

Air Force Office of Scientific Research
Annual Grantees'/Contractors' Meeting
Mechanics of Multifunctional Materials & Microsystems
 Reston, VA, May 10-12, 2010

AGENDA

Monday, May 10		
Time	Speaker	Title of Project
08:00		<i>Registration</i>
08:25	Les Lee AFOSR	<i>Opening Remarks</i>
Session Chair: Rich Vaia (AFRL/RXBN)		
08:30	Markus Buehler MIT	(YIP'08) Structural Hierarchies in Biomimetic Materials: Protein Inspired de novo Material
08:55	Ioannis Chasiotis U Illinois	Effect of Nanoscale Fillers on the Local Mechanical Behavior of Polymer Nanocomposites.
09:20	John Kieffer U Michigan	Multiscale Simulation of Interfacial Phenomena and Nanoparticle Placement in Polymer Matrix Composites
09:45	Mrinal Saha U Oklahoma	(DEPSCoR'09) Experimental and Theoretical Studies of Carbon Nanotube Hierarchical Structures in Multifunctional Polymer Composites
10:10	Coffee	Break
Session Chair: Ajit Roy (AFRL/RXBT)		
10:30	Tsu-Wei Chou U Delaware	Multifunctional Carbon Nanotube-Based Sensors for Damage Detection and Self Healing in Structural Composites
10:55	Erik Thostenson U Delaware	(YIP'09) Novel Micro- and Nano-Structured Composites for Sensing and Actuation
11:20	Fu-Kuo Chang Stanford U	Design of CNT Embedded Adhesive Films for Sensing, Control and Reinforcement of PZT Actuator/Sensor Networks
11:45	Akira Todoroki Tokyo Inst. of Technology	Time Domain Reflectometry for Damage Detection of Laminated CFRP Plate
12:10	Lunch	Break

Luncheon Talk - Moderator: To be nominated		
12:30	Fu-Kuo Chang Stanford U	Briefing on MURI '09: "Bio-Inspired Intelligent Sensing Materials for Fly-by-Feel Autonomous Vehicle" (Kick-off meeting in Stanford, CA, on October 29, 2009; Stanford U / U Denver / U Colorado / UCLA ; PI: Fu-Kuo Chang ; Co-PI's: Peter Peumans, Ricardo Dolmetsch, Boris Murmann, Philip Levis, Andrew Ng, Rahmat Shoureshi, Yun-Bo Yi, Robert McLeod, Greg Carman, Yong Chen ; PM: Les Lee ; Co-PM's: Hugh DeLong, Jim Chang)

Session Chair: To be nominated		
13:30	Nicolas Triantafyllidis John Shaw U Michigan	Cellular Shape Memory Structures: Experiments and Modeling
13:55	Ray Baughman U Texas Dallas	New Types of Artificial Muscles for Large Stroke and High Force Applications
14:20	Pat Mather Syracuse U Jerry Qi / Martin Dunn U Colorado	(DCT'09) Reversible Shape Memory Polymers and Composites
14:55	Rich Vaia AFRL/RXBN	Nanostructured, Mechanically-Responsive Polymers: Morphology-Performance-Efficiency Correlations
15:20	Coffee	Break
Session Chair: Ray Baughman (U Texas Dallas) - to be confirmed		
15:40	Benjamin Shapiro Elisabeth Smela U Maryland	(DCT'09) Electroosmotically-Actuated Shape-Changing Materials
16:15	Shiv Joshi NextGen Aeronautics Nakhiah Goulbourne VA Tech Sharon Swartz Brown U	(DCT'09) Reconfigurable, Ultra-Maneuverable Bat Technologies
16:50	Minoru Taya U Washington Frank Ko U British Columbia	(DCT'10) Bio-inspired Design of Super-configurable Multifunctional Structures
17:25	Adjournment	Adjournment

Evening Colloquium		
20:00		(Meeting room available for the discussions with PM and ad hoc group discussions)
21:30	Adjournment	Adjournment

Tuesday, May 11		
Time	Speaker	Title of Project
08:25		<i>Housekeeping</i>
Session Chair: David Banks (Boeing) - to be confirmed		
08:30	Ajit Roy AFRL/RXBT	Multifunctional Hybrid Composites for Thermal Management
08:55	Vikas Prakash Case-Western Reserve U	Carbon Nanotube Based Epoxy Matrix Thermal Interface Materials for Thermal Management in Load Bearing Aerospace Structures

09:20	Abraham Stroock Cornell U	Plant-mimetic Heat Pipes for Operation with Large Inertial and Gravitational Stresses
09:45	Patrick Kwon Michigan State U	Development of New Generation of Perspirable Skin
10:10	Coffee	Break
Session Chair: Jeff Baur (AFRL/RXBC)		
10:30	Jennifer Fielding Max Alexander AFRL/RXBC	Highly Conductive Nanocomposites and Hybrid Materials
10:55	Jimmy Xu Brown U	Nanotube-Polymer Composites for Thermal Signature Reduction and EMI Shielding
11:20	Nancy Sottos U Illinois	Nanostructured Materials for Self-Healing Polymers and Composites
11:45	Chris Mangun CU Aerospace	(STTR Ph II) Self-Healing Adhesives and Composites for Aerospace Systems: Encapsulated Healing Agents
12:10	Lunch	Break

Luncheon Talk - Moderator: To be nominated

12:30	Scott White U Illinois	Briefing on MURI '05: "Microvascular Composites for Autonomic Response" (5 th Annual Review in Urbana-Champaign, IL on August 00, 2010; U Illinois / Duke U / UCLA ; PI: Scott White ; Co-PI's: Nancy Sottos, Jeffrey Moore, Jennifer Lewis, Philippe Geubelle, Kenneth Christensen, Jonathan Freund ; PM: Les Lee; Co-PM: Hugh Delong)
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Session Chair: Bruce LaMattina (ARO) - to be confirmed

