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WELCOME MESSAGE

Dear Conference Attendees:

Welcome to the National Science Foundation (NSF) Engineering Research and Innovation Conference in Knoxville, TN, January 7–10, 2008. The University of Tennessee (UT) and Oak Ridge National Laboratory (ORNL) have worked together with our conference support contractor, ESI, to plan and implement this event.

This premier conference, sponsored by the NSF Division of Civil, Mechanical, and Manufacturing Innovation (CMMI), includes plenary and parallel sessions that will offer valuable information on research activities and trends in civil and mechanical engineering and manufacturing innovations. Participants will also have the opportunity to gain important knowledge about NSF funding opportunities, programs, and partnerships as well as details about creating successful proposals and setting up research programs. In addition, CMMI program directors will be available for one-on-one discussions with conference participants on Wednesday and Thursday afternoons.

We are very excited about the poster sessions which provide CMMI grantees an opportunity to present information to conference attendees about current projects funded by NSF. More than 650 active grantees will be exhibiting posters during the 2008 conference. The poster sessions provide a unique experience for discussions and networking and also offer many possibilities for the development of future research collaborations.

We are proud to offer our attendees technical tours to several impressive venues, including ORNL, the Spallation Neutron Source, Siemens Medical Solutions' Molecular Imaging Group, and the Y-12 National Security Complex. ORNL is the country's second-largest national laboratory, managed jointly by UT and Battelle. We also are offering tours of several outstanding UT research venues on campus including the biofuels and robotics laboratories.

We are pleased about the increased student participation in the 2008 conference. There are more than 200 students attending with support provided by NSF through UT; the University of Missouri, Rolla; and Arizona State University. The students will have their own poster session on Monday evening during the Welcome Reception.

In closing, we hope that you enjoy all aspects of the conference and take the time to enjoy the beautiful city of Knoxville while you are here.

Sincerely,
Adnan Akay
Director
NSF CMMI

Way Kuo
Dean of Engineering and University Distinguished Professor
UT, Knoxville
2008 CMMI Conference Chair

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SCHEDULE

MONDAY, JANUARY 7, 2008

Begin Time	End Time	Event	Location
8:00 a.m.	2:00 p.m.	<p>Pre-Conference Workshop (Invitation Only) Individual and Team-Based Innovation <i>Organizers:</i> Jon Cagan, Carnegie Mellon University Kristin Wood; University of Texas, Austin Judy Vance, Program Director, NSF</p> <p><i>Invited Presenters:</i> Art Markman; University of Texas, Austin Chris Schunn, University of Pittsburgh Paul Paulus; University of Texas, Arlington Rob Stone; University of Missouri, Rolla</p> <p>This workshop will introduce attendees to issues in cognition and social science, and relate these to engineering design practice and research. The discussion will be interactive, including a relevant exercise in the use of cognitive modeling in engineering design. It will provide a forum to begin to generate and explore near, intermediate, and long-term research needs in innovation.</p> <p>The workshop will address the following questions:</p> <ul style="list-style-type: none"> ▸ What is, generally, the state of the art in innovation processes, tools, and methods? ▸ What are the roles of multidisciplinary research (engineering, cognitive science, and social psychology) in innovation? ▸ What is the relationship of engineering research in innovation to engineering education? 	Meeting Room 301 A/B
12 noon	6:00 p.m.	Registration and Information Desk Open	Cumberland Concourse
12 noon	6:00 p.m.	Internet Café	Business Center
2:30 p.m.	4:30 p.m.	<p>Research Program Development Workshop George Hazelrigg, NSF</p> <p>This workshop covers many topics that are crucial to planning, proposal writing, and development of a sound academic research program. The subject matter is appropriate for graduate students and young faculty about to begin a career involving academic research, and for more senior faculty who would benefit from an update on how one interfaces with NSF. The workshop is presented by George Hazelrigg, who has overseen the review of more than 5,000 proposals and who has conducted several hundred panel reviews during his 25-year tenure at NSF. George will present many of the lessons learned from his experience.</p>	Lecture Hall

MONDAY, JANUARY 7, 2008 (CONTINUED)

Begin Time	End Time	Event	Location
4:15 p.m.	4:45 p.m.	Coffee Available	Henley Concourse
4:45 p.m.	6:00 p.m.	Parallel Sessions	
		Materials Transformation and Mechanics Cluster	Meeting Room 301 A/B
		Program Directors Breakout Session	
		<ul style="list-style-type: none"> ▸ Mechanics and Structures of Materials; Infrastructure Materials and Structural Mechanics <i>Ken Chong, NSF</i> ▸ Materials Design and Surface Engineering; Nano and Bio Mechanics <i>Clark Cooper, NSF</i> ▸ Geomechanics and Geotechnical Systems; GeoEnvironmental Engineering and GeoHazards Mitigation <i>Richard Frigaszy, NSF</i> ▸ Materials Processing and Manufacturing <i>Joycelyn Harrison, NSF</i> 	
		Innovation Sciences and Decision Engineering Cluster	Meeting Room 301 D/E
		Program Directors Breakout Session	
		<ul style="list-style-type: none"> ▸ Control Systems <i>Suhada Jayasuriya, NSF</i> ▸ Dynamical Systems <i>Eduardo Misawa, NSF</i> ▸ Engineering Design <i>Judy Vance, NSF</i> ▸ Manufacturing Enterprise Systems; Service Enterprise Engineering <i>Cerry Klein, NSF</i> ▸ Operations Research <i>Stephen Nash, NSF</i> ▸ Sensor Innovation and Systems <i>Shih-Chi Liu, NSF</i> 	
		Engineering Infrastructure Systems Cluster	Meeting Room 200 A/B
		Program Directors Breakout Session	
		<ul style="list-style-type: none"> ▸ Infrastructure Systems Management and Hazard Response; Information Technology and Infrastructure Systems <i>Dennis Wenger, NSF</i> ▸ Structural Systems and Hazard Mitigation of Structures <i>Mahendra Singh, NSF</i> 	

