



SCHEDULE

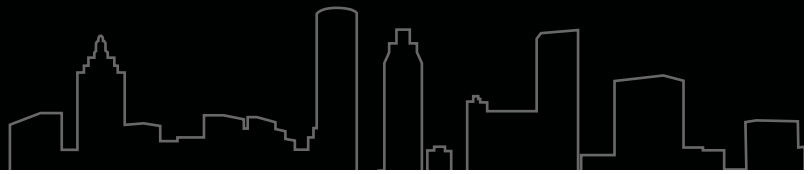
Tuesday, January 4, 2011

Begin Time	End Time	Event	Location
8:00 a.m.	3:00 p.m.	Pre-Conference Workshop New Directions in Dynamical Systems Inspired by Biological, Energy, Environmental, and Information Sciences <i>Co-Chairs: Arvind Raman (Purdue University), Oliver O'Reilly (University of California, Berkeley), N. Sri Namachchivaya (University of Illinois, Urbana-Champaign)</i> <i>Speakers: Andrea L. Bertozzi (University of California, Los Angeles), Mark Anderson (Los Alamos National Labs), Derek A. Paley (University of Maryland), Kayo Ide (University of Maryland), John Guckenheimer (Cornell University), Michael Riley (University of Cincinnati), Maurizio Porfiri (Polytechnic Institute of New York University), Duncan Callaway (University of California, Berkeley)</i> This is a series of 3 sessions: <ol style="list-style-type: none"> 1. Uncertainty Quantification (UQ) and Data Driven Dynamical Systems (DDDS) 2. Dynamical Systems in Biomechanics/Biomimetics and Energy Generation/Distribution Systems 3. Panel Discussion on New Directions in Dynamical Systems 	Ballroom ABE
8:00 a.m.	3:00 p.m.	Pre-Conference Workshop Hot Topics in Engineering Design <i>Chair: Paul Collopy, Value-Driven Design Institute</i> <i>Speakers: Kirstie Bellman (Aerospace Corporation), Anna-Maria McGowan, (NASA Langley Research Center), Richard Malak (Texas A&M University)</i> There is a surge of interest in the research community and among research-supporting agencies in the topics of model-based design, value-centric design for adaptability, and fundamental examinations of systems engineering processes. This workshop will bring together thought leaders and researchers in these fields to develop a holistic view of future directions and opportunities in engineering design and systems engineering research.	Room 102
8:00 a.m.	3:00 p.m.	Pre-Conference Workshop Emerging Research Opportunities in Energy Manufacturing <i>Steven Danyluk, Georgia Tech</i> <i>Matthew J. Realff, Georgia Tech</i> <i>John Pellegrino, University of Colorado, Boulder</i> <i>Kornel Ehmann, Northwestern University</i> <i>Leon McGinnis, Georgia Tech</i>	Room 103

SCHEDULE

Tuesday, January 4, 2011

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		<p>Meeting the energy needs of the world over the coming decades and simultaneously reducing the carbon footprint of production will require a transformation of the existing energy infrastructure. This challenge will require innovative manufacturing systems both to create the infrastructure and to turn diffuse renewable energy sources into liquid fuels and electricity. This workshop will explore three different research topics that connect to this manufacturing problem:</p> <ol style="list-style-type: none"> 1. Research challenges for large area manufacturing of micro- and nano-structured surfaces; 2. Research challenges for dilute stream separations, such as recovering algae and algae products from water; and 3. Research challenges for systems engineering in the development of large-scale energy production. <p>These topics will be explored in three sequential sessions with an introduction and several short talks followed by a general discussion to develop research topics and an agenda that could lead to program development at NSF.</p>	
8:00 a.m.	3:00 p.m.	<p>Pre-Conference Workshop</p> <p>Workshop on Challenges and Opportunities for Research in Multiscale Modeling in Mechanics and Materials (M4)</p> <p><i>Glauco Paulino, NSF</i></p> <p><i>Moderator: Clark Cooper, NSF</i></p> <p>This NSF-sponsored workshop will discuss future directions, scientific challenges, and opportunities in the broad area of multiscale approaches in mechanics and materials. In recent years, there have been several significant developments that have given rise to the need to examine the scientific challenges and opportunities regarding multiscale modeling involving length and time scales. For instance, our capacity to create or design new materials with properties that seem to be related to specific features at different length and time scales has increased significantly, but the rational evaluation/simulation methodologies that are needed have not kept pace. Thus engineers, mechanicians, and materials scientists have resorted to a variety of heuristic methods to carry this out. Moreover, biological applications of mechanics have necessitated the development of many multiscale simulation techniques at various levels. There has been a similar vast increase in the availability of computational tools focused on modeling at different length and time scales. But techniques to bridge scales have generally remained heuristic rather than scientific,</p>	Room 104