13:30	Jeff Baur AFRL/RX	Microvascular Composites Via Composite Processing Methods
13:55	Sia Nemat-Nasser UC San Diego	(AFOSR-ARO Joint Program) Healable Composites
14:20	Tony Starr Sensormetrix	(STTR Ph II) Self-Healing Adhesives and Composites for Aerospace Systems: Thermally Remendable Polymers
14:45	Tom Darlington Nanocomposix	(STTR Ph II) Thermally Remendable Composite Structures with Resistive Heating Network of Carbon Fibers
15:10	Coffee	Break

Session Chair: Gregg Abate (RWGN)

15:30	Nicholas Kotov U Michigan	Engineering of High Toughness in Hierarchically Laminated Carbon Nanotube Composites
15:55	Kelechi Anyaogu Nico Technologies	(STTR Ph I) Multifunctional Nanocomposite Structures via Layer-by-Layer Assembly Process
16:20	David Carnahan NanoLab	(STTR Ph I) Multifunctional Nanocomposite Structures via Layer-by-Layer Assembly Process
16:45	Alex Bogdanovich 3Tex	(STTR Ph I) Multifunctional Prepregs and Laminated Composites Made by Shear Pressing Carbon Nanotube Arrays
17:10	Adjournment	Adjournment

Evening Colloquium		
20:00	Sven Bilén Penn State U	Energy Harvesting on Spacecraft Using Electrodynamic Tethers
20:25		<i>(Meeting room available for the discussions with PM and ad hoc group discussions)</i>
21:30	Adjournment	Adjournment

Wednesday, May 12		
Time	Speaker	Title of Project
08:25		<i>Housekeeping</i>
Session Chair: Dan Inman (VA Tech) - to be confirmed		
08:30	Gregg Abate AFRL/RWGN	Embedded Sensors and Actuators for Micro Munition Air Vehicles
08:55	Ioannis Chasiotis U Illinois	Influence of Grain Structure and Doping on the Deformation and Fracture of Polycrystalline Silicon for MEMS and NEMS
09:20	Zoubaida Ounaies Texas A&M	Active Nanocomposites: Energy Harvesting and Stress Generation Media for Future Multifunctional Aerospace Structures
09:45	Gregory Huff Texas A&M	Multiscale Modeling and Characterization of Electromagnetically Tunable Colloidal-Based Materials
10:10	Coffee	Break
Session Chair: To be nominated		
10:30	Xin Zhang Boston U	Materials and Mechanics of Metamaterial Enhanced MEMS for Terahertz Technology
10:55	Thomas Siegmund Ray Cipra Purdue U	Macroscale Meta-Materials: From Manufacturing to Multifunctional Properties
11:20	C. T. Sun Purdue U	Development of Meta-Composite Materials with Negative Effective Mass Density
11:45	Sia Nemat-Nasser UC San Diego	<i>(DARPA) Mechanical Meta-materials</i>
12:10	Lunch	Break

Luncheon Talk - Moderator: To be nominated		
12:30	John Volakis Ohio State U	Briefing on GameChanger '07: "Multifunctional Hybrid Composite Structures for Load Bearing Antennas" (3 rd Annual Review in Columbus, OH on June 15, 2010; Ohio State U / U Minnesota / U Dayton / UCLA / U Michigan ; PI: John Volakis ; Co-PI's: Yakup Bayram, Roberto Rojas, Somnath Ghosh, Stephen Bechtel, Kubilay Sertel, Gregory Washington, Richard James, Liming Dai, Greg Carman, Max Shtein, Nick Kotov ; PM: Les Lee ; Co-PM's: Arje Nachman, Don Silversmith)
Session Chair: Charles Lee (AFOSR) - to be confirmed		
13:30	Les Lee AFOSR	Overview on AFOSR Initiative on "Energy Harvesting from Aerospace Environment"

13:55	Daryoosh Vashaee Oklahoma State U	<i>(Guest Speaker from "High Temperature Aerospace Materials" Program)</i> Thermoelectric Nanocomposite Materials for Medium to High Temperature Range
14:20	Choongho Yu Texas A&M	<i>(Guest Speaker from "Organic Materials Chemistry" Program)</i> Thermoelectric Waste Heat Recovery Using Polymer Nanocomposites
14:45	Douglas Dudis AFRL/RXBT	<i>(Guest Speaker from "Organic Materials Chemistry" Program)</i> Superatom Thermoelectric Materials
15:10	Coffee	Break
Session Chair: Hugh DeLong (AFOSR) - to be confirmed		
15:30	Nikolai Lebedev NRL	<i>(Guest Speaker from "Natural Materials & Systems" Program)</i> Biological Principles of Light Energy Conversion and Photo-induced Electron Transfer
15:55	Rajesh Naik AFRL/RXBN	<i>(Guest Speaker from "Natural Materials & Systems" Program)</i> Energy Harvesting from Photosynthetic-Nanocrystal Hybrids
16:20	Michael Strano MIT	Environmental Hydrocarbon Harvesting for Micro-scale Power Sources Using CNT Arrays
16:45	Amy Marschilok SUNY Buffalo	<i>(Guest Speaker from "High Temperature Aerospace Materials" Program)</i> Porous AG/ICP/RVC Composite Electrodes - A New Approach for Metal/Air Batteries
17:10	Adjournment	Adjournment

Evening Colloquium		
20:00	Poster Session	<i>(Meeting room available for ad hoc group discussions)</i>
21:30	Adjournment	Adjournment

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 1st Multifunctional Materials for Defense Workshop”

or

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