MONDAY, JANUARY 7, 2008 (CONTINUED)

Begin Time	End Time	Event	Location
		<ul style="list-style-type: none"> › George E. Brown, Jr. Network for Earthquake Engineering (NEES) Research and NEES Operations <i>Joy Pauschke, NSF</i> › Manufacturing Machines and Equipment <i>George Hazelrigg, NSF</i> 	
6:00 p.m.	7:30 p.m.	Student Poster Session	Cumberland, Henley, Clinch, and Park Concourses
6:00 p.m.	8:30 p.m.	<p>Opening Reception Entertainment provided by Boling, Brown & Holloway <i>Mark Boling, University of Tennessee (UT) School of Music</i> <i>Keith Brown, UT School of Music</i> <i>Rusty Holloway, UT School of Music</i></p>	Cumberland Concourse

TUESDAY, JANUARY 8, 2008

Begin Time	End Time	Event	Location
7:00 a.m.	6:00 p.m.	Registration and Information Desk Open	Cumberland Concourse
7:00 a.m.	6:00 p.m.	Internet Café	Business Center
7:30 a.m.	8:30 a.m.	Continental Breakfast	Cumberland Concourse
8:30 a.m.	9:30 a.m.	Opening Plenary Session Introductions and Welcome <i>Way Kuo; Dean of Engineering and University Distinguished Professor; UT, Knoxville</i> <i>Loren Crabtree; Chancellor; UT, Knoxville</i> <i>Bill Haslam, Mayor, City of Knoxville</i> <i>Mike Ragsdale, Mayor, Knox County</i> <i>Michael M. Reischman, Deputy Assistant Director for Engineering, NSF</i> <i>John Petersen, President, UT System</i> <i>The Honorable Philip Bredesen, Governor, State of Tennessee</i> <i>Lee Riedinger; Professor of Physics; UT, Knoxville</i>	Ballroom D-G
9:30 a.m.	10:30 a.m.	Keynote Presentation Innovations in Materials throughout the Centuries: The Impact on Today's Energy Crisis <i>Jeffrey Wadsworth, Executive Vice President for Global Laboratory Operations, Battelle Memorial Institute</i> Beginning thousands of years ago and continuing to the present time, advances in new materials have paved the evolution of societies, often driven by war or conflict. During this speech, examples of such advances will be presented and links will be made to the present energy crisis facing the United States.	Ballroom D-G
10:30 a.m.	11:00 a.m.	Coffee Available	Cumberland Concourse
10:30 a.m.	12 noon	Poster Session #1 (Groups A and B)	Exhibit Hall B
10:30 a.m.	6:00 p.m.	Internet Café	Business Center
12 noon	1:00 p.m.	Networking Lunch	Exhibit Hall A
12:30 p.m.	2:00 p.m.	Poster Session #2 (Groups C and D)	Exhibit Hall B
2:00 p.m.	6:00 p.m.	Scheduled Technical Tours (see page 19 for descriptions)	

TUESDAY, JANUARY 8, 2008 (CONTINUED)

Begin Time	End Time	Event	Location
2:00 p.m.	3:15 p.m.	<p>Parallel Session 1A Navigating Through Engineering Graduate Education <i>Matthew Carnavos, NSF</i></p> <p>Unclear where your future as an engineering student will take you? This session will help provide information for the undergraduate- and graduate-level student on how to find the best research program for a master's or doctoral degree. Additionally, the session will provide information on various student funding opportunities available to students from NSF including the Graduate Research Fellowship Program and the Graduate Teaching Fellows in K-12 Education GK-12 Program. Current graduate students will also share their experiences in selecting a research program and interacting with their faculty advisors. Students will leave the session with a better understanding on how to further their educational goals in engineering.</p>	Meeting Room 301 A/B
2:00 p.m.	3:15 p.m.	<p>Parallel Session 1B Consideration in Putting Together a Center Proposal <i>Bruce Kramer, NSF</i></p> <p>Assembling a team to write a competitive proposal to NSF's large centers programs is a huge undertaking with long odds, but it is dwarfed by the actual requirements of managing such a center. This session will provide guidance on what makes a good large center proposal, determining if your team is ready, and the responsibilities that come with success. This guidance will be drawn from actual experiences in running and managing centers.</p>	Meeting Room 301 D/E
2:00 p.m.	3:15 p.m.	<p>Parallel Session 1C Broader Impacts and Promoting Global Diversity <i>Mary Lynn Realff, Georgia Institute of Technology</i></p> <p>Broadening participation in engineering continues to be important in the evaluation of research proposals and center proposals in the Directorate for Engineering at NSF. In many cases, researchers do not have a good idea of how to address diversity in their grants and how to respond to requests for proposals that require this issue to be addressed. In this session, funding opportunities at NSF to support global diversity through international components of research grants will be presented. NSF's strategic goal of broadening participation of the scientific engineering workforce will be reviewed, and ways of helping NSF reach this goal through research grants will be discussed.</p>	Meeting Room 200 A/B
3:15 p.m.	3:30 p.m.	Coffee Available	Cumberland Concourse

TUESDAY, JANUARY 8, 2008 (CONTINUED)

