

**The 1<sup>st</sup> Multifunctional Materials for Defense Workshop**  
**(Theme '10: Power and Energy)**  
 Reston, VA, May 13-14, 2010

**AGENDA**

<b>Thursday, May 13</b>		
<b>Time</b>	<b>Speaker</b>	<b>Title of Project</b>
<b>07:30</b>		<i>Registration</i>
<b>08:00</b>	<b>Jim Thomas</b> NRL <b>Eric Wetzel</b> ARL/WMRD <b>Bill Baron</b> AFRL/RBSA	<i>Opening Remarks</i>
<b>08:15</b>	<b>Joan Fuller</b> AFOSR	<i>Welcome</i>
<b>08:20</b>	<b>Les Lee</b> AFOSR	<i>Background and Workshop Layout</i>
<b>Session Chair: Bill Baron (AFRL/RBSA)</b>		
08:30	<b>Jim Thomas</b> NRL	NRL Perspectives on Multifunctional Structure-Power Materials
08:55	<b>Eric Wetzel</b> ARL/WMRD	Multifunctional Power and Energy for Army Applications: An Overview
09:20	<b>Greg Reich</b> <b>Olgierd Wojnar</b> AFRL/RBSA	Energy Harvesting and Storage Integration for MAV's
09:45	<b>Max Shtein</b> U Michigan	(PECASE) Solar and Thermal Energy Harvesting Textile Composites for Aerospace Applications
<b>10:10</b>	<b>Coffee</b>	<b>Break</b>
<b>Session Chair: Jim Thomas (NRL)</b>		
10:30	<b>Minoru Taya</b> U Washington	<b>Briefing on AFOSR MURI '06:</b> "Energy Harvesting and Storage Systems and Their Integration to Aero Vehicles" <i>(4<sup>th</sup> Annual Review in Los Angeles, on August 18, 2010; U Washington / U Colorado / UCLA / VA Tech; PI: Minoru Taya; Co-PI's: Samson Jenekhe, Guozhong Cao, Paolo Feraboli, Martin Dunn, Ronggui Yang, Kurt Maute, Se-Hee Lee, Y. Sungtaek Ju, Hak-Sung Kim, Dan Inman; PM: Les Lee,; Co-PM's: Joan Fuller, David Stargel)</i>
11:20	<b>Jerry Fleming</b> Luna Innovation <b>John Posthill</b> RTI Int'l	(AFOSR STTR Ph II) Miniaturized Thermal Energy Harvesting System
11:45	<b>Carl Schulenburg</b> PowerMEMS <b>Tim Fisher</b> Purdue U	(AFOSR STTR Ph II) Miniaturized Thermal Energy Harvesting System

<b>12:10</b>	<b>Lunch</b>	<b>Break</b>
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**Session Chair: William Nothwang (ARL/SEDD)**

<b>13:30</b>	<b>Greg Carman</b> UCLA	Nanoscale Based Thermal Energy Harvesting
13:55	<b>Greg Reich</b> AFRL/RBSA	Design of Thermally-Activated Reconfigurable Systems via Energy Methods
14:20	<b>Steve Forest</b> U Michigan	Integrated, Flexible, High-efficiency Solar Cells
14:45	<b>Henry Sodano</b> Arizona State U	Active Structural Fibers for Multifunctional Composite Materials

<b>15:10</b>	<b>Coffee</b>	<b>Break</b>
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**Session Chair: Greg Reich (AFRL/RBSA)**

<b>15:30</b>	<b>Dan Inman</b> VA Tech	Simultaneous Vibration and Energy Harvesting
15:55	<b>Terrisa Duenas</b> NextGen Aeronautics	(AFRL SBIR) Energy Harvesting for Printed Electronic Sensors
16:20	<b>Gleb Yushin</b> GA Tech	(YIP'09) Multifunctional Ultra-Light Mg-Li Alloy Nanocomposites
16:45	<b>Andrew Sarangen</b> <b>John Rowe</b> U Dayton	Glucose-based MEMS Fuel Cell

<b>17:10</b>	<b>Adjournment</b>	<b>Adjournment</b>
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**Evening Colloquium**

<b>20:00</b>		(Meeting room available for ad hoc group discussions)

<b>21:30</b>	<b>Adjournment</b>	<b>Adjournment</b>
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**Friday, May 14**

<b>Time</b>	<b>Speaker</b>	<b>Title of Project</b>
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<b>08:25</b>		<i>Housekeeping</i>
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**Session Chair: Eric Wetzel (ARL/WMRD)**

08:30	<b>Bill Baron</b> AFRL/RBSA	Textile Capacitive Structure
08:55	<b>Dick Gambino</b> Mesoscribe	(AFRL SBIR) Surface-Engineered Capacitors Integrated in Aerospace Structures
09:20	<b>Dan O'Brien</b> ARL/WMRD	Multifunctional Power and Energy for Army Applications: Structural Capacitors
09:45	<b>Jim Snyder</b> ARL/WMRD	Multifunctional Power and Energy for Army Applications: Structural Batteries and Supercapacitors

<b>10:10</b>	<b>Coffee</b>	<b>Break</b>
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<b>Session Chair: Dan O'Brien (ARL/WMRD)</b>		
10:30	<b>Kirk Slenes</b> TPL	Structural Nanocomposite Capacitors
10:55	<b>Emile Greenhalgh</b> Imperial College	Structural Supercapacitors with High Energy Density Structural Carbon Fiber Electrodes
11:20	<b>Cynthia Lundgren</b> ARL/SEDD	State of the Art in Energy/Power Materials
11:45	<b>Sarah Bedair</b> ARL/SEDD	Integrated Micro-scale Power Conversion
<b>12:10</b>	<b>Lunch</b>	<b>Break</b>

<b>Session Chair: To be nominated</b>		
<b>13:30</b>	<i>(To be Nominated)</i>	<i>(inputs from ARO/ARL)</i>
13:55	<b>Chris Anton</b> ARL/SEDD	Carbon Nanotube and Graphene Based Flexible Supercapacitors
14:20	<b>Siddiq Qidwai</b> NRL	Multifunctional Interaction Effects in Structure-Battery Composites
14:45	<b>Willie Pogue</b> NRL	Structure-Battery Composites for Marine Applications
<b>15:10</b>	<b>Coffee</b>	<b>Break</b>

<b>Session Chair: To be nominated</b>		
<b>15:30</b>	<b>Bill Baron</b> AFRL/RBSA <b>Eric Wetzell</b> ARL/WMRD <b>Jim Thomas</b> NRL	<b>Group Discussions for DoD Strategy</b>
16:30		<b>Summary Presentations</b>
17:00	<b>Bruce LaMattina</b> ARO	<b>Wrap-up</b>
<b>17:10</b>	<b>Adjournment</b>	<b>Adjournment</b>

## **MEETING SITE & LODGING**

### **Hyatt Regency Reston**

1800 Presidents Street, Reston, Virginia, 20190, USA

Phone: 703-709-1234

<http://reston.hyatt.com/hyatt/hotels/index.jsp>

## **HOTEL RESERVATION**

Call 1-800-633-7313 for the AFOSR Annual Grantees'/Contractors' Meeting

### **MEETING REGISTRATION (*Effective on 2010/02/01*)**

<http://www.anadarko-industries.com/Default.aspx?tabid=100>

*Please Scroll Down to May 2010 -*

“Mechanics of Multifunctional Materials & Microsystems”

“The 1<sup>st</sup> Multifunctional Materials for Defense Workshop”

or

<http://afosr.grantees-contractors-review.sqizmo.com>