SCHEDULE

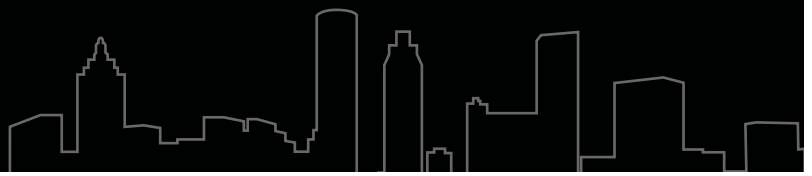
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		<p>especially when considering multifunctional and nonlinear materials. Mathematical tools such as homogenization techniques, notions of gamma convergence etc., have made strides in some limited areas, but their application to complex nonlinear materials is not clear. There are both scientific and philosophical questions regarding the applicability of these techniques when there is no clear way to develop a hierarchy of increasing length scales. In other words, questions remain as to whether it is even possible to use such multiscale approaches in general. This workshop will address these issues, aiming at a systematic rationale, which is scientifically rigorous, to the field of multiscale modeling in mechanics and materials.</p>	
11:00 a.m.	1:00 p.m.	<p>Pre-Conference Student Workshop: Communicating Your Research (Pre-Registration Required) <i>Michael Alley, Pennsylvania State University</i></p> <p>This workshop is designed to help engineering graduate students communicate their research more effectively. Specifically, it will focus on publishing dissertation research in journal papers and presenting research at conferences and seminars. In publishing research papers, the workshop will focus on meeting the reviewers' expectations for structuring sections and achieving clarity. In presenting research, the workshop will focus on achieving confidence, finding effective entry points, and rising above the common practice of presentation slides. The workshop will consist of lecture, analysis of examples, discussion, and practical exercises.</p> <p>Holding a master of science in electrical engineering and a master of fine arts in writing, Michael Alley is an associate professor of engineering communication at Pennsylvania State University. He is the author of <i>The Craft of Scientific Presentations</i> (2003) and <i>The Craft of Scientific Writing</i> (1996), both of which have been translated to Japanese. Over the past 20 years, he has taught communication workshops to engineering researchers around the world, at sites including MIT, Sandia National Laboratories, Simula Research Laboratory (Norway), the University of Barcelona, European Young Engineers (Italy), KAUST (Saudi Arabia), and the European Space Organization (Chile). He is the founder for the popular website "Writing Guidelines for Engineering and Science Students," which has a half-million visitors each year and is the first Google listing for the search term engineering writing.</p>	Ballroom CDFG

SCHEDULE

Tuesday, January 4, 2011

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12:00 p.m.	7:00 p.m.	Registration and Information Desk Open	Exhibit Hall Concourse
1:30 p.m.	3:30 p.m.	Research Program Development Workshop <i>George Hazelrigg, NSF</i> <p>This workshop will cover many topics that are crucial to the planning, proposal writing, and development of a sound academic research program. The subject matter will be 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 will be 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 28-year tenure at NSF. He will present many of the lessons learned from his experience.</p>	Ballroom CDFG
2:00 p.m.	4:00 p.m.	Workshop on NEEShub—The George E. Brown Jr., Network for Earthquake Engineering (NEES) Platform for Cyber Collaboration (Pre-Registration Required) <i>Julio Ramirez, Purdue University</i> <p>The ABCs <i>Ellen Rathje, University of Texas, Austin</i> <p>The “ABCs” part of this workshop will introduce researchers and educators to the NEEShub and its features for data management, research collaboration, and educational resources. The NEEShub may be used by any researcher or educator and accounts are free. Its features include:</p> <ul style="list-style-type: none"> • <i>The Project Warehouse (i.e., data repository of NEES).</i> An easy-to-understand introduction to the Project Warehouse will be given. More details will be provided in the second part of the workshop. • <i>The Project Display and the new data viewer, inDEED.</i> Together, these tools provide user-friendly access to and presentation of research data. The data model used for research data (i.e., project, experiment, trial, repetition) will be presented along with the data upload tool, PEN (Project Explorer for NEES). • <i>Group space, a new way to facilitate research collaboration.</i> Group space is a user-controlled area </p>	Room 105