Begin Time	End Time	Event	Location
3:30 p.m.	4:45 p.m.	<p>Parallel Session 2A Ethics for Students and Faculty <i>James Kroll, NSF</i></p> <p>Within NSF, the Office of Inspector General (OIG) investigates allegations of wrongdoing involving organizations or individuals that receive awards from NSF. It is important for grantees to understand what actions violate ethical norms or established rules governing federally funded research, and be aware of the potential consequences of committing such violations. Issues critical to NSF include, but are not limited to, research misconduct, fraud, conflicts of interest, human subject protections and animal welfare concerns, peer review violations, duplicative research, retaliation, and student/mentor relationships. James Kroll, Head of Administrative Investigations in OIG, will highlight the ethical expectations NSF places on its grantees and present numerous case studies regarding violations that OIG has investigated.</p>	Meeting Room 301 A/B
3:30 p.m.	4:45 p.m.	<p>Parallel Session 2B Research and Education using NSF-funded Large Multiuser Facilities: DUSEL, NEES, NNIN, and WATERS <i>Richard Fragaszy, NSF</i></p> <p>NSF provides support for multiuser research infrastructures that include shared use experimental facilities and cyberinfrastructure. Various programs at NSF provide funding for faculty, students, and others to utilize these facilities for research and education. This session provides a brief overview of two large facilities available for research and education: NEES and the National Nanotechnology Infrastructure Network (NNIN); and two large facilities that are currently funded by NSF for planning and development: the Deep Underground Science and Engineering Laboratory (DUSEL) and the WATER and Environmental Research Systems (WATERS) Network.</p>	Meeting Room 301 D/E
5:00 p.m.	6:15 p.m.	<p>Parallel Session 2C Emerging Frontiers in Research and Innovation and CDI: Opportunities and Challenges <i>Eduardo Misawa, NSF</i> <i>Clark Cooper, NSF</i> <i>Matthew Realff, Georgia Institute of Technology</i></p> <p>NSF strives to maintain a critical balance between unsolicited core program awards and focused solicitations in key topical areas, the former of which is intended to foster basic research in broad programmatic areas and the latter of which is intended</p>	Meeting Room 200 A/B

TUESDAY, JANUARY 8, 2008 (CONTINUED)

Begin Time	End Time	Event	Location
		to identify and facilitate research in new and emerging areas. Emerging Frontiers in Research and Innovation and CDI are two important examples of the latter category and will be the topic of discussion in this session.	
5:00 p.m.	6:45 p.m.	<p>Parallel Session 3A Beyond the Classroom: After Graduate Education <i>Matthew Carnavos, NSF</i></p> <p>Worried about what to do after you finish your diploma? Afraid teaching 100 undergraduates Statics or Fluids may not be for you? This session will provide both master's- and doctoral-level students with information on post-graduate opportunities for career paths in academe, private industry, nonprofits, and government. Post doctorate-level researchers, government researchers, and representatives from private industry will be on hand to share their experiences and participate in a panel-driven discussion. Additionally, information on nontraditional engineering career paths will be presented by representatives from such positions to discuss how their engineering education has guided their career paths and goals.</p>	Meeting Room 301 A/B
5:00 p.m.	6:15 p.m.	<p>Parallel Session 3B NSF Initiative in Cyberinfrastructure <i>Joy Pauschke, NSF</i> <i>Stephen Nash, NSF</i> <i>Jacobo Bielak, Carnegie Mellon University</i> <i>Gerhard Klimeck, Purdue University</i> <i>Edwin Romeijn, University of Florida</i> <i>Chunhua Men, University of Florida</i> <i>Amitava Majumdar, San Diego Supercomputer Center</i></p> <p>NSF is making major investments in cyberinfrastructure through NSF-wide initiatives including Cyber-Enabled Discovery and Innovation (CDI), as well as through directorate-specific activities and through the Office of Cyberinfrastructure. This session explores a variety of cyberinfrastructure opportunities of relevance to CMMI in areas such as research, education, virtual organizations, high-performance computing, and large facilities.</p>	Meeting Room 301 D/E

TUESDAY, JANUARY 8, 2008 (CONTINUED)

Begin Time	End Time	Event	Location
3:30 p.m.	4:45 p.m.	<p>Parallel Session 3C Working with the Media <i>Judy Vance, NSF</i> <i>Joshua Chamot, NSF</i></p> <p>Getting exposure for your research, beyond journal publications, has the potential to result in significant benefit for you, your university, and NSF. This session will consist of a presentation and discussion about how to work with the media to obtain the best possible dissemination of your results to the general community.</p>	Meeting Room 200 A/B
7:00 p.m.	9:00 p.m.	<p>Faculty and Student Dinner (Optional)</p> <p>This event will take place at the University Center on the campus of UT, Knoxville, and will provide an opportunity for faculty and students to interact and network in a social setting. Roundtrip transportation will be provided from the Clinch Concourse entrance of the Knoxville Convention Center to the University Center.</p>	UT, Knoxville

