



Sensors, Nanotechnologies, Protective Coatings and More:
***“An Explosion of Technologies
and Partnering Opportunities”***

*Thursday, June 25, 2009
8:30 am until 3:00 pm*



TECHNOLOGY TRANSFER AND FEDERAL MARKETPLACE EVENT

THURSDAY
JUNE 25, 2009

TIME:
8:30 am – 3:00 pm

LOCATION:
The Village Green
100 Walter Thomas Rd.
Indian Head, MD 20640

COST:
\$80 per person
(U.S. Citizens Only)

* Fee includes event materials, meals and exhibit floor access. (Minimal hard copy materials will be provided. Registrants will be emailed pre- and post-event information.)

REGISTRATION:
www.marylandtedco.org

Registration Ends:
Thursday, June 18, 2009

Registration Questions:
Mark Glazer
mglazer@techcouncilmd.com
240-243-4045

Program Questions:
Ron Kaese
rkaese@marylandtedco.org
410-715-4170

Opening
Remarks:
**CAPT. NEIL
STUBITS**
COMMANDER
IHDIV, NSWC



Sensors, Nanotechnologies, Protective Coatings and More:

“An Explosion of Technologies and Partnering Opportunities”

The Indian Head Division, Naval Surface Warfare Center (IHDIV, NSWC) partners with Maryland Technology Development Corporation (TEDCO) and Tech Council of Maryland (TCM) for a dynamic technology partnering program.

The day includes keynote addresses by upper management from IHDIV, NSWC and access to some of their latest technologies available for licensing through Technology Transfer (T2) programs.

Opening remarks by Captain Neil Stubits, Commander, IHDIV, NSWC, will include an overview of IHDIV, NSWC's mission and the value of employee innovation that not only supports the warfighter, but often translates to the commercial arena through technology transfer.

THE AGENDA ALSO INCLUDES:

- Examples of successful T2 partnerships
- Technical presentations on technologies available for commercialization
- Networking, poster sessions, and exhibit-floor periods to learn more about available technologies and doing business with IHDIV, NSWC

Learn more about the opportunities with IHDIV, NSWC:
Indian Head Division, Naval Surface Warfare Center – www.ih.navy.mil

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**Sensors, Nanotechnologies, Protective Coatings and More:
An Explosion of Technologies and Partnering Opportunities**
Featuring Presentations from the Indian Head Division
Indian Head Division, Naval Surface Warfare Center
25 June 2009

DETAILED AGENDA

- 8:30 am – 9:15 am **Continental Breakfast and Registration**
- 9:15 am – 9:30 am **Welcoming Remarks**
Chris Fawls
Customer Advocate Office, IHDIV, NSWC
Renee Winsky
Executive Director, Maryland Technology
Development Corporation (TEDCO)
Rick Harris
Executive Director, Technology Council of Maryland (TCM) –
Invited
- 9:30 am – 9:50 am **Opening Remarks and Laboratory Overview**
Captain Neil Stubits
- 9:50 am – 10:20 am **Technical Session I**
- Self-Regulating Power Supply for Micro Electronic
Mechanical Systems Thermal Actuators (NC # 99,128)**
Kevin Cochran
- Control of devices that use thermal actuators
 - Optical devices
 - Micromotors
 - Electrical relays and switches
 - Monitoring of devices based on resistive concepts
 - Thermocouples
 - Hot wire anemometers
- MEMS INERTIAL SWITCHES**
Dr. Daniel Jean, PhD
**MEMS Multi-Directional Shock Sensor with Multiple
Masses (NC # 96,543)**
- Purely mechanical threshold device
 - Small -<5 by 5mm for a single sensor
 - Latching system stores shock event
- MEMS Multi-Directional Shock Sensor (NC # 84,847)**
- Consists of spring-mass system that moves in any
direction within a single plane
 - Purely mechanical; no batteries needed
 - Detects rough product use and handling during shipping

Multiple Shock Event Sensing Device (NC # 95,544)