SCHEDULE

Tuesday, January 4, 2011

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		<p>dedicated to group members for sharing data, files, and communication.</p> <ul style="list-style-type: none"> • <i>The NEESacademy</i>. The NEESacademy provides online learning resources and collaborative design space using research data and research-grade simulations for educators and students of all ages. <p>Project Warehouse <i>Santiago Pujol, Purdue University</i></p> <p>The second part of this workshop will describe in more detail the Project Warehouse, the NEES repository of data about earthquake engineering. Web-based tools that can be used to visualize and understand the data in the repository will be showcased. These tools also have potential for use in a wide range of applications (extending well beyond NEES) in which sets of information from drawings, photographs, and sensors (or numerical simulation tools) need to be combined to describe a simulation (physical or numerical).</p> <p>Using and Contributing Tools <i>Michael J. McLennan, Purdue University</i></p> <p>The final part of this workshop will cover significant aspects of tools and other resources available in the NEEShub. NEEShub provides a rich yet safe computing environment allowing users to run tools directly in NEEShub without downloading them. Tools currently available on the NEEShub include the inDEED data viewer, OpenSees, SAPWood, and the Real-time Data Viewer (RDV). General information about searching for and using NEEShub tools will be provided and the process for contributing tools to NEEShub will be examined.</p>	
3:15 p.m.	3:45 p.m.	Afternoon Break	Exhibit Hall Concourse
3:45 p.m.	5:15 p.m.	<p>Program Directors Cluster Breakout Sessions</p> <p>Advanced Manufacturing</p> <ul style="list-style-type: none"> • Manufacturing and Construction Machines and Equipment <i>George Hazelrigg, NSF</i> • NanoManufacturing <i>Charalabos Doumanidis, NSF</i> • Materials Processing and Manufacturing <i>Mary Toney, NSF</i> 	Room 103

SCHEDULE

Tuesday, January 4, 2011

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		<ul style="list-style-type: none"> Manufacturing Enterprise Systems <i>Russell Barton, NSF</i> <p>The Advanced Manufacturing Cluster supports fundamental research leading to transformative advances in manufacturing and building technologies across size scales from nanometers to kilometers, with emphases on efficiency, economy, and minimal environmental footprint. Research is supported to develop predictive and real-time models; novel experimental methods for the manufacturing and assembly of macro, micro, and nanoscale devices and systems; and advanced sensing and control techniques for manufacturing processes.</p>	
		Mechanics and Engineering Materials <ul style="list-style-type: none"> Geomechanics and Geomaterials <i>Richard Fragaszy, NSF</i> Materials and Surface Engineering <i>Clark Cooper, NSF</i> Mechanics of Materials <i>Glaucio Paulino, NSF</i> Nano and Bio Mechanics <i>Dennis Carter, NSF</i> Structural Materials and Mechanics <i>Grace Hsuan, NSF</i> <p>The Mechanics and Engineering Materials Cluster supports fundamental research aimed at advances in the transformation and use of engineering materials efficiently, economically, and sustainably. The Cluster's programs support research topics relating to the design and use of solid and biological materials that span multiple time scales and length scales from nanometers to meters.</p>	Ballroom ABE
		Resilient and Sustainable Infrastructures <ul style="list-style-type: none"> Civil Infrastructure Systems <i>Konstantinos Triantis, NSF</i> George E. Brown, Jr. Network for Earthquake Engineering Simulation Research <i>Joy M. Pauschke, NSF</i> Geotechnical Engineering <i>Richard Fragaszy, NSF</i> Hazard Mitigation and Structural Systems <i>M. P. Singh, NSF</i> Infrastructure Management and Extreme Events <i>Dennis Wenger, NSF</i> <p>The Resilient and Sustainable Infrastructures Cluster supports research to advance fundamental knowledge and innovation for resilient and</p>	Room 104



SCHEDULE

Tuesday, January 4, 2011

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		<p>sustainable civil infrastructure and distributed infrastructure networks. The Cluster funds research on geotechnical, structural, and earthquake engineering; distributed infrastructure systems management; and response to hazardous events. Research on social, behavioral, and economic issues related to natural and technological hazards is also invited. The Cluster plays a major role in the National Earthquake Hazards Reduction Program (NEHRP), created by Congress by the Earthquake Hazards Reduction Act of 1977.</p> <p>Systems Engineering and Design</p> <ul style="list-style-type: none"> Control Systems and Dynamical Systems <i>Eduardo Misawa, NSF</i> Engineering Design and Innovation <i>Christina Bloebaum, NSF</i> Operations Research <i>Michael Fu, NSF</i> Sensors and Sensing Systems <i>Shih-Chi Liu, NSF</i> Service Enterprise Systems <i>Russell Barton, NSF</i> <p>The Systems Engineering and Design Cluster supports fundamental research on the decision-making aspects of engineering, including design, control, and optimization as applied at levels ranging from component to enterprise systems. Supported research examples include sensors, sensing, and the use of sensor data in decision-making and control, and extends to service enterprise systems that address healthcare delivery. Support is provided to enable advances in engineering decision-making, optimization, and control, and their application to engineered systems.</p>	Room 105
5:30 p.m.	7:00 p.m.	Student Poster Session	Exhibit Hall BCD
7:00 p.m.	9:00 p.m.	Opening Reception	Renaissance Waverly Hotel-Garden Court