WEDNESDAY, JANUARY 9, 2008

Begin Time	End Time	Event	Location
7:00 a.m.	6:00 p.m.	Registration and Information Desk Open	Cumberland Concourse
7:00 a.m.	6:00 p.m.	Internet Café	Business Center
7:30 a.m.	8:30 a.m.	Continental Breakfast	Cumberland Concourse
8:30 a.m.	10:30 a.m.	<p>Parallel Session</p> <p>Technology Transfer: Grant Opportunity for Academic Liaison with Industry (GOALI) and the Small Business Innovation Research (SBIR)/Small Business Technology Transfer Research</p> <p><i>Donald Senich, NSF</i></p> <p><i>Jack Beuth, Carnegie Mellon University, GOALI Award PI</i></p> <p><i>Nathan Klingbeil, Wright State University, GOALI Award PI</i></p> <p><i>David Alexander, Pratt & Whitney, GOALI Award Industrial Co-PI</i></p> <p><i>Raymond Walker, Keystone Synergistic Enterprises, GOALI Award Industrial Co-PI</i></p> <p><i>Bryan Walker, Keystone Synergistic Enterprises</i></p> <p><i>Edward Sommer, National Recovery Technologies, SBIR Award PI</i></p> <p><i>Jayesh Doshi, eSpin Technologies, SBIR Award PI</i></p> <p>Speakers will describe the opportunities and hurdles in developing and managing collaborative research projects through both the GOALI and Small Business Research programs. The panel will also discuss the relevant issues in developing and administering a research program with commercialization as the ultimate goal (SBIR).</p>	Meeting Room 301 A/B
8:30 a.m.	10:30 a.m.	<p>Parallel Session</p> <p>Coping with Your CAREER Award</p> <p><i>Jian Cao, Northwestern University, CAREER Award PI</i></p> <p><i>Jionghua (Judy) Jin, University of Michigan, PECASE Award PI</i></p> <p><i>Philip Leduc, Carnegie Mellon University, CAREER Award PI</i></p> <p><i>Gracious Ngaile, North Carolina State University, CAREER Award PI</i></p> <p><i>Zhijian (ZJ) Pei, Kansas State University, CAREER Award PI</i></p> <p><i>James Smay, Oklahoma State University, PECASE Award PI</i></p> <p><i>Maria Yang, Massachusetts Institute of Technology, CAREER Award PI</i></p> <p>This discussion will present ideas on how you might use your CAREER award to help you move toward your career goals. Recent PECASE and CAREER awardees will discuss their success stories and share their experiences.</p>	Meeting Room 301 D/E

WEDNESDAY, JANUARY 9, 2008 (CONTINUED)

Begin Time	End Time	Event	Location
8:30 a.m.	10:30 a.m.	Parallel Session Success Stories and Future Directions (Top Advances and Emerging Areas) Top Advances <i>Philip LeDuc, Carnegie Mellon University: Cellular Mechanics and Inspiration</i> <i>Scott Smith, University of North Carolina, Charlotte: Deformation Cutting</i> <i>Nader Jalili, Clemson University: Control and Manipulation at the Nanoscale</i> <i>Hanqing Jian, Arizona State University: Stretchable Electronics</i> <i>Victor Li, University of Michigan, Ann Arbor: Bendable Concrete</i> <i>Hod Lipson, Cornell University: Active Fault-Tolerant Systems</i> Emerging Areas <i>Yacov Haimes, University of Virginia: Cascading Failures</i> <i>Martin Wortman, Texas A&M University: Predictive Modeling</i> <i>George Hazelrigg, NSF: Energy Manufacturing</i> Bendable concrete? Stretchable electronics? These are just a few of the top advances made by CMMI grantees. This session will showcase these and several others and then follow with discussions on emerging areas for the division.	Meeting Room 200 A/B
10:30 a.m.	11:00 a.m.	Coffee Available	Cumberland Concourse
10:30 a.m.	12 noon	Poster Session #3 (Groups A and E)	Exhibit Hall B
12 noon	1:00 p.m.	Networking Lunch	Exhibit Hall A
12:30 p.m.	2:00 p.m.	Poster Session #4 (Groups B and C)	Exhibit Hall B
2:00 p.m.	6:00 p.m.	Scheduled Technical Tours (see page 19 for descriptions)	
2:00 p.m.	6:00 p.m.	NSF Program Directors Office Hours	Ballroom A-C
3:15 p.m.	3:45 p.m.	Coffee Available	Cumberland Concourse

WEDNESDAY, JANUARY 9, 2008 (CONTINUED)

Begin Time	End Time	Event	Location
6:30 p.m.	9:30 p.m.	<p>Conference Banquet</p> <p>Welcome</p> <p><i>Peter Liaw; John Fisher Professor and Ivan Racheff Chair of Excellence; Department of Material Science and Engineering; UT, Knoxville</i></p> <p>Introduction of Speaker</p> <p><i>Kimberly Cowart; Communications Manager; College of Engineering; UT, Knoxville</i></p> <p>Banquet Speaker</p> <p><i>Keith McDaniel, Director and Producer, "Secret City: The Oak Ridge Story"</i></p> <p>Special Guest</p> <p><i>Bill Wilcox, Historian, City of Oak Ridge</i></p> <p>It was the greatest industrial project in the history of the world, and its outcome was the most significant event of the 20th century. One day after the United States dropped an atomic bomb on the city of Hiroshima, Japan, U.S. President Harry S. Truman told the world about a secret government operation code named the Manhattan Project.</p> <p>For almost 3 years, the United States built the most powerful weapon in the history of mankind: the atomic bomb. In September 1942, General Leslie Groves chose three sites for the project. One of these was Oak Ridge, TN. The work at Oak Ridge was to create the explosive core of the atomic bomb: enriched uranium and plutonium.</p> <p>More than 85,000 people lived and worked behind the fence of the 60,000-acre reservation. Oak Ridge consumed more electricity than New York City and had the ninth-largest bus system in the United States. One of out every 10 residents was recruited by military intelligence to spy on their neighbors and coworkers, and 99 percent of the people working in Oak Ridge had no idea what the result of their work would be.</p> <p>Faced with a 3-year timetable, unproven technology, and the constant risk of radiological catastrophe, scientists, engineers, and laborers worked to fulfill their mission with one goal in mind: to help bring an end to World War II. This film chronicles the lives of the workers and residents of Oak Ridge and the immense scientific challenge undertaken in this secret city.</p>	Ballroom D-G

