



**A *KICK-OFF* MEETING OF
THE 2006 DoD MURI PROGRAM ON
“Multi-Functional Design for Combined
Load-Bearing & Power Generation Capabilities”**

**ENERGY HARVESTING AND STORAGE SYSTEMS
AND THEIR INTEGRATION
TO AERO VEHICLES**

**Univ. of Washington (UW)
Univ. of Colorado (CU)
Univ. of California, Los Angeles (UCLA)
Virginia Polytechnic Institute (VPI)**

*25 August 2006 (Friday)
Johnson Hall, Room 111
Univ. of Washington, Seattle, WA*

SPONSORED BY:
Air Force Office of Scientific Research



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Prof. Samson Jenekhe (*Univ. of Washington*)
Prof. Yasuo Kuga (*Univ. of Washington*)
Prof. Chunye Xu (*Univ. of Washington*)
Prof. Martin Dunn (*Univ. of Colorado*), **Lead**
Prof. Kurt Maute (*Univ. of Colorado*)
Prof. Roggui Yang (*Univ. of Colorado*)
Prof. Sungtaek Ju (*Univ. of California, Los Angeles*), **Lead**
Prof. H. Thomas Hahn (*Univ. of California, Los Angeles*)
Prof. Daniel Inman (*Virginia Polytechnic Institute*), **Lead**

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Dr. Brian Sanders (*Air Force Research Lab, Air Vehicles Directorate*)
Dr. Ajit Roy (*Air Force Research Lab, Materials Directorate*)
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Dr. Joan Fuller (*Air Force Office of Scientific Research*), **Co-PM**
Dr. Victor Giurgiutiu (*Air Force Office of Scientific Research*), **Co-PM**

AGENDA

25 August 2006 (Friday)

REGISTRATION (07:30 – 08:00) ([UW Johnson Hall 111](#))

OPENING SESSION (08:00 – 10:00)

Prof. Minoru Taya (Univ. of Washington), Moderator

08:00 Prof. Minoru Taya (Univ. of Washington)
Opening Remarks

08:05 Dr. Brendan Godfrey/Dr. Les Lee (Director/Program Manager, Air Force Office of Scientific Research)
MURI Award Certificate and Program Background

08:15 Prof. Matt O'Donnell (Dean, Univ. of Washington)
Acknowledgments

08:25 Dr. Jerry Young (Director of Materials and Structure Technology, Boeing)
Brief comments from Boeing

08:40 Dr. Brian Sanders (Air Force Research Lab, Air Vehicles Directorate)
"Air Force Perspective"

09:00 Dr. Mihal Gross (Office of Naval Research)
"Navy Perspective"

09:20 Dr. Thierry Caillat (NASA Jet Propulsion Lab)
"NASA Perspective"

9:40 Dr. Chris Davis (Boeing)
"Aerospace Industry Perspective for Commercial and Military Aircraft"

10:30 Coffee Break (demos of energy harvesting by solar cells)

10:50 Prof. Minoru Taya (Univ. of Washington)
"Overview"

SESSION I on Solar Energy Harvesting Materials and Systems

Prof. Sam Jenekhe (Univ. of Washington), Moderator

11:10 Prof. Sam Jenekhe (Univ. of Washington),
"Polymer Solar Cells: Materials and Devices"

11:30 Prof. Mamoru Nango (Nagoya Inst. of Technol.)
"Bio-inspired Design of Dye-Sensitized Solar Cells"

11:50 Prof. Sungtaek Ju (Univ. of California, Los Angeles)
"Structural Integration and Multi-Functional Characterization of Solar Energy Harvesters"

12:10 Lunch at Johnson 111 (Box lunches & soft drinks are served)

SESSION II on Thermoelectric Energy Harvesting Materials and Systems

Prof. Dan Inman (Virginia Polytechnic Inst.), Moderator

13:20 Prof. Ronggui Yang (Univ. of Colorado)
"High Efficiency Thermoelectric Nanocomposites and Devices for AF Vehicles"

13:40 Dr. Keiko Kikuchi (Univ. of Washington)
"Design of Thermoelectric Materials and Devices for Future AF Vehicles"

SESSION III on Energy Storage Materials and Systems

Prof. Sungtaek Ju (Univ. of California, Los Angeles), **Moderator**

14:00 Prof. Chunye Xu (Univ. of Washington)
"Development of Efficient Electrodes and Electrolyte for Battery, Supercapacitor and Dye-Sensitized Solar Cells"

14:20 Prof. Guozhong Cao (Univ. of Washington)
"Design of Efficient Nanostructured Electrodes for Energy Harvesting and Storage"

14:40 Prof. Tom Hahn (Univ. of California, Los Angeles)
"Structural Integration and Multi-Functional Characterization of Batteries and Thermoelectrics"

15:00 Coffee Break

SESSION IV on Hierarchical Modeling and Design for System Integration

Prof. Marty Dunn (Univ. of Colorado), **Moderator**

15:20 Prof. Marty Dunn (Univ. of Colorado)
"Modeling and Design Tools for Energy Harvesting and Storage Systems: (I) Multifunctional Materials and Structures"