SCHEDULE

Wednesday, January 5, 2011

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7:30 a.m.	5:30 p.m.	Registration and Information Desk Open	Exhibit Hall Concourse
7:30 a.m.	8:30 a.m.	Continental Breakfast	Ballroom Prefunction
8:30 a.m.	10:00 a.m.	Opening Plenary Session—Welcome <i>G. P. "Bud" Peterson, President, Georgia Tech</i> <i>Phil Gingrey, M.D., U.S. Representative, State of Georgia</i> <i>Steven McKnight, Division Director, CMMI, NSF</i> Keynote Speaker <i>Dan Arvizu, Director, National Renewable Energy Laboratory</i>	Ballroom
10:00 a.m.	10:30 a.m.	Morning Break	Exhibit Hall Concourse
10:00 a.m.	11:00 a.m.	Poster Session 1a (Group A)	Exhibit Hall CD
11:00 a.m.	12:00 p.m.	Poster Session 1b (Group B)	Exhibit Hall BCD
11:30 a.m.	1:00 p.m.	Lunch	Exhibit Hall A
12:30 p.m.	1:30 p.m.	Poster Session 2a (Group C)	Exhibit Hall BCD
1:30 p.m.	2:30 p.m.	Poster Session 2b (Group D)	Exhibit Hall BCD
2:00 p.m.	6:30 p.m.	Scheduled Technical Tours (See page 27 for descriptions)	
2:15 p.m.	2:45 p.m.	Afternoon Break	Exhibit Hall Concourse
2:45 p.m.	4:00 p.m.	Parallel Sessions Research Needs Emerging from the 2010 Haiti and Chile Earthquakes <i>Joy Pauschke, NSF</i> <i>Dennis Wenger, NSF</i> <i>Moderator: Jay Berger, Earthquake Engineering Research Institute (EERI)</i> On August 19, 2010, and September 30–October 1, 2010, workshops were held at NSF to identify research areas emerging from NSF-supported post-earthquake investigations of the magnitude 8.8	Room 104



SCHEDULE

Wednesday, January 5, 2011

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		<p>Chile earthquake on February 27, 2010, and the magnitude 7.0 Haiti earthquake on January 12, 2010, respectively. These two earthquakes rank among the top five in terms of earthquake magnitude size and number of fatalities. This session will summarize new research areas for U.S. hazard mitigation based on the post-earthquake investigations following these two earthquakes.</p> <ul style="list-style-type: none"> • Overview of 2010 Earthquake Reconnaissance and Research Needs Workshops <i>Jay Berger, Executive Director, EERI</i> • 12 January 2010 Haiti Earthquake <i>Reginald DesRoches, Professor and Associate Chair, School of Civil and Environmental Engineering, Georgia Tech</i> <i>Liesel Ritchie, Assistant Director for Research, Natural Hazards Center, University of Colorado, Boulder</i> • 27 February 2010 Chile Earthquake <i>Roberto Leon, Professor, School of Civil and Environmental Engineering, Georgia Tech</i> <i>David Frost, Professor, School of Civil and Environmental Engineering; Director, Georgia Tech Savannah; and Vice Provost, Georgia Tech</i> 	
		<p>Interdisciplinary Research (IDR) Update <i>Bruce Kramer, NSF</i></p> <p>The Interdisciplinary Research (IDR) Program of the Directorate for Engineering has been evolving mechanisms for funding interdisciplinary projects. These projects typically require the collaboration of multiple investigators to transfer knowledge between disciplines or investigate phenomena touching multiple disciplines. This session will provide a brief overview of the FY 2010 IDR Program, the current status of the FY 2011 Program, and an opportunity for discussion and comments.</p>	Room 103
		<p>Perspectives on Energy Manufacturing <i>Steve Danyluk, Georgia Tech</i> <i>Matthew J. Realff, Georgia Tech</i> <i>Kornel Ehmann, Northwestern University</i> <i>Leon McGinnis, Georgia Tech</i></p> <p>This session will discuss research opportunities in the area of manufacturing energy. It will address the topics of creating large surface areas with nano/microstructures, systems issues in manufacturing energy at large scale, and the separation of dilute liquid systems.</p>	Room 113/114