THURSDAY, JANUARY 10, 2008

Begin Time	End Time	Event	Location
7:00 a.m.	1:00 p.m.	Registration and Information Desk Open	Cumberland Concourse
7:00 a.m.	8:30 a.m.	Internet Café	Business Center
7:30 a.m.	8:30 a.m.	Continental Breakfast	Cumberland Concourse
8:30 a.m.	10:30 a.m.	Plenary Session Report out on workshops and NSF outlook <i>Adnan Akay, Division Director of CMMI, NSF</i>	Ballroom D–G
10:30 a.m.	11:00 a.m.	Coffee Available	Cumberland Concourse
10:30 a.m.	12 noon	Poster Session #5 (Groups D and E)	Exhibit Hall B
12 noon	1:00 p.m.	Networking Lunch	Exhibit Hall A
1:00 p.m.	2:00 p.m.	NSF Program Directors Office Hours	Ballroom A–C

SPEAKERS

KEYNOTE SESSION—*Tuesday, January 8, 2008*

Innovations in Materials throughout the Centuries: The Impact on Today's Energy Crisis

*Jeffrey Wadsworth, Executive Vice President for Global Laboratory Operations,
Battelle Memorial Institute*

Jeffrey Wadsworth is currently a senior executive responsible for Battelle's laboratory management business. Battelle currently manages or comanages six U.S. Department of Energy (DOE) national laboratories: Brookhaven National Laboratory, Idaho National Laboratory, Lawrence Livermore National Laboratory, National Renewable Energy Laboratory, Oak Ridge National Laboratory (ORNL), and Pacific Northwest National Laboratory. A wholly owned Battelle subsidiary, Battelle National Biodefense Institute, manages the National Biodefense Analysis and Countermeasures Center for the U.S. Department of Homeland Security (DHS). These laboratories maintain extensive capabilities that are applied to compelling problems in national and global security, energy demands and environmental impacts, and human health and life sciences, with portfolios that span basic research, applied research and development, and technology transfer. Their combined research revenues exceed \$3.2 billion, and they employ more than 16,000 staff.



Wadsworth also was a Corporate Officer and Senior Vice President for DOE Science Programs at Battelle from 2003 to 2006, and was Director for the Laboratory Operations Homeland Security Program from 2002 to 2006. In this capacity, Wadsworth served as a member of the White House Transition Planning Office for DHS in 2002–2003.

Wadsworth served as Laboratory Director for ORNL in Oak Ridge, TN, and was CEO and President of UT-Battelle, LLC from 2003 to 2007. In this position, Wadsworth was responsible for the management of DOE's largest multipurpose science and energy laboratory, with 4,100 staff members and an annual budget of more than \$1 billion. During his tenure at ORNL, Wadsworth oversaw the commissioning of the Nation's largest civilian science facility, the \$1.4 billion Spallation Neutron Source; the launch of DOE's first nanoscale science research center, the \$65 million Center for Nanophase Materials Sciences; the development of the world's most powerful unclassified computer system; significant growth in national security programs; and the initiation of an interdisciplinary bioenergy program. He also directed the operation of numerous nuclear facilities, including the High Flux Isotope Reactor, and the conduct of a broad program of research and development spanning science, energy, and national and homeland security.

Wadsworth served as Deputy Director for Science and Technology at Lawrence Livermore National Laboratory from 1992 to 2002. In this position, he closely assisted the Director in external and internal interfaces and in all facets of laboratory management.

Wadsworth received his B.Met., Ph.D., and D.Met. from Sheffield University in England, where he also received an honorary D. Eng. degree. He was an adjunct professor at the University of California, Davis from 1996 to 2002 and is currently a Distinguished Research Professor in Materials Sciences at the University of Tennessee, Knoxville. He was elected as a member of the National Academy of Engineering

in 2005, and is also a Fellow and Member of the American Association for the Advancement of Science, the American Society for Metals, and the Minerals, Metals & Materials Society.

Wadsworth has authored and coauthored more than 280 papers in the open scientific literature on a wide range of materials science and metallurgical topics. He also has written a book, *Superplasticity in Metals and Ceramics*, and holds four U.S. patents. Wadsworth has been the speaker or coauthor for more than 300 presentations at conferences, scientific venues, and other events.

CONFERENCE BANQUET—*Wednesday, January 9, 2008*

"Secret City: The Oak Ridge Story"

Keith McDaniel, Producer and Director, Owner of Secret City Films

Keith McDaniel is an award-winning documentary filmmaker and Owner of Secret City Films in Oak Ridge. He has produced two feature documentaries about Oak Ridge, "Secret City: The Oak Ridge Story." The films tell the story of Oak Ridge's role in the Manhattan Project during World War II and the city's emergence as one of the world's leading scientific centers during the past 60 years. His latest film, "The Clinton 12," narrated by James Earl Jones, has been screened in film festivals across North America and has won numerous awards. It will be broadcast on PBS in 2008.

McDaniel also is the Founder and Director of the Secret City Film Festival in Oak Ridge, an annual 4-day event consisting of film screenings, educational workshops, and networking opportunities.

McDaniel is President of the Oak Ridge Heritage and Preservation Association and on the Board of Directors of the Oak Ridge Convention and Visitors Bureau. He is a frequent guest at colleges, universities, and film festivals to screen his films and speak to aspiring filmmakers.



TECHNICAL TOURS

All technical tours will depart from the Knoxville Convention Center at the Clinch Concourse entrance. Buses will be available for loading approximately 30 minutes prior to departure times. To remain on schedule, buses will depart promptly at the designated times. Escorts will be available to assist you in boarding the correct bus.

DAILY SCHEDULE

TUESDAY, JANUARY 8, 2008

Oak Ridge National Laboratory

Depart 2:00 p.m.; Return 5:45 p.m.