15:40 Prof. Kurt Maute (Univ. of Colorado)
"Modeling and Design Tools for Energy Harvesting and Storage Systems: (II) Multifunctional Structures and Systems"

16:00 Prof. Dan Inman (Virginia Polytechnic Inst.)
"Development of Design Rules for Multi-Mode Hybrid Harvesting and Storage Systems"

16:20 Prof. Yasuo Kuga (Univ. of Washington)
"Electric System Design Using Supercapacitors and Battery"

16:40 Prof. Dai (National Taiwan University)

SESSION V on Future Research Plans

David Banks (Boeing), **Moderator**

16:40 Open Discussion

17:20 **Wrap-up**

18:00 ADJOURN

18:30 **Cocktail** ([UW Water Front Activity Center](#)) – All Invited

19:00 **Reception/BBQ Dinner** ([UW Water Front Activity Center/ Dining Room](#)) – All Invited
Dinner Speaker: Dr. Jim Renton (Boeing)
"Boeing 787 Integration Technology"

21:30 ADJOUR

***NOTE : For those who plan to attend the Cocktail and Dinner afterwards, please show the parking permit that you initially received in the morning to the gate person near the UW Water Front (E12 parking lot) if you wish to move your car.**

University Tower Hotel



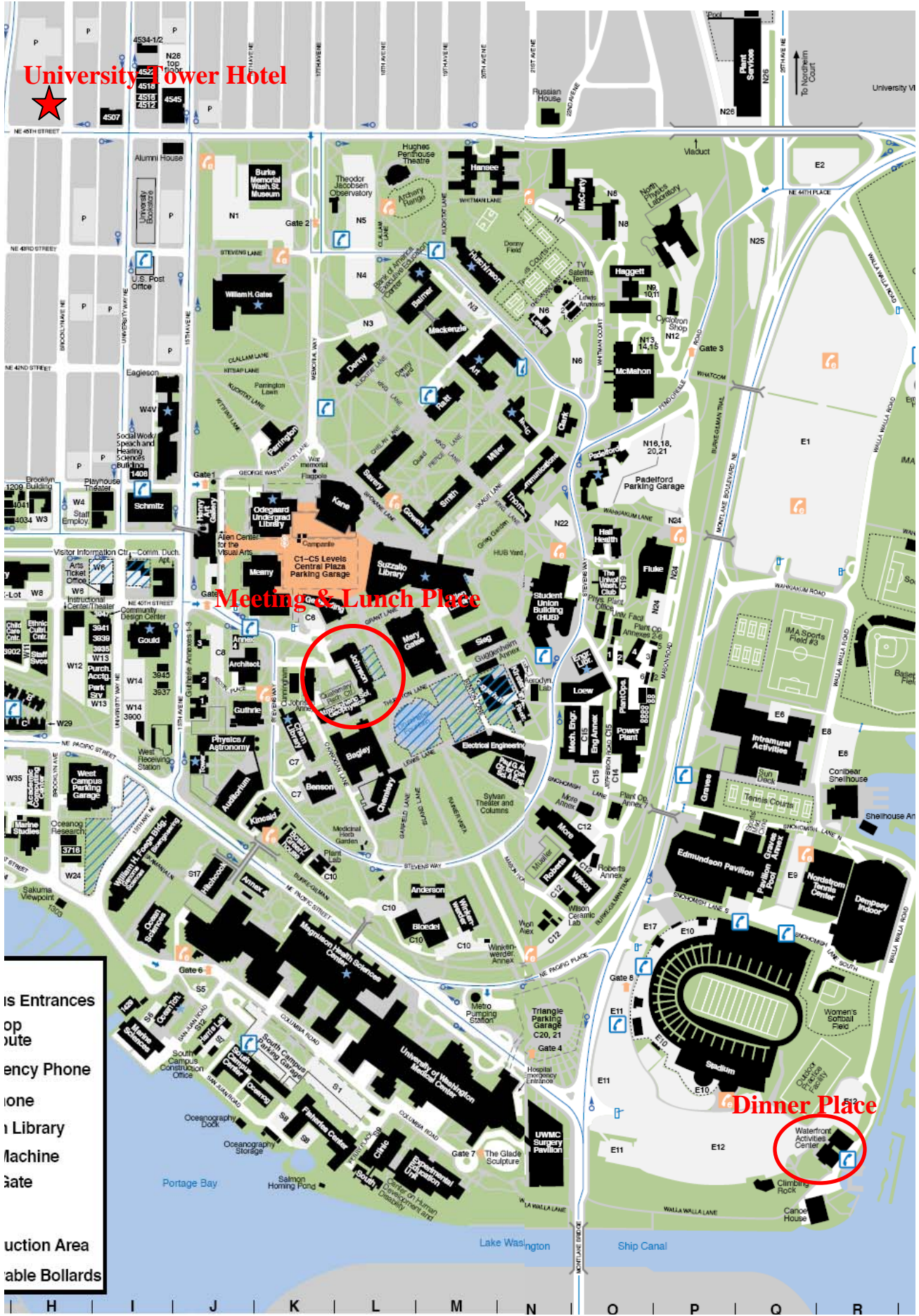
Meeting & Lunch Place



Dinner Place



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H I J K L M N O P Q R

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