SCHEDULE

Wednesday, January 5, 2011

Begin Time	End Time	Event	Location
		Industry-University Research—GOALI and SBIR Programs <i>Don Senich, NSF</i> <p>A major objective of NSF is to improve the nation's capacity for intellectual and economic growth. It does this by supporting the discovery of new knowledge and the enhancement of a skilled workforce. One mechanism is the GOALI initiative, which aims to synergize industry-university partnerships by making funds available to support an eclectic mix of industry-university linkages. A second mechanism is the SBIR/STTR initiative aimed to harness the Small Business High Tech resources to meet national innovation goals. This session will address objectives, experiences, and opportunities in these efforts.</p>	Room 105
		Ph.D. and Beyond <i>Matthew Carnavos, NSF</i> <p>Unsure where your academic studies will take you after you earn your doctorate? Both new and seasoned researchers will discuss topics such as how to achieve your first academic position, how to begin a research program, and the merits of a postdoctoral position as part of a panel discussion on beginning a career as an academic researcher. Additionally, foreign-educated researchers will discuss how they brought their expertise to the U.S. as well as issues concerning visas and other important documentation.</p>	Ballroom
		Bio-Inspired Technology <i>Alison Flatau, University of Maryland (Co-chair)</i> <i>Xingwei (Vivian) Wang, University of Massachusetts, Lowell (Co-chair)</i> <i>Kenneth J. Loh, University of California, Davis</i> <i>Anbo Wany, Virginia Polytechnic Institute and State University</i> <i>Yang Wang, Georgia Tech</i> <p>Researchers in the civil and mechanical engineering fields have been advancing the state of the art in sensing and actuation technologies over the past 3 decades. While micro- and nanotechnologies have yielded many high performance sensors and actuators, technology development has generally slowed in recent years due to bottlenecks associated with current design and development paradigms. To overcome these limitations, engineers have begun to closely study the sensing and actuation systems naturally found in biological systems. This move toward bio-inspiration is due to the fact that nature has evolved over millennia to offer functionally efficient sensing and actuation mechanisms at almost all length scales. This session is intended to highlight NSF-funded research in the development of next-generation sensing and actuation technologies based on the principles of biological</p>	Room 102



SCHEDULE

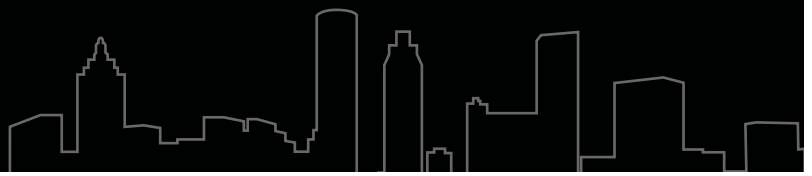
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		<p>systems. The highlighted research in bio-inspired sensing and actuation will specifically focus on technologies aimed to attain broader impact in addressing complex societal problems such as aging infrastructure and structural health monitoring, among many others. In addition, this session will emphasize efforts to modernize current engineering and biological science curricula to train a cadre of students capable of leading the ongoing bio-inspired engineering revolution.</p> <p>Agenda for the Design of Large Scale Complex Engineered Systems in the EDI Program <i>Christina Bloebaum, NSF</i></p> <p>The Engineering Design and Innovation (EDI) Program has supported several workshops in a series pertaining to the Design of Large Scale Complex Engineered Systems. This session will provide an overview of the workshops held as well as identify key research challenges that provide opportunities for individual and collaborative research efforts in the EDI program as well as other programs across NSF.</p>	Room 106
		<p>Data Management Plan <i>Abhijit Deshmukh, Purdue University</i></p> <p>The latest revision of NSF's Grant Proposal Guide (GPG) requires that all proposals submitted to NSF after January 18, 2011 should address the management of data generated by the research projects. This session will present different perspectives of this new requirement and provide a forum for discussing the data management plans relevant to CMMI PIs.</p>	Room 117/118
2:45 p.m.	5:30 p.m.	<p>Parallel Session</p> <p>Multiscale Fundamentals Debate <i>Glaucio Paulino, NSF</i> <i>Moderator: Steven McKnight, NSF</i></p> <p>While individual experts in mechanics, computations, materials, physics, and mathematics have on occasion identified specific problems and issues in multiscale modeling and advocated potential new directions, there has been only limited success in developing a systematic rational, mathematically and scientifically rigorous approach to the field of multiscale modeling, especially in the context of multifunctional nonlinear response. This session will be a panel discussion on the fundamentals of multiscale techniques. The audience will be comprised of researchers who apply multiscale modeling to problems in science and engineering. The purpose of the panel discussion is to address the fundamental advances needed in the field and to promote collaboration among the participants.</p>	Room 115/116