(Note: Individuals born in one of the five "terrorist sensitive" countries—Cuba, Iran, North Korea, Sudan, and Syria—may not attend this tour.)

Y-12 National Security Complex

Depart 2:00 p.m.; Return 5:45 p.m.

(Note: Participants must present valid proof of U.S. citizenship upon arrival at the tour location.)

Siemens Medical Solutions' Molecular Imaging Group

Depart 2:00 p.m.; Return 6:15 p.m.

University of Tennessee (UT), Knoxville

Depart 2:00 p.m.; Return 5:30 p.m.

WEDNESDAY, JANUARY 9, 2008

Oak Ridge National Laboratory

Depart 2:00 p.m.; Return 5:15 p.m.

(Note: Individuals born in one of the five "terrorist sensitive" countries—Cuba, Iran, North Korea, Sudan, and Syria—may not attend this tour.)

Y-12 National Security Complex

Depart 2:00 p.m.; Return 5:15 p.m.

(Note: Participants must present valid proof of U.S. citizenship upon arrival at the tour location.)

Siemens Medical Solutions' Molecular Imaging Group

Depart 2:00 p.m.; Return 4:30 p.m.

University of Tennessee (UT), Knoxville

Depart 2:00 p.m.; Return 5:00 p.m.

TOUR DESCRIPTIONS

OAK RIDGE NATIONAL LABORATORY

COMPANY COORDINATOR: LEIGHA STEWART

UT ESCORTS: AMANDA WOMAC, BRANDICE GREENE, JOSH MILLER, JERRILYN DAOUST, AMANDA JORDAN, AND CRAIG COOK

Oak Ridge National Laboratory (ORNL) is one of the premier research and development facilities in the country, funded primarily by the U.S. Department of Energy and managed by UT-Battelle LLC. ORNL operates 20 user facilities in various areas of science and engineering, and these facilities are available for use by researchers across the country. Its primary research programs are in areas of neutron science, nanoscience, high-performance computing, biosciences, energy technologies, national security, and nuclear physics. Tour participants will hear an overview of laboratory programs and then tour two of the newest user facilities.

- Spallation Neutron Source (SNS)—a \$1.4 billion accelerator-based source of pulsed neutrons primarily for experiments involving neutron scattering. It is the best pulsed neutron source in the world.
- Everest—a visualization room at the National Center for Computational Sciences, which now operates the world's largest computer for open scientific computations.

(Note: Individuals born in one of the five "terrorist sensitive" countries—Cuba, Iran, North Korea, Sudan, and Syria—may not attend this tour.)

Y-12 NATIONAL SECURITY COMPLEX

COMPANY COORDINATORS: ALICE BRANDON AND RAY SMITH

UT ESCORT: SAMANTHA ALLEN

The Y-12 National Security Complex (Y-12) is a premier manufacturing facility dedicated to making the United States and the world a safer place. Operated by BWXT Y-12 for the National Nuclear Security Administration, Y-12 plays a vital role in the U.S. Department of Energy's Nuclear Weapons Complex. Y-12 helps ensure a safe and reliable U.S. nuclear weapons deterrent, retrieves and stores nuclear materials, fuels the Nation's naval reactors, and performs complementary work for other government and private-sector entities. Tour participants will hear an overview of Y-12 programs and then tour some of the manufacturing facilities.

(Note: Participants must present valid proof of U.S. citizenship upon arrival at the tour location.)

SIEMENS MEDICAL SOLUTIONS' MOLECULAR IMAGING GROUP

COMPANY COORDINATOR: WILIFRED LOEFFLER

UT ESCORTS: FENGXIAO LIU AND ZHE CHEN

Siemens Medical Solutions' Molecular Imaging Group has its research and development and manufacturing center for positron emission tomography (PET) systems at the Knoxville and Rockford locations. Visitors will see the assembly and test area for PET scanners and cyclotrons, as well as radiopharmaceutical synthesis equipment at the Knoxville facility. The Rockford plant provides detector systems for PET scanners. Here visitors have an opportunity to view the equipment used to grow scintillation crystals as well as the highly automated detector assembly and test systems.

UNIVERSITY OF TENNESSEE (UT), KNOXVILLE

UT COORDINATOR: KIMBERLY COWART

UT ESCORTS: JIAWAN TIAN, ZHIANG ZHANG, JENNELL KLUSSMAN, AND E-WEN HUANG

The UT, Knoxville is a top research-oriented State university with programs in many areas of science and engineering. It now operates ORNL in partnership with Battelle. Its major research programs in technical areas include materials science and engineering, computational sciences and robotics, plant science, biofuels, microbiology, and environmental science.

- UT Biosystems Initiative/TN Biofuels Laboratory—overview of the Tennessee Biofuels Program and switchgrass fuel conversion process
- Mechanical Testing Laboratory—mechanical behaviors and processing of high-temperature materials
- Electro-optical Spectroscopy Laboratory—nanophase optoelectronic and spintronic polymer materials and devices
- Robotics Laboratory—robots and controlling sensors
- Civil Engineering Laboratory—cohesive and frictional materials, 3-D mechanical properties, stress mapping, and composites

NSF PROGRAM DIRECTORS



Adnan Akay – Division Director



George Hazelrigg – Program Director,
Manufacturing Machines and Equipment



Mahendra P. Singh – Program Director,
Structural Systems and Hazard Mitigation
of Structures



Ken Chong – Program Director,
Mechanics and Structures of Materials &
Infrastructure Materials and Structural Mechanics



Clark Cooper – Program Director,
Materials Design and Surface Engineering & Nano
and Bio Mechanics



