p><b>Reactive Target</b>          J. Geoffrey Schubert</p> <ul style="list-style-type: none"> <li>• Self-contained, live fire system designed to sense and react to motion</li> <li>• Provides a much more human-like adversary than existing dummy targets</li> <li>• Applications for paintball arenas, individual target practice, sports applications</li> </ul>
<p>11:45 am – 12:45 pm</p>	<p><b>Lunch and Networking</b></p>
<p>12:45 pm – 1:45 pm</p>	<p><b>Technical Presentations:          INDUSTRIAL and SECURITY APPLICATIONS</b></p>

Industrial Applications

**Colorant Compositions: Dyes, Drugs, Detection Agents**

David Rosenberg

- Versatile triazolotriazines as intermediaries for new drugs
- Useful for color changes affected by dyes, heat, high pressure
- Applications for detecting oxygen, hydrazine, general detection amines

**Functionalization of Carbon Nanotubes**

Dr. Farhad Forohar

- Carbon nanotubes 1-10 nanometers in diameter
- Tubes have high tensile strength and thermal conductivity
- Uses in nano-reinforced nylons, drug delivery vehicles, chemical reactors

**Inhibition of Metal Oxidation Through the Vapor Deposition of a Passivation Layer**

Dr. Victor Bellito

- Carboxylic acid vapor deposition forms oxide resistive surface
- Critical for reducing transistor sizes and denser packaging
- Uses for NANO materials and electronics fabrication

**Perfluoroalkyl Passivated Aluminum**

Dr. Jason Jouet

- Solution or gas phase applicability for Al passivation
- Applicable for all Al surfaces (films, particles, etc.)
- Robust monolayer prevents oxidation
- Applicable for microelectronics, lithography, pigment, composites

**Method for Deposition of Steel Protective Coating**

Harry Archer

- Durable, low toxicity trivalent chromate coating
- Useful for long-term marine protection
- Perfect for protecting steel fasteners of any kind

**Flush Rinse Plating Process**

Harry Archer

- Robotic automation and compact arrangement
- Miniaturizable, scalable, separated pure waste streams
- Compact automated jewelry plating

**Common Modular Intermodal Shipping System Technology (C-MISST)**

Mark Heinrichs

	<ul style="list-style-type: none"> <li>• Modular, stackable, collapsible, locks together, robotic handling</li> <li>• Commercial uses for manufacturers, suppliers, distributors, trucking companies,</li> <li>• Marinas, FCL and LCL service companies</li> <li>• Designed for international as well as domestic shipping</li> </ul> <p><b>Unitary latch/Lift Eye</b> Charles Domino</p> <ul style="list-style-type: none"> <li>• A new rigging hardware device for lifting applications using a multi-swaged wire rope</li> <li>• Useful for any lifting capacity</li> <li>• Can be used anywhere lifting operation requires a variable length sling system</li> </ul> <p><b>Continuous Twin-Screw Processing</b> Rich Muscato</p> <ul style="list-style-type: none"> <li>• 20mm, 40mm, 88mm, twin screw, co-rotating, intermeshing, high-pressure (3,000 psi) machines</li> <li>• Precision-fed control systems</li> <li>• Engineering capabilities to design and develop materials and facilities</li> </ul> <p><u>Security Applications</u></p> <p><b>Electromagnetic Pulsed Device for Vehicle Immobilization</b> Robert Daily</p> <ul style="list-style-type: none"> <li>• Direct contact injection of short high-energy electric pulse</li> <li>• Quickly end pursuits before loss of life or property</li> <li>• Uses for police, private security firms, domestic and foreign military</li> </ul> <p><b>Production of Infrared Radiation at Any Wavelength</b> Dr. James Baker</p> <ul style="list-style-type: none"> <li>• Multiple targets to blind IR seeker</li> <li>• Will not have to transport as explosive or store in explosive magazine</li> <li>• Can protect commercial airliners, ground vehicles, and ships</li> </ul> <p><b>Producing Firebreaks Using Explosives</b> Dr. James Baker</p> <ul style="list-style-type: none"> <li>• Low-cost mining explosive used</li> <li>• Fire truck or helicopter delivery via spray nozzle and aiming</li> <li>• Fast delivery to where it's needed</li> </ul>
1:45 pm – 2:00 pm *	<b>Networking</b>

\* An Optional TEDCO Briefing is available for attendees, 2:15 pm – 3:30 pm. Be sure to register for the Briefing and the Showcase at [www.MarylandTEDCO.org](http://www.MarylandTEDCO.org).