SCHEDULE

Wednesday, January 5, 2011

Begin Time	End Time	Event	Location
4:15 p.m.	5:30 p.m.	Parallel Sessions	
		Sustainable Design and Manufacturing	Room 104
		<i>Bert Bras, Georgia Tech</i>	
		<i>Delcie Durham, University of South Florida</i>	
		<i>Tim Gutowski, Massachusetts Institute of Technology</i>	
		<i>Deborah Thurston, University of Illinois, Urbana-Champaign</i>	
		<i>John Sutherland, Purdue University</i>	
		<p>It has been 10 years since NSF co-sponsored an international benchmarking study on environmentally benign manufacturing. In this session, some of the members of the original study group will participate in a panel discussion on what has changed over the last 10 years in this area. They will also discuss findings of recent NSF sponsored workshops in the area of sustainable design and manufacturing.</p>	
		NSF-Wide Cross-Disciplinary Opportunities Update	Room 103
		<i>Clark Cooper, NSF</i>	
		<i>Eduardo Misawa, NSF</i>	
		<p>NSF has several cross-disciplinary programs that are relevant to CMMI PIs. This session will provide an overview and update on several of these programs that provide opportunities to develop innovative and exciting cross-disciplinary research projects.</p>	
		NIST Technology Innovation Program (TIP): Accelerating Transformational Innovation and Research for Critical National Needs	Room 113/114
		<i>Lorel Wisniewski, Acting Director, TIP, National Institute of Standards and Technology (NIST)</i>	
		<i>Daniel Inman, Center for Intelligent Material Systems and Structures, Virginia Polytechnic Institute and State University</i>	
		<i>Mohammed Ettouney, Weidlinger Associates, Inc.</i>	
		<i>Donald Senich, NSF</i>	
		<i>Moderator: Bruce Kramer, NSF</i>	
		<p>This panel will introduce and discuss the NIST Technology Innovation Program (TIP), its role in funding transformational innovation and research in areas of critical national need, and how it can complement and leverage NSF engineering programs and funding.</p>	



SCHEDULE

Wednesday, January 5, 2011

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		Interagency Perspective on Systems Engineering <i>Christina Bloebaum, NSF</i> <i>Anna-Maria McGowan, NASA Langley Research Center</i> <p>Failures pertaining to the processes used to design and build large-scale complex engineered systems (such as aircraft) have been of keen interest across Federal agencies. In this panel, parties from various agencies will provide their viewpoints on these critical issues as well as discuss opportunities for the research community.</p>	Room 106
		Communicating Research Within a Changing Media Landscape <i>Josh Chamot, NSF</i> <p>As the internet continues to redefine how people gather and disseminate information, new communication challenges, and opportunities, are emerging. In this session, participants will learn how NSF is developing new products and partnerships with NBC, CBS, LiveScience.com, and others to reach broader audiences in the new media landscape, and how they can work with NSF to publicize their work.</p>	Room 117/118
		Catalyzing Broader Impacts and Global Diversity <i>Omnia El-Hakim, NSF</i> <i>Gilda Barabino, Georgia Tech, Minority Faculty Professional Development</i> <i>Mary Lynn Realff, Georgia Tech, WIRES</i> <p>NSF is committed to broadening participation and reaching out to women, underrepresented groups, and persons with disabilities. The Directorate of Engineering continues to support and initiate new activities such as Broadening Participation Research Initiation Grants in Engineering (BRIGE), Graduate Research Diversity Supplements (GRDS), and numerous diversity workshops such as the Women's International Research Engineering Summit (WIRES) to enhance partnership and collaboration among local and international women and underrepresented groups. In this session, new diversity opportunities and best practices in diversity programs will be discussed. NSF's strategic goal of broadening participation of the scientific engineering workforce will be reviewed and funding opportunities at NSF to support global diversity through international components of research grants will be presented.</p>	Room 102

SCHEDULE

Wednesday, January 5, 2011

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		Industry's Perspective on the Factory of the Future <i>Richard Cowan, Manufacturing Research Center, Georgia Tech</i> <i>Invited Representatives from Industry</i> <p>As it has in the past, manufacturing in the future will require aerospace and auto companies to produce consistently excellent outcomes for its customers. Methods to manage production, quality, cost, cycle time, and safety have been critical in past decades, and they will continue to be so in the future. Investment in manufacturing technologies will be required to maintain competitive edge, while keeping costs down and supply chains lean as desired volumes are produced. This session will draw on the expertise of industrial leaders to examine what applications are emerging, what technological developments show promise, and what research is needed to provide a better understanding of the factory of the future and its implications for the existing social and economic order.</p>	Room 105
5:30 p.m.	7:00 p.m.	NSF Program Directors' Office Hours <i>Make appointments at the NSF Information Desk in the Exhibit Hall Concourse</i>	Rooms 107, 108, 109
6:00 p.m.	9:00 p.m.	Faculty/Student Mixer (Pre-Registration Required) <i>Transportation for this event will depart and return from the East Concourse entrance of the CGC</i>	Georgia Tech Student Center