Rick Fragaszy – Program Director, Geomechanics
and Geotechnical Systems & GeoEnvironmental
Engineering and GeoHazards Mitigation



Joycelyn Harrison – Program Director,
Materials Processing and Manufacturing



Suhada Jayasuriya – Program Director,
Control Systems



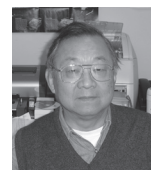
Judy Vance – Program Director,
Engineering Design



Cerry Klein – Program Director,
Manufacturing Enterprise Systems & Service
Enterprise Engineering



Stephen Nash – Program Director,
Operations Research



Shih-Chi Liu – Program Director,
Sensor Innovation and Systems



Dennis Wenger – Program Director, Infrastructure
Systems Management and Hazard Response &
Information Technology and Infrastructure Systems



Joy Pauschke – Program Director,
NEES Research and NEES Operations



Eduardo Misawa – Program Director,
Dynamical Systems



Geri Farves – IT Specialist



Dianne McCormick – Program Specialist



Veronica Calvo – Program Specialist

CONFERENCE ORGANIZERS

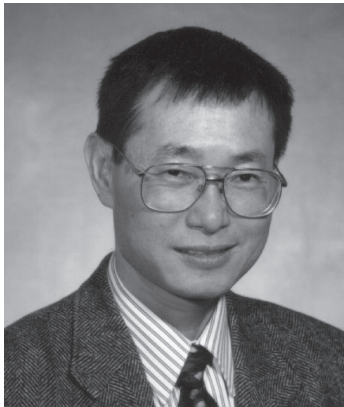
UNIVERSITY OF TENNESSEE (UT), KNOXVILLE



Dr. Way Kuo
Dean of Engineering
Conference Chair



Dr. Lee Riedinger
Professor of Physics
Conference Co-Chair



Dr. Peter K. Liaw
John Fisher Professor and Ivan Racheff
Chair of Excellence
Department of Materials Science
Conference Co-Chair



Kimberly A. Cowart
Manager
Engineering Communications Office
Conference Facilitator

CONFERENCE SUPPORT CONTRACTOR



Annie C. Oliver, Project Director
Jennifer Pinder, Program Specialist

Susan Frate, Meeting Planner
Nathan Rudy, Program Coordinator

FILM SCREENING

"SECRET CITY: THE OAK RIDGE STORY"

This 90-minute documentary film traces the history of Oak Ridge from its beginnings through the end of World War II. Oak Ridge Mayor David Bradshaw described the film as "the definitive history of Oak Ridge, brilliantly told from the human perspective."

Dennis Ruddy, president and general manager of BWXT Y-12 said, "This film tells the story of Oak Ridge through the words of some of the people who know it best—the people who lived it. It is the inspiring, informative and sometimes amusing story of one of the great scientific and engineering feats in history."