- Mechanically senses magnitude of successive shocks
- Handles multiple events – yet inexpensive
- No power or electronics needed for operation

Hermetically Packaged MEMS G-Switch (NC # 98,825)

- Switch closes above designed acceleration threshold (150 G)
- Tested to survive shocks > 50kG
- Hermetically sealed, surface mount component
- Over 100 prototypes successfully tested

Flow Driven Piezoelectric energy Harvesting Device**Michael Deeds (NC # 98,644)**

- HVAC: sensor feedback for efficient operation
- Automotive: scavenge energy to power remote sensor networks
- Weather: remote, recoverable sensor pods
- Recreational/toys: LED speed indicator

10:20 am – 10:50 am

Networking and Exhibit Floor

10:50am – 11:15 am

Mechanisms For Partnering With IHDIV:

Dr. J. Scott Deiter, Technology Transfer Director, IHDIV
Chair, Federal Laboratory Consortium

- Available legal instruments
- Federal Laboratory Consortium Locator
- Patent Licensing Process
- Facilities/Capabilities Overview

11:15 am – 11:35 am

Success Story:

IMPASS for Portable Firing Range
Tony Chedrawy, CEO, MetOcean

11:35am – 12: 05 pm

Technical Session II**Integrated Maritime Portable Acoustic Scoring & Simulator (IMPASS) (Patent # 6,995,707/NC # 95,919)****Billy McClure**

- Buoy system, battery operated, deploying sensors in temporary situations
- Capable of using hydrophones, chemical/bio sensors on buoys
- Useful at sea, ports, intrusions to ships, piers, dams

Novel Lightning Locating System (NC # 98,570)**Robert Daily**

- Replace current NLDN system
- Install on existing cell-phone towers
- Fire department/Insurance industry applications

Functionalization of Carbon Nanotubes (NC # 97,547)**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

12:05 pm – 1:15 pm

Lunch, Networking, and Exhibit Floor

1:15pm – 1:30 pm

Maryland TEDCO Mission and Funding**James A. Poulos, III**

Director, Technology Transfer and Commercialization

1:30 pm – 2:45 pm

Technical Session III**Perfluoroalkyl Passivated Aluminum (Patent #7,192,549/NC # 83,960)****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

Common Modular Intermodal Shipping System Technology (C-MISST)**(Patent #7,156,249 B2/7491,024 B2/NC # 97,340)****Mark Heinrichs**

- Modular, stackable, collapsible, locks together, robotic handling
- Commercial uses for manufacturers, suppliers, distributors, trucking companies
- Marinas, FCL and LCL service companies
- Designed for international as well as domestic shipping

Method for Deposition of Steel Protective Coating (Patent # 7,514,153 B1/NC # 96,666)**Harry Archer**

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

MEMS MICRO-DETONATOR/INITIATOR FUZING SYSTEMS**Gerald Laib****MEMS Electronic Initiator for a Micro-Detonator (NC # 98,420)**

- Applying electrical charge to initiator in order to directly function a primary

MEMS Mechanical Initiator for a Micro-Detonator (NC # 98,421)

- A striker is actuated and driven in to a suitable primary for purposes of initiating

MEMS Fuze Using a Micro-Detonator (NC # 98,419)

- Mechanically safe explosive detonating device
- Useful in explosive initiation applications requiring safety, reliability, and small size

Integrated Thin Film Explosive Micro-Detonator (NC # 97,916)

- In-situ conversion of thin metal substrate to primary explosive
- Formation of flyer plate and barrel assembly consistent with semiconductor processing
- Integral part of MEMS oriented explosive train and safety and arming devices

Programmable Microtransformer (NC # 97,132)**Mr. Deran Eaton**

- High energy, non-intrusive field sensors
- Inductive power transfer
- LED Bulk Light Drivers
- Haptic interface field elements
- Applications requiring custom shaped magnetic fields

2:45 pm - 4:00pm

Networking and Exhibit Floor