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Thursday, January 6, 2011

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7:30 a.m.	5:30 p.m.	Registration and Information Desk Open	Exhibit Hall Concourse
7:30 a.m.	8:30 a.m.	Continental Breakfast	Ballroom Prefunction
8:30 a.m.	9:00 a.m.	Plenary Session Keynote Speaker <i>Jeff Seabright, Vice President, Environment and Water Resources, The Coca-Cola Company</i>	Ballroom
9:00 a.m.	10:00 a.m.	Parallel Sessions	
		NIST Technology Innovation Program (TIP): New Topics in Manufacturing <i>Thomas Wiggins, TIP, National Institute of Standards and Technology (NIST)</i> The purpose of this session is to discuss a new societal challenge topic under development at TIP and to solicit attendee views on it and other societal challenge topics and key roadblocks as input to the TIP topic selection process.	Room 102
		Update on the State of Dynamical Systems <i>Eduardo Misawa, NSF</i> The Dynamical Systems program is completing 5 years of its existence, and this session will provide some basic statistics describing the evolution of this program. It also will include a briefing and follow-up discussion of outcomes from the "New Directions in Dynamical Systems" pre-conference workshop.	Room 103
		The Role of Value in the Design Process <i>Chair: Paul Collopy, Value-Driven Design Institute</i> <i>Ali Abbas, University of Illinois, Urbana-Champaign</i> A fundamental change in engineering design and systems engineering over the past two decades has been the shift from requirements-focused problem solving to a new paradigm of making good design decisions to realize value. While the decision process has been thoroughly studied, crisp approaches to measuring, conveying, and using notions of value are only now being broached. This session will discuss new research on the use of value in design within the context of a series of workshops being conducted by CMMI.	Room 106

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		10 Years of the National Nanotechnology Initiative (NNI) <i>Charalabos Doumanidis, NSF</i> <p>This session will highlight research achievements in nanotechnology through NNI funding by NSF over the past decade, with emphasis in scalable nanomanufacturing platforms at major Nanoscale Science and Engineering Centers (NSEC) in nanoscale manufacturing. It also will project research challenges and opportunities in nanomanufacturing for the upcoming future and will propose partnership pathways between academe, industry, and government in order to address them. Short presentations by NSEC Directors and information by the NSF Nanomanufacturing Program will be followed by panel discussion.</p>	Room 104
		Resilience and Vulnerability Observatory Network (RAVON) <i>Dennis Wenger, NSF</i> <p>Due to a variety of physical and social factors, the threat of devastating natural and technological disasters appears to be on the rise. NSF is considering starting a new program on Disaster Resilience, Vulnerability, and Risk Reduction. Three directorates within NSF—Engineering, Geosciences, and Social, Behavioral and Economic Sciences (SBE)—are proposing this initiative. These directorates want to construct an interdisciplinary program that will advance our knowledge of the fundamental physical and social processes associated with specific natural and technological hazards in order to better understand the causes, interdependencies, impacts, and cumulative effects of these hazards on the physical, built, and social environments. This program may support a network of research sites that will assess the levels of physical and social vulnerability and resilient capacity of areas across a variety of hazards. The network would construct a comparative data base for research. The overall goal is to develop measures and monitor levels of physical and social vulnerability and resilience. This session will discuss this issue.</p>	Room 105
		Manufacturing Research from 30,000 feet—What Is the Government Doing? <i>Warren DeVries, University of Maryland, Baltimore County</i> <i>Sridhar Kota, Assistant Director, Advanced Manufacturing, OSTP</i> <i>Howard Harary, Manufacturing Engineering Laboratory, NIST</i> <p>This session will look at the role of the Federal Government in promoting research and innovation in manufacturing. It will consist of three brief presentations followed by a panel session to discuss the</p>	Ballroom