SCREENING TIMES

MONDAY, JANUARY 7, 2008

1:00–2:30 p.m. **Meeting Room 200 D/E**
 3:00–4:30 p.m. **Meeting Room 200 D/E**

TUESDAY, JANUARY 8, 2008

2:00–3:30 p.m. **Lecture Hall**
 4:00–5:30 p.m. **Lecture Hall**

WEDNESDAY, JANUARY 9, 2008

2:00–3:30 p.m. **Meeting Room 200 D/E**
 4:00–5:30 p.m. **Meeting Room 200 D/E**

INTERNET CAFÉ

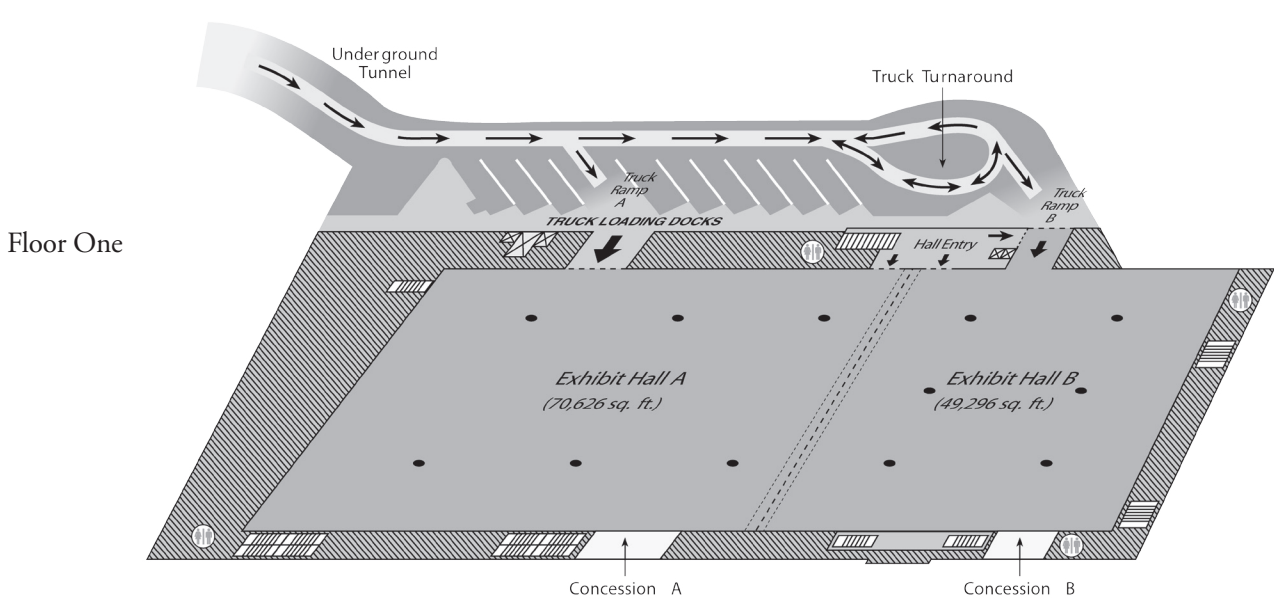
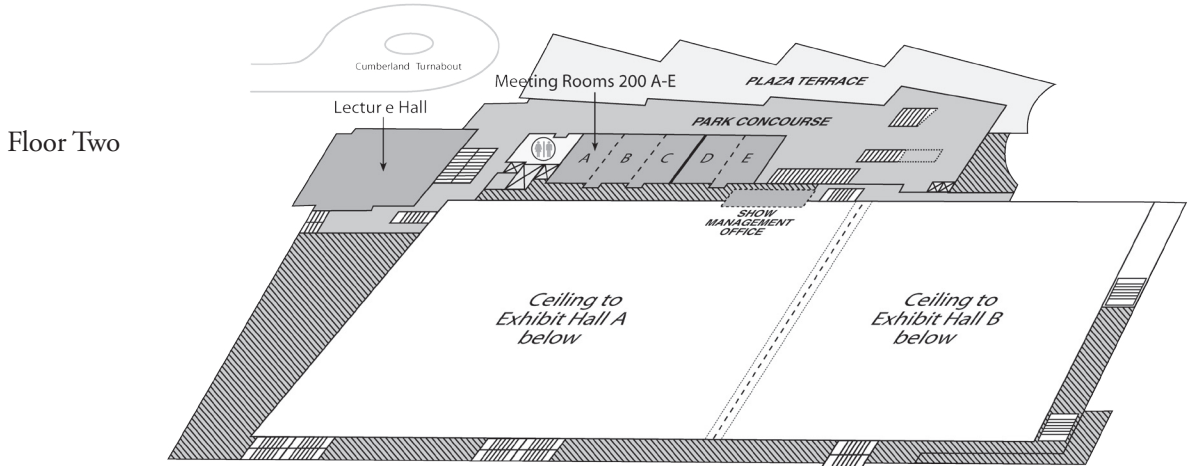
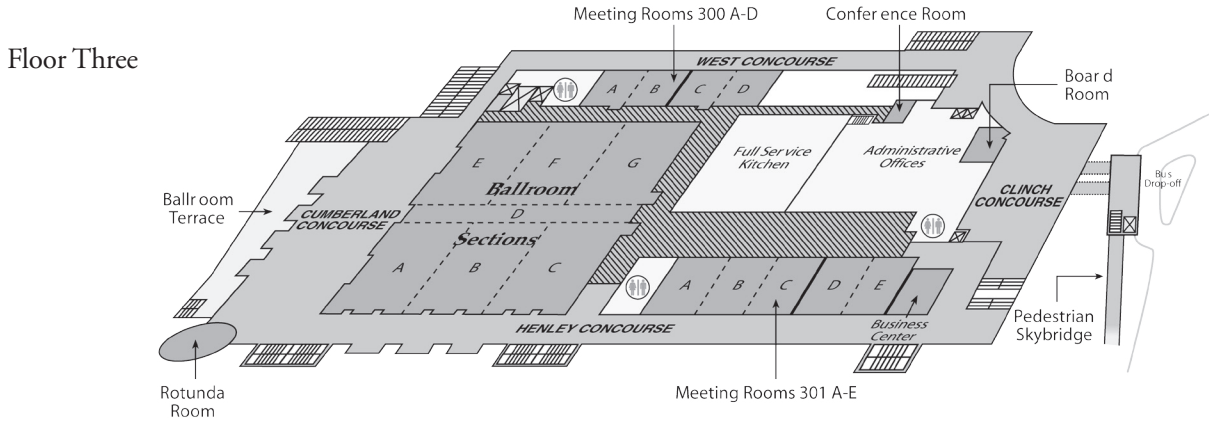
The Internet Café is equipped with 10 laptop computers with Internet access (Windows XP operating system and MS Office Suite installed, which includes Word, Excel, and PowerPoint), and 2 networked printers.

LOCATION: BUSINESS CENTER (FLOOR THREE)

DAILY SCHEDULE

Monday, January 7, 2008 12 noon–6:00 p.m.	Wednesday, January 9, 2008 7:00 a.m.–6:00 p.m.
Tuesday, January 8, 2008 7:00 a.m.–6:00 p.m.	Thursday, January 10, 2008 7:00–8:30 a.m.

MAPS



POSTER SCHEDULE

For the 2008 CMMI conference, each poster is assigned two presentation times. During these times, grantees are expected to be at their posters to explain their work and answer questions. Each poster has been assigned an ID number and is scheduled in one of the following five groups (A–E). The assigned group will present during the two sessions indicated.

Group	First Presentation Time Slot	Second Presentation Time Slot
A	Session #1 Tuesday, January 8, 2008 10:30 a.m.–12 noon	Session #3 Wednesday, January 9, 2008 10:30 a.m.–12 noon
B	Session #1 Tuesday, January 8, 2008 10:30 a.m.–12 noon	Session #4 Wednesday, January 9, 2008 12:30–2:00 p.m.
C	Session #2 Tuesday, January 8, 2008 12:30–2:00 p.m.	Session #4 Wednesday, January 9, 2008 12:30–2:00 p.m.
D	Session #2 Tuesday, January 8, 2008 12:30–2:00 p.m.	Session #5 Thursday, January 10, 2008 10:30 a.m.–12:00 noon
E	Session #3 Wednesday, January 9, 2008 10:30 a.m.–12 noon	Session #5 Thursday, January 10, 2008 10:30 a.m.–12:00 noon