SCHEDULE

Thursday, January 6, 2011

Begin Time	End Time	Event	Location
		<p>proposed role of the Government in manufacturing over the next decade and debate the efficacy of alternative priorities.</p> <p>Broader Impacts: Expanding the Industrial Knowledge Base</p> <p><i>David Cranmer, NIST Manufacturing Extension Partnership</i></p> <p>When planning for broader impacts, investigators often think of promoting teaching, training, and learning by traditional channels: K-12, undergraduate, and graduate education. For the rare cases when investigators plan teaching, training, and learning for industry, the delivery method is usually through traditional university mechanisms: centers, workshops, executive programs, and distance education. This session focuses on opportunities to expand the industrial knowledge base in other ways, in particular, partnering with government agencies and other programs that deliver industrial training directly to companies (either on-site or at other locations).</p>	Room 113/114
		<p>Tell Us What You Think</p> <p><i>Steven McKnight, NSF</i></p> <p>The purpose of this session is to help us align more with the needs and desires of our research communities. We invite you to tell us what you think about CMMI, its research programs, emphasis areas, proposal processing processes, and whatever else you would like to say. The session will begin with formal statements submitted to NSF in advance. During any remaining time in the session, we will take comments from the floor.</p>	Room 115/116
10:00 a.m.	10:30 a.m.	Morning Break	Exhibit Hall Concourse
10:00 a.m.	2:30 p.m.	Student Outreach Exhibits	Exhibit Hall BCD
10:00 a.m.	11:00 a.m.	Poster Session 3a (Group C)	Exhibit Hall BCD
11:00 a.m.	12:00 p.m.	Poster Session 3b (Group D)	Exhibit Hall BCD
11:30 a.m.	1:00 p.m.	Lunch	Exhibit Hall A
12:30 p.m.	1:30 p.m.	Poster Session 4a (Group A)	Exhibit Hall BCD
1:30 p.m.	2:30 p.m.	Poster Session 4b (Group B)	Exhibit Hall BCD

SCHEDULE

Thursday, January 6, 2011

Begin Time	End Time	Event	Location
2:00 p.m.	6:00 p.m.	Scheduled Technical Tours (see page 27 for descriptions)	
2:15 p.m.	2:45 p.m.	Afternoon Break	Exhibit Hall Concourse
2:40 p.m.	5:30 p.m.	NSF Program Directors' Office Hours <i>Make appointments at the NSF Information Desk in the Exhibit Hall Concourse</i>	Rooms 107, 108, 109, 110, 111, 112
7:00 p.m.	9:00 p.m.	Conference Banquet <i>Sustaining Gorillas: How Science, Economics, and Society Interface to Save a Species</i> <i>Tara Stoinski, Manager, Conservation Partnerships Zoo Atlanta; and</i> <i>Pat and Forrest McGrath Chair of Research and Conservation,</i> <i>The Dian Fossey Gorilla Fund International</i>	Renaissance Waverly Hotel—Grand Ballroom



SCHEDULE

Friday, January 7, 2011

Begin Time	End Time	Event	Location
7:30 a.m.	2:30 p.m.	Registration and Information Desk Open	Exhibit Hall Concourse
7:30 a.m.	8:15 a.m.	Continental Breakfast	Ballroom Prefunction
8:15 a.m.	10:00 a.m.	Plenary Session Top Advances from CMMI-Funded Research <ul style="list-style-type: none"> • Mechanics of Stretchable Electronics <i>Y. Huang, Northwestern University</i> • Controlled Rocking of Steel-Framed Buildings with Replaceable Energy Dissipating Fuses <i>Gregory Deierlein, Stanford University</i> • The Future of NanoManufacturing <i>Placid Ferreira, University of Illinois, Urbana-Champaign</i> • Advances in Atomic Force Microscopy Enabled by Dynamical Systems and Cyber Infrastructure Approaches <i>Arvind Raman, Purdue University</i> CMMI Division Director Future Directions Announcement of Next Conference Venue	Ballroom
10:00 a.m.	10:30 a.m.	Morning Break	Exhibit Hall Concourse
10:00 a.m.	11:00 a.m.	Poster Session 5a (Group A)	Exhibit Hall BCD
11:00 a.m.	12:00 p.m.	Poster Session 5b (Group B)	Exhibit Hall BCD
11:30 a.m.	1:00 p.m.	Lunch	Exhibit Hall A
12:30 p.m.	1:30 p.m.	Poster Session 6a (Group C)	Exhibit Hall BCD
1:30 p.m.	2:30 p.m.	Poster Session 6b (Group D)	Exhibit Hall BCD
2:15 p.m.	2:45 p.m.	Afternoon Break	Exhibit Hall Concourse
2:30 p.m.	4:00 p.m.	Poster Tear-down <i>Any poster not removed by 5:00 p.m. will be discarded</i>	Exhibit Hall BCD

SCHEDULE

Friday, January 7, 2011

Begin Time	End Time	Event	Location
2:40 p.m.	5:30 p.m.	NSF Program Directors' Office Hours <i>Make appointments at the NSF Information Desk in the Exhibit Hall Concourse</i>	Rooms 107, 108, 109, 110, 111, 112